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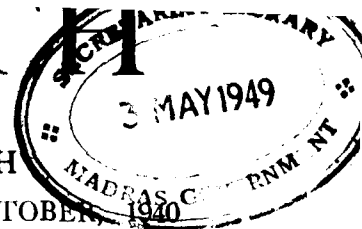
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Editorial 69282

The President, 1940-41

Sincere thanks as well as the customary congratulations are due to Dr. F. T. H. Wood on his commencing his second successive year as President of the Society. In these grim but inspiring times the chief office of the Society is no sinecure and lacks the usual outward compensations, but Dr. Wood will, we hope, understand that his colleagues honour him all the more for undertaking a second term in present circumstances. Perhaps not all members of the Society realise how much useful work has been accomplished during the past session to untangle difficulties arising from the war and to safeguard the proper interests of the public health service. Apart from the much debated questions of A.R.P. casualty and hospital services which are now being put to the tests of reality, the Society has taken an active part in instigating discussions with the Government departments and associations of local authorities on current matters of great importance to the public health service, such as supplementation of pay for medical officers temporarily with the fighting services, appointments to vacancies occurring during the war, payment of cost-of-living bonus and so on. In all these matters Dr. Wood has been concerned and has unsparingly given of his time and knowledge of affairs.

Our President has contributed to the Educational Number of the *Medical Officer* (the issue of September 7th) an interesting article entitled "The Public Health Service in War-Time," which explains to the prospective entrants to the service the special duties connected with Civil Defence and evacuation which have been the most serious additions to the work of health departments in the past year. Dr. Wood reminds us that the conditions prevailing in war-time in no way detract from the desirability of membership of professional associations and reminds his readers that both the Society and the B.M.A. have continued to watch over and foster the interests of public health medical officers. In his concluding paragraph he points out that entry to the public health service now carries with it not less, but more, prospect of interesting and useful service to the community as there is in evolution a new form of medical service in which the special experience and qualities of the public health administrator will be called upon to play a greater part. We fully share his view that a post war period of public medicine will be one of great opportunities and responsibilities, and we are glad that he continues at the head of the Society at a time when thought and planning for the future is under way.

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The Future of British Medicine

There were indications that, but for the outbreak of war, the Government of this country would soon have had to turn its mind to the state of our medical services. It has been widely recognised that the great changes brought about by the transfer of Poor Law functions resulting from the Local Government Act, 1929, were a beginning and not a consummation of the reforms which medicine needs if it is to give to the people the best service of which it is capable. Even before that administrative change took place the Royal Commission on National Health Insurance of 1926 had expressed the view that extension of medical service to dependants of insured persons should be among the first developments to be made. The Report of the Committee on Scottish Health Services in 1936 emphasised the need for more comprehensive clinical provision for extended beneficiaries than that afforded through National Health Insurance, and made suggestions for its co-ordination with the public health and hospital services. In 1938 the B.M.A. revised and amplified its proposals for a General Medical Service for the Nation, first published in 1929, reiterating views similar to those of the Scottish Departmental Committee, but without offering any opinion as to the cost being met by insurance. At the Annual Representative Meeting of the B.M.A. held at Aberdeen in July, 1939, a motion was carried which called upon the Council to consider a scheme of medical service involving salaries and pensions, administered in conjunction with hospitals on a regional basis by an *ad hoc* body. The Sankey Commission set up by the British Hospitals Association had already reported in favour of regionalisation of voluntary hospitals in 1937 and these proposals have crystallised, as the result of Lord Nuffield's munificence, in the formation of the Nuffield Provincial Hospitals Trust for the promotion of co-operation in regions not only of voluntary but also of municipal hospital authorities. The closely allied problems of nursing were dealt with in 1939 by an Interim Report of the Interdepartmental Committee on Nursing Services whose deliberations and the issue of its final report were interrupted by the outbreak of war. On the local government side somewhat revolutionary proposals for a reshuffling of authorities had been made in 1937 by the Royal Commission on Local Government in the Tyneside, and a discussion at the Royal Sanitary Institute Congress in Scarborough in July, 1938, indicated that experienced medical officers of health and others concerned with local administration were thinking in terms of bigger units for the management of the modern medical services.

The history of government shows that such rumblings of dissatisfaction cannot be indefinitely ignored, and that piecemeal reforms can postpone a major reconstruction for only a limited time. The intervention of war has shown that the Government accepts the thesis that individualism in voluntary and municipal hospital management is ineffective, since it has been overridden to some extent by the almost equally objectionable Emergency Hospital Service under central administration; and it has been found necessary to charge the Medical Research Council with the duty of covering the whole country with a network of epidemiological

laboratories. Many of the undesirable features of the Emergency Hospital Service might have been avoided if the kind of regional organisation had come into being which the Nuffield Trust is now fostering, and which presumably could have functioned without the laborious creaking of cog-wheels resounding from the unwieldy central machine.

So far as the medical profession is concerned the situation may be pressing at the conclusion of hostilities. It is true that fewer men have been required for the fighting services than might have been expected, largely as the result of the course the war has recently taken. But the moderation of these requirements may not continue, and as the emergency is prolonged the protection of the practices of those who have gone is likely to prove increasingly difficult. Moreover, men have had to be transferred within the civilian field from the areas in which they had established themselves, in some of which the restoration of normal conditions may not be immediate after the war. To these have to be added the young men and women whose diversion from the normal channels of entry into remunerative practice will not be easily readjusted when the time comes. Difficulties of this kind were acute in 1919-20 and the inclination to a salaried service was then widespread. It is safe to say that both among established practitioners and young graduates there are many more who contemplate with favour the orderliness and security of a service than there were twenty years ago. Among consultants and specialists, too, the inclination of the public for hospitalisation and the other benefits which team work affords is undermining their former predilection for private competitive enterprise in medicine, though the state of Harley Street may not be quite as black as the "Lancet Commissioner" has painted it.

It does not necessarily follow that the kind of reconstruction which may appear to be desirable at the conclusion of a period of disorganisation will be best in the long run for the public and the profession. The present and the possible future circumstances require to be carefully studied and if it appears that fundamental changes should be made they should be planned in such a way that they can be brought into being in an orderly fashion. While such reforms cannot be determined by the medical profession they are able, from their intimate knowledge of the problems involved, to point the direction along which such changes should be guided. Although no official announcement has been made at the time of writing, it is believed that the B.M.A. is alive to the situation and contemplates the inauguration of a minute and extended examination into the repercussions of the war on medical practice in all its aspects, to assist in which not only those would be invited who have subscribed to the orthodox and majority views of the profession in the past. In the meantime the Medical Practitioners' Union has broadcast a memorandum apparently accepting the inevitability of a salaried State medical service for "Home Treatment" which bears the stamp of hasty preparation and leaves most of the important issues in the air. It is evident that the time has come for a comprehensive examination of the subject and the public health service has important contributions to make to it when it is undertaken.

The Society's Arrangements

After consultation with other officers of the Society, the President thought it advisable to cancel the meeting of Council fixed for September 20th. With his approval the chairman of the General Purposes Committee had previously postponed the Committee meeting called for September 6th. In arriving at these decisions the President had in mind the heavy work of Council members arising out of present circumstances in their various localities, and the probability that meetings in London just now might be disturbed by enemy action, involving waste of time for the few members who found it possible to attend. He was further influenced by the appeal of the Government for avoidance of travel to London except on matters of great urgency. By direction of the President papers in reference to matters of current importance have been circulated for the information of members of Council. In the absence of any overwhelming reason for postponement the Annual General Meeting of the Society will be held in London during November in accordance with Article 29 of the Articles of Association.

Feeding the Nation

"The Nation's Larder" is a reproduction of a series of lectures delivered by Professor Drummond, Sir Robert McCarrison, Sir John Orr and other nutritional experts at the Royal Institution to spread more widely a working knowledge of the fundamental principles of nutrition. Although technical terms have been avoided to a considerable extent, and simplicity of expression employed, it is doubtful if it will fulfil the publishers' note of being of great help to the housewife, as the lectures are too theoretical in tone and hardly on sufficiently practical lines. The lectures will be, however, of extreme utility to teachers and workers who wish to understand these food problems clearly and as a basis upon which to provide practical instruction. For this purpose the volume is to be warmly recommended.

The lectures are valuable to the medical officers of health as showing the tendency of nutritional experts to come more into line than in the past and to present a fairly uniform nutritional programme. For example, Drummond says "Ensure a basic intake of essential protective foods for your population and, after that one need have few cares as to what is eaten." McCarrison, lecturing from a different angle, arrives as a similar conclusion when he states, "Imperfection of the function of nutrition and the ailments resulting from it, can be prevented by the use throughout life of a diet into which milk and its products, fresh green vegetables, root vegetables, particularly potatoes, and

* "The Nation's Larder." Reproduction of a series of lectures by Professor J. C. Drummond, Dr. J. C. Spence, Sir Frederick Keeble, Sir John Orr, Sir Robert McCarrison, Dr. L. H. Lampitt, Professor V. H. Mottram and Dr. Franklin Kidd. With a preface by Sir William Bragg, O.M., Pres. R.S., Director of the Royal Institution. With a letter from the Minister of Food (The Rt. Hon. Lord Woolton). London: G. Bell & Son, Ltd. 1940. Pp. v+144. Price 2s. 6d. net.

whole cereal grain, either in the form of oatmeal or wholemeal bread, or both, enter largely." Orr emphasises the same point of view, but stresses the need of the provision of a diet fully adequate for health for every family. Sir Frederick Keeble, dealing with the home production of food, stresses the importance of increasing the level of food production, emphasising the protective foods, and indicates the lines along which considerable improvements can be effected. The same attitude runs through Professor Mottram's lecture, who deals more with individual foods and their use by the housewife.

While there are considerable lacunae in our knowledge and some matters of importance are still in the controversial stage, there is a clear consensus of expert opinion as to basic nutritional needs. There is also almost complete agreement that while many factors are essential in the preservation of health the paramount factor is an adequate supply of the right kinds of food. This conception has not yet passed into administrative action, except to a very partial extent for little children and for school children. Since admittedly nutrition is of more health significance than housing or most of the other things upon which we spend money, it is surely time that administrative public health activities should include consideration on very practical lines to ensure that an adequate standard of nutrition is at least available to everyone and to take still further steps to make clear to everyone what are the essentials of proper nutrition. Obviously, this extends very materially the range of our activities and includes, for example, active participation in discussions as to the reduction in the costs of production and distribution and any factors which make essential foods available at a lower cost. There is, however, no escape from the conclusion that the provision for everyone of an adequate (quantitatively and qualitatively) supply of food should be in the forefront of our endeavours. After the war to translate this conception into administrative action may well be included in every public health programme.

A review, which summarises the general arguments of the various speakers in the series of lectures, will be found on pages 14 to 16 of this issue.

Casualty and Health Problems of Air Raids

Although it was generally anticipated that Local Authorities would look to their Medical Officers of Health to be responsible for the administration of the local Casualty Services in the event of war, it was long before he was specifically mentioned in any of the circulars or memoranda issued by the Central Government Departments. The first time that his existence was recognised was in the Home Office Circular of August 26th, 1938, in which it became the duty of an officer, generally the M.O.H., to be responsible for the instruction in first aid of certain A.R.P. personnel, and to nominate trained members of the Casualty Services to their duties. In many districts the services of the M.O.H. were used to a much greater extent, as he was made responsible for a wide range of duties, including the finding, equipping and staffing of First Aid Posts,

First Aid Parties, cleansing of personnel and of the clothing both of volunteers and of the general public, and the provision of ambulances. This practice probably became more generalised on the issue of A.R.P. Department Circular No. 9 in January, 1939, which emphasised the importance that Air Raid Precautions should not be treated as a matter extraneous to the ordinary functions of Local Government, but that every responsible officer of the Local Authority, e.g., the Medical Officer of Health, and Surveyor or Engineer, should be assigned his specific part of the work.

While the position of the M.O.H. as an official of his Authority was in this way clarified, there yet remained undefined the position of the Council of many County districts in relation to the County Council as the scheme-making authority. In spite of the indefiniteness of the position, however, there were very few district Medical Officers of Health who did not appreciate that on the outbreak of hostilities much of their time would be taken up by A.R.P. Before the war, though, there was no unanimity amongst them as to what their functions would be, whether they would spend their time at the Control Room or whether they would leave themselves free to visit incidents, or to visit the different stations at which the Casualty Services were working. In some areas which have been subjected to bombing the Medical Officers of Health are now in a position to answer these queries. With a view to obtaining the benefit of their experience a questionnaire was circulated to a number inviting them to answer queries raised on A.R.P. matters and health activities arising from the war.

Opinion is sharply divided as to the necessity for the presence of the M.O.H. in the Control Room, some feeling that it is only by being there that he can obtain a complete picture and so use his mobile service to the best advantage; others being of the opinion that the presence of the lay representative of the M.O.H. is sufficient, the M.O.H. himself being consulted when necessary. This latter course frees him for other duties, including that of visiting places where he can see the working of the services for which he is responsible. There is a consensus of opinion that first aid parties have carried out little first aid work—they have assisted the repair parties in recovering the injured from damaged premises, and then, after a minimal amount of first aid have arranged for their removal to a place of treatment. To such an extent has this been the practice that it has even been suggested that a merging of these two services might prove of advantage. The occurrence of much of the damage at night-time in circumstances which preclude lighting of any intensity reduces the opportunity for much first aid treatment, so that the fear of some that harm would be done by the first aid parties taking too long to attempt too much is proving unfounded. There is general agreement on the need of the presence of a doctor at many of the incidents but, as yet, beyond summoning the Mobile Unit there is no recognised way of obtaining the services of a medical practitioner in such circumstances. Although the machinery seems somewhat cumbersome—of summoning a vehicle and its personnel when what is actually required is the presence of the doctor only—it is, at the moment, the only way

of obtaining the services of the doctor, and in any event is probably the most expeditious and most certain manner. If the mobile units are to be used in this way they need to keep sufficiently close contact with the Control Centre to ensure that they could be despatched to any other incident requiring the complete unit. An alternative method of obtaining the services of a doctor would, of course, be for authority to be given to the summoning, where necessary, of a local medical practitioner by those present at the incident. This step would be facilitated by having at each Wardens' Post a list of those practitioners in the immediate neighbourhood willing to respond to a call in such circumstances.

Apart from the injuries, varying from contusions to severe mutilations, caused by falling masonry, the lesions have largely been cuts from glass, and shock, fractures not being very common. As is to be expected, first aid of some kind is given by whoever is first on the scene, whether this is the neighbour, the warden, the rescue party or the stretcher party, so that, on arrival the stretcher party might find the minor cases already directed to the nearest first aid post, and with no casualties on whom to exercise their skill until the release of trapped persons.

Most of the Medical Officers of Health in their replies expressed the opinion that the presence of the ambulance attendants is most helpful, if not even essential, being particularly welcome on a prolonged journey or if the ambulance is kept waiting at the hospital.

Much has been written on the subject of the official tourniquet sufficient, it might have been thought, to have ensured, before this, its withdrawal. Many, no doubt, would learn with relief that the application of the tourniquet has not been required with any great frequency, and, more than that, that it has not been applied to any great extent, though on those occasions when it has been used it has proved successful.

While Medical Officers of Health have been intimately associated with the A.R.P. Casualty Services, though these are in no way related to the basic functions of the Public Health Services, their experience does not appear to have been made use of to any great extent in finding solutions to problems of a character analogous to those arising in the course of their ordinary work. Apprehension is expressed as to the outcome of the present practice of using shelters, designed purely for temporary occupation, as dormitories, with the combination of the primitive arrangements of the sanitary conveniences, the vitiation of the atmosphere and the herding in these surroundings, with the association of discomfort, cold and fear on the part of the individual, of persons harbouring the causative organisms of many infections, notifiable or unnotifiable. Public Assistance Departments, apparently, to the almost complete exclusion of the Public Health Departments, have been made responsible for the arrangements for the re-housing and the feeding of the homeless, though, in some districts advantage has been taken of the knowledge and experience of those whose work it would seem is the most closely allied to these problems—the health visitor and the sanitary inspector.

EXPERIENCE GAINED IN REGARD TO AIR RAID CASUALTY AND HOSPITAL SERVICES

The central office of the Society recently sent enquiries to the medical officers of health of several areas which had had aerial attacks for observations of experience gained such as could be usefully passed on to other medical officers of health. Some of the replies received are printed below, with the necessary omissions of place names and details which might afford information to the enemy.

A further series of observations has more recently been requested from medical officers in the London area and we hope to publish in a later issue further reports which seem to be of general interest to our members.

County Borough "A" (Population about 250,000)

Herewith are certain observations upon the working of the casualty services in connection with the air raids on my borough and the neighbourhood.

The stretcher parties from the nearest depot went to the scene of the raid immediately the bombing had stopped and without waiting for any message from control. This I arranged with our controller, and when the area of bombing is known and there is a stretcher party and ambulance depot within reasonable distance this procedure will be followed as it saves much time.

By following this procedure on the Thursday raid stretcher parties were on the spot within 2½ minutes after the raiders had passed, whilst on the Sunday raids they were there in equally good time at one local aerodrome, but finding no civilian casualties there, they went immediately first to an adjoining district, where their services were not required as there were no civilian casualties, and then to another aerodrome in an adjoining district. Here my S.P. Staff Officer was the first stretcher party man to arrive and although this aerodrome is well outside our area he took charge of the whole of the casualty work. With him went one of our stretcher squads and one ambulance and motor car for sitting cases; these were soon supplemented by others. The point is that we were the first, this was because we had not waited for messages but had acted on our own initiative and notified report centre afterwards.

What appears to be necessary is some system of arranging contact between officers in charge of various incidents in order that the officer in charge of an incident, say in the housing estate, can be kept in touch with the officer in charge of an incident a ¼-mile away at the aerodrome or the works adjoining. As it was, I went to the housing estate first and during my time there was quite unaware of what was happening elsewhere. When I had finished there, then I went to the scene of the other incidents and discovered that one of them was far more serious than I had any idea of previously. It is very difficult to know how this can be done other than by means of message, and as I have now six motor cyclists attached to the stretcher

parties I propose to utilise one or more of them to act as messengers in the event of further raids in order to keep the whole services in touch.

I noticed also a tendency to summon far more parties, ambulances, etc., than were necessary at the raid on my borough. Ambulances, etc., attended from far away but there was really nothing for them to do and they were only encumbering and hindering, and would add to the total number of casualties should the enemy return for a further raid. The same happened at the aerodrome in the adjoining district; my Staff Officer reported to me that the crowd of helpers was unmanageable and that there was nobody there in charge at all to control the traffic, etc., until about 1½ hours after the raid had occurred, when an incident officer appeared. Another very great hindrance to the carrying out of the work was a crowd of curious sightseers. They collected, blocking the road and holding up my ambulances and sitting case cars, both when they were trying to get to the incident and when they were leaving the incident to take their cases to hospital and first aid post. The police appeared to be powerless to control the crowds. Work cannot be done properly in such circumstances and in addition you will appreciate that there is very great danger should the raiders return. The whole area of a raid should be curtained off and only authorised persons permitted to enter. The day after the incident the police were very strict and kept my health visitors and sanitary inspectors out of the area when I asked them to visit and see what they could do to help.

The amount of first aid that a doctor can do on the spot has so far proved to be limited. The application of a first aid dressing and the administration of morphia are the chief things that he can do. We have acted on the principle of getting the cases away from the scene as rapidly as possible and this seems to have worked well, as I have as yet had no criticisms of the work of the casualty services during either raid, in fact I have had praise for the way in which they worked. The first aid post nearest the scene worked well and smoothly. The arrangements at the hospitals also appeared to function, although at the voluntary hospital it was noticed that the majority of cases were presumed to have attended the out-patients department and not the first aid post. This is a complication, as cases which attend the out-patient department are entered on a form M.P.C. 45, which the M.O.H. does not see unless arrangements are made for him to do so; such arrangements I have made with the Secretary of the local General Hospital. If such arrangements are not made the M.O.H. only gets an incomplete picture of the number and type of the casualties. I think this should be altered. I gather that the reason for admitting most of these cases as out-patient cases was that a fee of 2s. is paid for each attendance and this is not paid if the case is attending the first aid post.

I have had fitted out at the expense of the A.R.P. Committee, who approved, a haversack for doctors to carry and which I have already found useful in the treatment of a service casualty after the Sunday raid.

The men and women of the casualty services stood up to the job splendidly and worked in close co-opera-

tion with the rescue parties over a period whilst evacuation of dead bodies was being carried out. I had at least one stretcher party standing by the whole time. We also found that the wardens in this particular district endeavoured to help to the fullest extent.

County Borough "B" (Population about 60,000)

We have only had two air raids in this borough. On the first occasion, one person was killed and one injured person died subsequently, and there were 13 minor casualties. On the second occasion two men were killed, one died soon after removal to hospital, and there were two minor casualties.

In general, our experience here has rather made us feel that there is nothing much we want to alter in the system. On both occasions it was found that calls for the assistance of the casualties services were made by wardens direct to the depots, and not through Central Control, and this would appear to be a likely possibility on future occasions in view of the saving of time when incidents occur in the close proximity to a first aid party depot.

With regard to whole-time paid personnel, I have arranged for them to be housed in two buildings near this office, so that they can be called out at any time of the day or night at a moment's notice. This change was brought about following the first air raid as no warning had been given, and it was felt that in the absence of warnings there might be considerable difficulties in collecting people in sufficient numbers to deal with incidents.

On the occasion of the last raid, the three fatal casualties were men who had taken shelter under a petrol driven lorry. The petrol apparently caught fire as the result of the explosion of a bomb close by, and the men were literally burned to death while people in their houses a few yards away suffered no injuries. I feel that the public should be informed of the danger of taking shelter under or close to petrol driven vehicles.

The general experience here would seem to confirm the Government statements that a very considerable measure of safety can be obtained by the protection given in the ground floor of the ordinary dwelling house.

County Borough "C" (Population about 220,000)

(1) *Experience with regard to Air Raid Warning System.*—We have had actual air raids with anti-aircraft fire without receiving any air raid message, but so far as the casualty services have been concerned this has not hindered the dispatch of services and the treatment of casualties on account of the fact that we have had a proportion of paid personnel standing by in the various branches of the services.

(2) *Control and Report Centres.*—This town is divided into three areas for report centre purposes, and the wardens in each area are instructed to report to the appropriate report centre for their district. There is one control centre which is kept informed of the full position in an air raid. The control centre receives its reports from the three report centres. A medical officer

is stationed at the control room, whilst at each of the three report centres there is a lay representative of the medical officer of health. As a result of experience it has been found necessary to simplify the procedure in report centres, and for this purpose, immediately a message relating to casualties is received a copy is handed to the medical officer of health's lay representative, who then himself 'phones up the depots for the dispatch of services to the occurrence. This avoids writing or handing over messages from the medical officer of health's lay representative to out-going telephonists. This simplification of the report centre procedure has greatly speeded up the dispatch of services. The lay representative of the medical officer of health is also instructed to dispatch in the first instance one first aid unit, comprising of first aid party, ambulance and sitting case cars, and if necessary he will also add to this unit by dispatching a rescue party. This immediate action has therefore been taken by the lay representative. A report of such action and the nature of the occurrence is reported to the medical officer in the control centre who can, if he considers the occurrence warrants it, take further action by dispatching additional services.

(3) *Wardens' Service.* The whole of the wardens' service has been given first aid lectures, and in the majority of cases this is equivalent to a full first aid course rather than the abbreviated course suggested in the Home Office memorandum. The local authority have also supplemented the supplies of first aid equipment available at wardens' posts as they were not satisfied with the provisions made in the standard scheme. The cost of purchase for this equipment has been borne in full by the local authority as it was not recognised for Government grant. Three satchels are provided at each of the wardens' posts so that a warden may take out first aid equipment to the casualties. I am glad to say that we have had very excellent co-operation from the wardens' service in regard to first aid work, and they are very keen and enthusiastic with regard to first aid lectures.

(4) *Police Service.* The Police have not proceeded with a scheme for the appointment of incident officers to take charge at occurrences, the result being that there has been some confusion when services have arrived, especially during the hours of darkness; a particular problem being the control of vehicles.

(5) *Organisation of Casualty Services.* A special feature in the casualty services in this town is the fact that first aid parties, ambulances and sitting case cars are stationed at two main depots, while there are eight out stations to which volunteers report for duty. A system is worked by which volunteers are brought in from outlying depots to the two main depots in order to build up a "stand by" establishment. This system has been found to be very satisfactory for the quick dispatch of services as report centres have only two places to communicate with rather than a large number of outlying stations. The one difficulty is the spacing of vehicles, but we happen to be fortunately placed in this town in that we have sufficient parking space around our two main depots in order to carry out the adequate dispersal of vehicles. At the two main casualty service depots, we also have rescue parties reporting from their outlying depots, so that when a rescue service and

casualty service are called out they go out with the casualty services and this leads to simplification and efficiency in operation.

(a) *First Aid Posts.*—In regard to the work at the first aid posts, in all instances so far casualties have been dealt with at the first aid posts which are attached to existing hospitals. This has been due to the fact that they have been conveniently placed for dealing with the casualties. From the experience so far gained, it does seem necessary that the staff of a first aid post should have extensive training in the actual treatment of casualties such as can be obtained in the casualty department of a general hospital. A large number of first aid workers, however well trained, who have not had actual practical experience will never be as satisfactory as a relatively smaller staff who have a good practical background. I think that we should reduce the establishment figures for first aid posts in order to improve the quality of the staff, and this can only be done by passing them through casualty departments for training. The experience of the doctors who treated the casualties has been that the ordinary first aider is more likely to hinder actual treatment when they have not sufficient experience. For this purpose it would be desirable that all members of first aid posts should be sent to casualty departments for training and only those who can devote sufficient time to gaining this experience should be retained at first aid posts. It will inevitably lead to a reduction of staffs, but a small and efficient staff should cope with even larger numbers of casualties much better than a large volume of workers who have little knowledge of the treatment of actual patients.

(b) *Hospitals.*—The hospital accommodation has not been severely taxed and everything has worked quite smoothly. There are six casualty receiving hospitals in the town, and so far only three of these have been called upon to treat air raid casualties. The majority of the cases have been taken to the large voluntary teaching hospital. Hospital accommodation has not been taxed in any way, but some difficulty has been experienced in deciding as to whether cases should in the first instance go to the first aid post attached to the hospital or be admitted directly to the wards. A closer co-operation between the staff of the hospital and the first aid post attached to the hospital is essential and as a result of the experience gained steps have been taken to ensure prompt decisions as to the disposal of casualties.

(7) *Practical Experience of Air Raid Casualties.*—There are certain special features in relation to some of these air raids.

In the first air raid where we had casualties there were in all 14 casualties, and of these seven were killed. Each of the men who were killed suffered from extensive burns caused by the actual flash of the bomb when it exploded in the confined space in which they were working. A number of the dead had other multiple injuries.

In one air raid which occurred, one child was killed in an Anderson shelter. This shelter did not have adequate protection in front of the entrance for blast. The child sustained multiple injuries of which the most serious was a compound fracture of the tibia and fibula of one leg. A gas main was damaged in this raid, and two of the members of the rescue party were taken to

hospital suffering from carbon monoxide poisoning. This might have been prevented if there had been an incident officer to take complete control and see that members of the services did not work for any prolonged period near the discharging gas main.

In another raid which occurred, where we had 20 casualties, it should be noted that the one dead occurred in a woman who was in a bedroom immediately opposite to a house which had a direct hit. She had her head almost severed from her body, probably by shrapnel. The three serious casualties in this raid were amongst people who did not take cover and were in the roadway when the bomb fell.

In a further raid two men were seriously injured, one slightly injured on a vessel. These men were on deck and did not take cover and when a ship nearby was struck they were injured by splinters of shrapnel.

On another day one casualty occurred from flying glass, whilst two children in the standard type of Anderson shelter were uninjured in spite of the fact that the shelter was on the edge of the crater.

(8) *Repair to Damaged Property.*—A survey is made by my department immediately after air raids in order to ascertain the full extent of the damage to property and the sanitary inspectors who normally carry out work under the Housing Acts are responsible for compiling these reports.

(9) *Conclusion.*—In conclusion I should like to stress the need for (a) simplification in the ordinary procedure at report and control centres, (b) the desirability of limiting the number of depots from which services may be dispatched and (c) the need for experienced staff at first aid posts.

County Borough "D" (Population about 180,000)

During the majority of these air raid warnings, incidents have occurred producing "air raid casualties" even in the absence of enemy bombing. These casualties have been mainly in the form of street accidents and persons falling down shelters, although certain of them have been cases of shock, hysteria and collapse. These cases were mostly removed to hospital by the normal ambulance service which is operated by the Health Department.

Casualties directly due to enemy action have occurred on six occasions, and the table overleaf shows the classification of the casualties which have occurred as a result of these raids.

NATURE OF INJURIES

(1) One serious casualty occurred, due to shrapnel producing a compound fracture of the scapula and injuries to the left leg. He was moved to the Children's Hospital in a car belonging to the A.F.S. who were the first service on the scene.

Of the slight casualties, four were sheltering under the stairs of a house adjoining a garage on which a direct hit occurred. Although covered with debris, they escaped with superficial injuries. These patients were despatched to the Borough Hospital by ambulance.

One man, who did not live in the area of the above bomb, was removed to hospital, but was found to be dead on arrival.

	Slight Injuries.			Serious Injuries.			Dead.		
	Male.	Female.	Children under 16.	Male.	Female.	Children under 16.	Male.	Female.	Children under 16.
(1)	2	5	2	1	0	0	1	0	0
(2)	12	6	1	6	1	0	4	1	1
(3)	2	2	0	1	1	0	0	0	0
(4)	1	0	1	0	0	0	0	0	0
(5)	1	2	4	7	6	0	1	1	0
(6)	7	5	1	2	1	1	1	3	1
Total	25	20	9	17	9	1	7	5	2

(2) Several bombs were dropped, forming one large incident at the south end of the town. One furniture store caught fire and there were six deaths in all, of whom three bodies were found under the debris of the store; two of these bodies remaining buried until the following day since it was impossible to recover them until the fire was under control. Of the remaining deaths two were in private houses, and one in the street. Four of the dead showed severe multiple injuries, whilst the other two bodies showed little evidence of mutilation.

Of the serious casualties, two were cases of burns who were found to be severely shocked on admission to hospital. Some difficulty was experienced in extricating these patients from the burning building and the shock is attributed to this delay. There was no delay in the removal of patients to hospital once they had been removed from the building, but it appears that it might have been desirable for the above two cases to have had an injection of morphia before their transference to hospital.

One patient with laceration of the face had also a punctured wound of the thigh with venous haemorrhage. The wound of the thigh was not detected by the first aid party owing to the blood on clothes from the face wound.

Minor injuries occurred, mostly amongst persons who had failed to take shelter immediately on receipt of the air raid warning, but had waited until planes were in the vicinity.

The first aid parties arrived promptly and incident control was very good, the site lending itself admirably to the establishment of an incident post, ambulance loading point and rally point.

First aid parties and ambulances despatched were in excess of the actual needs on account of overestimating by the wardens.

(3) A bomb landed in front of a train which was proceeding slowly, three slight casualties from the train were suffering from superficial abrasions. One serious casualty was due to a motor cycle skidding in the tram lines at the time of the explosion of the bomb about a quarter of a mile away. This patient fractured both femora. All these patients received treatment at the local voluntary hospital.

(4) One slight casualty was standing about 10 yards away from the point of impact, and the bomb hurled him backwards striking his left shoulder blade against a gate post. Injuries occurred to his scapula and ribs.

He suffered from considerable shock due to blast, and was conveyed to the voluntary hospital.

A 4-inch water main was fractured, but in this case there was no damage to the sewers.

(5) A direct hit occurred on an Anderson shelter. One patient was killed immediately, the second patient died some hours afterwards from multiple injuries. One man, aged 89, who was in a house which was severely damaged, was found four hours afterwards to have slurring of his speech and increased reflexes on the left side. This case was considered to be an air raid casualty owing to the fact that no history was available of any previous cerebral thrombosis. Many minor injuries mainly due to contusions and cuts from glass occurred, and some of these were treated at the nearest Fixed First Aid Post which is about half a mile away from the scene of the incident. During this raid water mains and sewers were both damaged in an adjoining district but there was no evidence of water pollution.

(6) The five dead were all in the same Anderson shelter. A direct hit occurred on this shelter and all the bodies were very severely mutilated. One leg was thrown 30 yards from the shelter. The body of the child and a portion of the body of an adult female were found on the roof of a building 25 feet above the ground. Four slight cases of shock also occurred in another Anderson shelter situated about 10 yards from their house. The house was completely demolished by a high explosive bomb.

The majority of other casualties were due to injuries occurring whilst persons were either entering or leaving Anderson shelters.

CONCLUSIONS

Shelters.—In spite of two direct hits on Anderson shelters which resulted in a total of seven deaths, there is ample evidence of the efficiency of this shelter system. The number who have been seriously injured, including those killed, has been remarkably small relative to the amount of material damage to residential property. Persons in Anderson shelters within a few yards of bomb craters felt a considerable shock at the time of detonation, but received no serious injury nor any permanent ill effects.

Communications.—There appears to be considerable duplication in the communication system, and initial messages are very often incomplete and quite frequently incorrect. In many cases one incident has been reported from at least three different sources—wardens, police and fire brigade—each giving a slightly different

location of the occurrence. Many initial messages have indicated the presence of casualties where such did not in fact exist.

As a result of this overestimation of the number of casualties an unnecessary number of first aid parties have frequently been despatched to incidents.

First Aid Parties and Ambulances.—The work of first aid parties has been satisfactory and their time of turn-out good. The morale of the personnel, especially the female ambulance drivers, has been remarkably good when dealing with the somewhat gruesome sights which result from air raid damage. The sorting of casualties by the first aid parties is not always good, some hospital cases being taken to first aid posts, and first aid post cases taken to hospital. The sorting of these casualties is difficult for the layman, especially under air raid conditions.

The ambulances, which are conversions from private cars, have proved quite satisfactory so far.

Many patients have been found to be very shocked on arrival at hospital, notably the two cases of burns on the face. Consideration is being given to the question of warmth for the patients whilst travelling in the ambulance, but there are certain difficulties to contend with.

First Aid Posts.—Owing to the relatively small number of casualties in any one raid the first aid posts have only been used to a limited extent, but medical officers have been available at the posts when required to deal with those casualties which have occurred.

Mobile First Aid Posts.—Owing to the small number of casualties in any one district these have not so far been utilised.

Hospitals.—The hospitals have not so far received any large number of casualties from any one raid, and therefore their use up to the present time has merely been an amplification of their normal casualty service. There have, however, been sufficient casualties to demonstrate that in the event of large raids normal casualty arrangements would not be adequate, and some revision would be required when dealing with large numbers.

Hospital Treatment.—The importance of anti-shock measures is stressed, since in some cases the patients have not been fit for operation until about six hours after admission. The surgeons called to one hospital had sufficient operations to keep them occupied for this period with this small number of cases, so that the importance of further surgical teams and more operating theatres was indicated if we are to be prepared for a large number of casualties.

Mortuaries.—The temporary mortuaries are situated in elementary schools and on two occasions it has been found necessary to utilise them for the reception of the dead. These arrangements have proved adequate in dealing with the present numbers. It is important that suitable buildings should be prepared, and blacked-out beforehand. In one raid the nearest mortuary was damaged by a bomb. It was therefore necessary to utilise another one about a mile away.

Danger from Sewerage, Water Mains, etc.—The public have been warned by notices to house-holders and by press announcements of the danger of drinking water without boiling it, after an air raid, until it has been

ascertained that the water is not affected by damage to sewers. It is proposed, when any area becomes affected in this way, to utilise a loud speaker van to tour the district in order to emphasise the necessity of boiling the water in that particular area.

County Borough "E" (Population about 90,000)

The following are the points which have struck me with regard to air raids:—

(1) Steel helmets should be provided for personnel attached to first aid posts as opposed to the first aid parties. I understand now that the Government are going to make an issue for that purpose.

(2) Utility of mobile units; it has struck me that the mobile unit would be invaluable in cases where there are many casualties which cannot be removed immediately to the hospital by the ambulances, but where the casualties are few in number, the advent of the mobile unit tends to delay admission to hospitals, therefore its chief purpose is when casualties are numerous.

(3) Rescue parties should be adequate to free casualties as quickly as possible. This is a very important service and every endeavour should be made to see that it is adequate.

(4) My sanitary inspector rightly draws my attention to the fact that many of the carcasses of the animals which have been killed as a result of bombs, cannot be salvaged for food because they have not been bled at once, they tend to decompose rapidly. If N.A.R.P.A.C. were to make arrangements for bleeding these animals as soon after death as possible, it is felt that it would result in the saving of food stuff to a material extent.

Notes of a Raid in an Urban District

Deaths about 17, other casualties say 50.

(1) The casualties were not exactly recorded, for in the confusion of the moment many minor injuries went directly to their own doctor for attention.

(2) Delay in ambulances. The A.R.P. ambulances were in the market place awaiting orders from the A.R.P. controller who in turn was waiting a report from an air raid warden. Fortunately, in the meantime ambulances attached to a local hospital, private cars, hand carts and bicycles took the casualties to the local hospital.

(3) Only eleven casualties were treated at first aid posts; the rest all went to the hospital, which became seriously congested with slight cases and the drive leading to the hospital jammed.

(4) A.R.P. controller phoned all the doctors to go to the scene of disaster where there was plenty of assistance, fortunately most of them went instead direct to the hospital where they were really needed.

(5) An officer found a Salvation Army man taking away a casualty dug out from a house to have tea. He pointed out that that should not be done until it was certain what had happened to all those in that house, otherwise several people might spend time digging for a child who was having tea.

(6) A medical officer saw a dilapidated house guarded by a warden, he called out "Is anyone buried there?" the warden replied, "You musn't go in, it's dangerous."

Whereupon the officer said, "Lend me your tin hat, old man." He then lifted off the warden's hat, put it on his own head, dived into the shattered building and rescued two children.

Note by an M.O.H. on Accidents to Persons Seeking Air Raid Shelters

It is generally found throughout the country that when air raid sirens are sounded, more particularly at night, there are always a number of people who meet with accidents when hurrying to seek shelter. The subjects of these accidents in very many cases are taken to first aid posts for treatment and I have been asked by several Medical Officers of Health if these cases should be regarded as air raid casualties and returned on M.P.C.44. Should these cases be treated at the posts and is one entitled to utilise the dressings, etc., of the post?

In a reply from the Ministry of Health to these queries I am informed that:—

- (1) They should not be regarded as air raid casualties and therefore should not be entered on M.P.C.44.
- (2) The practice of bringing them to the posts should be discouraged, but where they are brought it would be unwise to turn them away without treatment.
- (3) The dressings used should be replaced under the allowance made to posts for the provision of practice material.

I think it would be desirable to make this information known to Medical Officers of Health generally as there appears to be considerable doubt on the question.

HOW TO PURIFY YOUR DRINKING WATER

A Statement Broadcast on August 18th, 1940, by Lt.-Col. E. F. W. Mackenzie, O.B.E., M.C., M.B., D.P.H., Director of Water Examination, Metropolitan Water Board.

Water undertakings throughout the country have taken all possible precautions to enable them to maintain a constant supply of pure water. In spite of this it is possible that, in places where air raids are severe, the water system may get damaged and this may result in contamination of the water, or even in a temporary interruption of the supply. Should there be any doubt about the purity of the water supplied to your district you will be notified.

It is, therefore, important that you should know in advance what to do should the water supply become contaminated, or should you find it necessary to use impure or doubtful water from wells, ponds or streams.

Drinking impure water may cause illness. Typhoid fever is one of the diseases most likely to be spread in this manner. It is a serious disease, and should it occur the patients would occupy hospital beds which might be urgently required for other purposes.

It is, therefore, the duty of every citizen to learn to do what the Army already does—to purify impure water so that it will be safe to use for drinking, for preparing foods, and for washing utensils which are to be used for food or drink.

Well, how can you do this?

It is really quite a simple matter. Firstly, you can boil the water and then it will be quite safe to use. But

supposing you can't boil the water because the gas and electricity services have also been damaged, then there is another safe, quite harmless and simple method which you can use. It is used by the Army.

Keep in your house a bottle of chlorinated soda solution. Your chemist can supply you with it. Milton or Chlor-San will do as well. Buy also a small packet of photographic hypo. These materials are cheap and can be obtained from all chemists and many stores. On no account should you use any other disinfectant for purifying water, unless you are recommended to do so by a qualified chemist.

Now, to purify your water if you can't boil it, add ten drops of chlorine disinfectant to one pint of water. (Remember that a household tumbler holds half a pint.) Stir or shake and allow to stand for not less than five minutes. Then add a crystal of hypo and stir until the hypo is dissolved. The water is then safe to drink.

If you will get a paper and pencil I will repeat these instructions very slowly.

Add ten drops of *chlorine disinfectant* to one pint of water. Stir and allow to stand for *five* minutes or longer. Then add a crystal of hypo. Dissolve this and you may then drink the water. But remember this—after purifying the water, whether by boiling or by chlorine, keep it in a clean receptacle until required for use.

For washing utensils and foods which are to be eaten uncooked, such as salads and fruits, you will require to purify a larger quantity of water, and this may be done in a clean bucket. The ordinary bucket holds about two gallons of water. To purify a bucketful add *two teaspoonfuls* of the chlorine disinfectant and stir thoroughly. After standing for five minutes or longer, add two or three crystals of hypo. The same method may be used for purifying water in larger containers, provided the disinfectant is added in the proportion of not less than *one* teaspoonful to a gallon of water, followed after the necessary five minutes interval by sufficient hypo to remove the taste of chlorine.

The disinfectants I have mentioned have been chosen because they all contain chlorine, which, although it gives an unpleasant taste to the water, is quite harmless. The hypo is added only to remove the taste of the chlorine. If you add too much chlorine or hypo it doesn't matter; if too little hypo is used you will still taste the chlorine, and if you don't like it add another crystal of hypo. You must, however, remember to add the chlorine *before* the hypo.

The reason why you must not use disinfectants other than chlorine for the purification of water supplies, unless they are recommended for this purpose by a qualified chemist, is that many of them contain substances which are harmful, or which make the water taste unpleasantly.

I want you to get these substances at once, and to try out the method once or twice in your home just to assure yourself that it is perfectly simple and that you don't object to the taste.

I hope you may never need them, but if you do you will need them badly.

[*Note by Editor.*—We understand that the Central Council for Health Education has in preparation a leaflet on lines similar to Col. Mackenzie's broadcast and that this will deal also with other aspects of hygiene in emergency.]

The Society of Medical Officers of Health.

FOUNDED 1856.

President: F. T. H. WOOD, O.B.E., M.D., B.S., B.Sc., D.P.H.

Hon. Treasurer:
G. F. BUCHAN, M.D., F.R.C.P., D.P.H.

Acting Executive Secretary:
G. S. ELLISTON, M.C., M.A., M.P.

TAVISTOCK HOUSE SOUTH,
TAVISTOCK SQUARE,
LONDON, W.C.1.

October 1st, 1940.

NOTICE.

Subscriptions for the Session 1940-41, ARE NOW DUE.

By prompt payment of their subscriptions, members can assist the Officers of the Society and save unnecessary labour and expense.

SUBSCRIPTIONS PAYABLE.

FELLOWS.

- | | |
|--|-----------------|
| (a) Whole-time Medical Officers* in the Government and Municipal Services | ... £2 2s. 0d. |
| (b) Medical Officers serving with H.M. Forces, Part-time Medical Officers, Retired Medical Officers, and Medical Practitioners* (not Officials) holding a degree or diploma in Public Health | ... £1 11s. 6d. |

ASSOCIATES

... £1 1s. 0d.

[NOTE: The Subscription of Associates elected before October 1st, 1908, is 10s. 6d. only.]

*The Society has now introduced the following reduced subscriptions for junior Fellows:—

- (1) A medical practitioner on becoming qualified for fellowship of the Society should have the full privileges of membership on payment of an annual subscription of £1 1s. during the period of three years from the date of his first becoming eligible.
- (2) A registered medical practitioner having obtained a whole-time appointment in the Public Health Service shall pay an annual subscription of £1 11s. 6d. during the period of three years from the date of such first appointment.

Extract from the Articles of Association of the Society.

All subscriptions shall be due and payable at the commencement of the Session, in October. Any Member who shall be in arrears with his subscription for more than one year shall be liable to have his name removed from the Register of the Association, and if his subscription remain unpaid for two years his name shall be removed from the Register; but he shall be liable to pay the amount of his subscription which was in arrear when he ceased to be a Member. If any new Member shall fail to pay his subscription within three months after election, his election shall be void. Provided that where such Member is resident in a foreign country or British Colony, the said period of three months shall be extended to six months after election.

Cheques should be made payable to the Society of Medical Officers of Health and crossed — " & Co." Fellows and Associates who find it a convenience to use a Permanent Cheque can obtain forms on application to the central office.

Branch and Group Elections: Session 1940-41

METROPOLITAN BRANCH.

President	Dr. Maitland Radford.
Vice-Presidents	Dr. A. G. G. Thompson.
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Hon. Treasurer	Dr. J. Macmillan.
Hon. Secretary	Dr. Vynne Borland.
Representatives on Council	Dr. Vynne Borland.
	Dr. Maitland Radford.
	Dr. A. G. G. Thompson.

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Hon. Secretary	Dr. W. G. Clark.
Representative on Council	Dr. A. S. M. Macgregor.

WELSH BRANCH.

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Hon. Secretary and Treasurer and Representative on Council ...	Dr. H. W. Catto.

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	Dr. H. Gibbons Ward.

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Hon. Assistant Secretary...	Mr. Frank Jones.
Hon. Dental Editor	Mr. K. C. B. Webster.
Representative on Council	Mr. A. G. Taylor.

YORKSHIRE BRANCH.

President	Dr. J. Sharpe.
Hon. Secretary	Dr. R. Sutherland (M.O.H., Brighouse M.B.).

An ordinary meeting of the Branch was held at the Civic Hall, Leeds, on Friday, July 26th, 1940, at 8 p.m. The President was in the chair and was supported by 14 members.

The minutes of the last meeting were read, approved and signed.

The President stated that he had satisfied himself that the accounts had been audited and certified correct and he thanked the auditors for their services.

The Secretary was instructed to write to the Secretary of the Society stating that the members of the Branch regretted that the administration of the "Supply of Milk to Mothers and Children" Scheme is not to be carried out by medical officers of health. The members present expressed their serious concern that such an important decision should have been entrusted to a single representative on behalf of, and without reference to, the Society.

The President, Dr. J. Sharpe, then gave his address on "Jaundice following Anti-Measles Inoculation in Relation to an Epidemic of Catarrhal Jaundice," which it is hoped will be published at a later date in PUBLIC HEALTH, with the subsequent discussion in which Drs. E. C. Benn, P. R. McNaught and E. D. Irvine took part.

Dr. Pickup proposed a hearty vote of thanks to the President for his interesting and instructive address, which was of a pioneering type, and moved that the paper be submitted for publication in PUBLIC HEALTH. Dr. Gibson seconded the motion and remarked on the

large amount of work that the paper represented. He also added his sincere appreciation of the manner in which the President had conducted the proceedings of the Branch throughout the session under war conditions of considerable difficulty.

The motion was carried unanimously and, in reply, the President said that he had enjoyed being President of the Branch and was proud of his office, and that he would always watch the proceedings of the Branch with the keenest interest.

The meeting of the Branch was preceded by a meeting of the Council at which the President was supported by seven members.

RECENT APPOINTMENTS IN THE PUBLIC HEALTH SERVICE

The following are some recent appointments to the health departments of various local authorities and to other bodies.

The Editor will be grateful if members of the Society will notify him at once of any new appointment.

ANDOVER M.B. & R.D. & KINGSCLERE & WHITCHURCH R.D.: M.O.H., Dr. A. A. Cockayne (A.C.M.O.H., Hants C.C.). Total salary £890 p.a.

CHATHAM M.B.: A.M.O.H. & A.S.M.O., Dr. Sheila Niall. Salary £500 p.a.

DEWSBURY C.B.: Dep. M.O.H., Dr. E. H. Tomlin (Plymouth).

FRIERN BARNET U.D.: Temp. M.O.H., Dr. W. W. Millen.

GLASGOW, CITY OF: A.M.O.H., Dr. John Winning.

HALIFAX C.B.: A.M.O., M. & C.W., Dr. Ruth M. Campbell.

HARROW U.D.: A.M.O. (A.R.P.), Dr. J. N. Morris (A.M.O.H., Hendon M.B.).

KETTERING M.B.: Temp. A.M.O.H., Dr. Edith Shannon (formerly A.M.O.H., Willesden M.B.).

LICHFIELD R.D.: M.O.H. (for duration of war), Dr. Ronald E. Johnson.

LUTON M.B.: A.M.O.H., Dr. A. L. Smallwood.

MINISTRY OF HEALTH: M.O., Dr. Mary L. Marsh (A.M.O., M. & C.W., Swansea C.B.).

RUNCORN R.D.: M.O.H. (acting), Dr. H. E. Bower.

STIRLING C.C.: Chief A.C.M.O.H., Dr. W. S. Burnet (A.M.O.H. & Chief S.M.O., City of Bradford). Salary £700-£800 p.a.

STOKE-ON-TRENT C.B.: A.M.O.H., Dr. Elizabeth J. Findlay (A.M.O.H., Hull C.B.).

Appointments in the Defence Services.

ANDERSON, L. G. (M.O.H., Docking R.D.), F./Lieut., R.A.F.

DAVIES, Quentin A. (A.D.O., Glam. C.C.), Lieut., A.D.C.

HARVEY, M. S. (A.M.O.H., Plymouth C.B.), Lieut., R.A.M.C.

BOOK REVIEWS

The Nation's Larder. Reproduction of a series of lectures by Prof. J. C. DRUMMOND, Dr. J. C. SPENCE, Sir FREDERICK KEEBLE, Sir JOHN ORR, Sir ROBERT MCCARRISON, Dr. L. H. LAMPITT, Prof. V. H. MOTTRAM and Dr. FRANKLIN KIDD. With a preface by Sir WILLIAM BRAGG, O.M., Pres. Roy. Soc., Dir. of the Royal Institution, and a letter from the Minister of Food, The Right Hon. LORD WOOLTON. London: G. Bell & Son. 1940. Pp. v + 144. Price 2s. 6d. net.

The English diet is haphazard and its present composition depends largely upon chance and the tastes that have developed with industrialisation and prosperity. Certain sections of the nation, both rich and poor, are known to be feeding faultily. In some the correct diet is unobtainable; in others it is insufficiently appreciated. Who would, in fact, believe that the child of the cowman commonly went without any milk at all or that dishes in a state of partial decomposition would be favoured by persons in a position to command the best?

In war, all is changed. England cannot expect to continue the importation of food on its present scale. In any event, war demands better physique and health than peace, and for this reason alone, fundamental changes must be made in the Englishman's diet. This indeed is becoming increasingly recognised, but everyone is not clear as to what ideal of diet a war-time people in an island position should be aiming. Many, no doubt, feel the whole question of diet is too complicated for lay persons to understand and few even of our rulers are in all probability sufficiently informed to be able to explain to their electors what line they are working on, if any, in Parliament. For this doubt and uncertainty there is no justification, for science has given the answer.

To those who seek or should be seeking further information, I would commend this set of lectures delivered at the Royal Institution of Great Britain and published under the title, "The Nation's Larder." The lecturers are among the foremost of modern scientists and their ideas are presented in simple language for those who have no special knowledge of dietetics. As is common with a series of lectures on one subject, there is inevitably repetition, but the series is of interest and contains information which would benefit not only the modern housewife but also the modern politician. In this little book the reader will learn the main principles of the new doctrine that health, physique, and growth depend upon protective foods; he will learn what these are, why they are deficient in modern diets, how diets are surveyed and compared, and how in war-time a diet rich in protective foods can be provided by co-operation between agriculture, industry and the housewife. Many people will be not a little astonished to learn that the ideal diet recommended is the simple diet of the peasant in the early 18th century who lived on wholemeal cereals, milk and milk produce, with mixed vegetables, green and tuber, and fruit, including, of course, potatoes, which had become popular at the beginning of that century.

Professor Drummond shows that the counterpart of this diet is to be found in south-eastern Europe to-day, *i.e.*, coarse whole-grain bread, thick vegetable stews and goat's milk cheese; and who to-day does not know of the breakfast introduced by Professor Schiotz to the school children of Oslo, consisting of whole-meal rolls, butter or vitaminised margarine, milk cheese and raw fruit or salad? Both the Oslo diet and the imitation which Professor Drummond tried out in the East End of London have produced results which the uninformed have found almost impossible to believe.

The sceptic who requires further convincing about the need for a diet of protective foods will be interested in the result which Sir Robert McCarrison gives of his own work on the diets and illnesses of Indian peoples. There are as many diets as there are races in India; those in the north are hardy, agile, vigorous, healthy and comparatively free from disease; those in the south and west are poor in physique and show little resistance to a great many diseases such as tuberculosis, dysentery and leprosy. In the north, the diet consists of whole-meal flour, milk, butter, vegetables and fruit; in the south and west mainly of rice from which the outer parts have, to a varying extent, been removed. Sir Robert McCarrison fed rats on the various diets and they showed the same difference in physique and disease as was apparent in humans. In particular, rats fed on the diet of the northern people remained healthy through a succession of generations, and those on the diet of the southern and western peoples were of poor physique and health. It is of interest that rats fed on a diet common among large sections of the population of England to-day, namely, low extraction white bread, imitation jam, sugar, a little milk and vegetables boiled in soda, became rapidly ill and fell to eating each other.

It is not to be expected that the evidences of defective diet will be as marked in England as in India, for, as Sir John Orr has emphasised, there is in England to-day practically no starvation, since calories are so cheap that even the poorest can obtain sufficient of them, and furthermore the evidences of advanced deficiency diseases such as scurvy, pellagra, beri-beri, night blindness and dental caries have become much less marked of late. Yet illnesses resulting from diets differing substantially from the peasant diet outlined above are legion, and it has been said that every third person among the insured sick is incapacitated by faulty feeding; sub-normal health or development are or may be almost universal in varying degree. We are, in fact, now dealing with a new standard of health and a correct diet is known to be capable of producing marked improvements in the race. Sir John Orr does not believe that differences in health and physique in different classes are hereditary.

Such properties as have now been shown to attach to the protective foods give to them somewhat of the charm of an elixir vitae. To what are these properties due? Everyone knows that sugar and fats are necessary to the human furnace in much the same way that coal is to the house fire, but the human machine differs in its dependence upon a wide range of other

substances whose function is not simply to act as a fuel but to take part in higher processes upon which health and vitality depend. Protective foods are those which contain appreciable quantities of either essential mineral salts, such as iron, calcium or phosphorus, or the complex organic compounds, which are the vitamins, for example, thiamin, ascorbic acid, calciferol, or those amino-acids which are present only in animal and not vegetable proteins.

The reader of this little book will also learn something about standards of diet from the pen of one, Sir John Orr, who has himself been most intimately concerned with large dietetic surveys. All measurement must be made by means of a yard stick; what is the measure of diet? The first yard stick was that of the B.M.A. Diet in 1933, followed by the Stiebeling Diet of the U.S.A. Government, and later, the League of Nations Standard of 1935. In brief, these three standards suggest a daily intake of about 2,800 calories; 80 grammes of protein; 1 gramme of calcium; 1.25 grammes of phosphorus; 15 milligrammes of iron; 5,000 international units of vitamin A; 500 units of vitamin B₁ and 1,500 of vitamin C. It is the formulation of such a standard diet which has contributed so largely to our knowledge of the differences in diet in different classes of person. When examined by this standard, the difference in the diet between the poor and the rich is plainly seen: Vitamin A, for example, increases from 2,000 I.U. among the poorest to 4,800 among the well-to-do; vitamin B₁ from 200 to 630; vitamin C from 680 to 1,700, and calcium from half to a whole gramme. The diet of half the population in 1932 (since reduced to one-third) did not reach this standard.

Most people, in fact, who take an interest in the problem of nutrition are soon made aware of the economic aspect, and as, Sir John Orr emphasises, the reason why the people's diet in this country is lacking in protective properties is mainly that they cannot afford to buy the expensive foods in which these properties are to be found. Indeed, milk and dairy foods and eggs, fruit and vegetables are relatively expensive and are rationed by price to the poorer sections of the populations. Some idea of the degree to which price must affect the use of different foods can be seen in the cost of 2,500 calories obtained from different sources; in white bread the cost of this amount of heat would be 4½d.; in milk, 1s. 8d.; in vegetables, 2s. 7d. and in eggs, 5s. 1½d.

This economic aspect of nutritional and dietetic problems has become so familiar that it is of interest to learn from Professor Drummond that the reasons for a departure from the ideal diet of the 18th century peasant were somewhat different. The cause was sad, lying as it did mainly in vanity. A people, who of a sudden were industrialised and urbanised, craved for the ways of the rich who consumed a whiter bread than they and also ate meat. The bread of Tudor times was of course "off-white," being prepared by mere extended sifting or bolting. The new residents of the towns were treated to a bread whitened by alum and a universal fashion was set which has to-day ended in a low extraction white flour, produced by the roller process which replaced the grindstone in the

middle of the 19th century. This flour contains none of the protective properties of whole wheat. The new desire for meat was equally far-reaching in its effects and resulted in the importation of large quantities of overseas meats; as can well be imagined this produced a complete re-shuffle in the simple diet of the peasant. Professor Drummond emphasises that meat is not necessary and is uneconomical.

The problem, therefore, is to provide the nation with milk, cheese, whole-meal cereals, green vegetables and fruit. A quite satisfactory daily diet would consist of 1 pint of milk, 6 ounces of vegetables, 16 ounces of potatoes, 2 ounces of oatmeal, 12 ounces of bread, 1.8 ounces of fat and 2 ounces of sugar. What Sir Robert McCarrison said 20 years ago about vitamins can now be extended to include mineral salts and essential amino-acids, "Whether there be three or legion they will be found to exist in natural foods in quantities and combinations adequate for the needs of the body." This is a comforting axiom both for the common man, who need take no more than an academic interest in the successive revelations of science, and also for the Minister of Food, who can readily appreciate how much simpler his problem has become.

How is this diet to be reproduced to-day? Sir John Orr believes that ultimately the problem will be faced by the regulation of supply, not by trade interests, but according to the needs of the people. This may be one of the good things to come out of the war. Meantime, however, the Minister of Food, as Sir Frederick Keeble, Dr. Lampitt and Professor Mottram show, will require to enlist the services of agriculture, industry and the housewife. The first essential undoubtedly is to produce more milk. The Advisory Committee on Nutrition has said that "milk is of such outstanding value that the consumption of a sufficient quantity may be regarded as the key to proper nutrition." It is, of course, rich in mineral salts, vitamins and the essential amino-acids. Fortunately the milch cow is the most economical transformer of foodstuffs and, Sir Frederick Keeble says, produces about four times as much food in the form of milk as the bullock with the same amount of feeding stuff will produce in the form of meat. Sir Frederick does not exaggerate when he says that "our salvation is to be sought in grassland." For many centuries the reaction to war in England has been the ploughing up of grassland. We did this in Tudor times, in the last war, and are doing so again in this war. A new knowledge of the value of grassland must lead to changes in this accepted procedure.

One of the problems to-day is to obtain more food for the cow, first by increasing grass production, and secondly by making ensilage in place of hay. In general, more attention should be paid to the treatment of grassland by fertilisers, drainage, scarifying, and, if necessary, intermittent cultivation with re-sowing. Grass from treated land may yield as much as 75 per cent. more and be richer in nitrogenous food and carotene, the mother of vitamin A. When the grass is cut it is a mistake to convert it into hay which has little nutritional value for the cow, but rather should it be stacked as ensilage which can help cows to make

milk. The second problem will be to grow more potatoes. At present our farmers grow four million tons, and this should be increased nearly tenfold to permit a consumption of 16 ounces per head per day. The third problem will be to reduce the consumption of meat. Livestock have voracious appetites and as a food producing machine, they fall far short of the milch cow. In Great Britain we have 35 million head of livestock and these eat about nine million tons of food, most of which has to be imported. It would be impracticable to kill off wholesale our livestock but a start should be made to educate the public.

Industry, as Dr. Lampitt explains, can help mainly by providing the means to economise vital foods. It is essential to extend the facilities for preserving fruits, vast quantities of which in England go to waste each year. It is essential to produce a high extraction flour so that bread may once more take its rightful place among the protective foods. It is essential to continue and extend the measures for utilising spare milk by increased production of butter, cream and cheese, and by drying. It is essential to develop the means of factory treatment, such as the paring of potatoes which may reduce waste appreciably, as in this case from 22 per cent. to 3.5 per cent. It is essential to develop the communal kitchen in which the right foods can be correctly prepared with a small fraction of the waste which takes place in the ordinary housewife's kitchen. It is essential to develop new ideas for producing vital foods on a large scale such as the crystalline substances which several of the essential vitamins have been shown to be, or, for example, yeast, itself capable of synthesising vital protein, mineral salts and vitamins from simple ingredients. Many of the essentials will be difficult of fulfilment; it is known, for example, that the modern miller's plant has been designed to deal only with white flour. But difficulties can be overcome.

The housewife can help by taking heed of what the scientist tells her. There is value in variety from a psychological point of view and much can be done even with dairy products, fruit and vegetables, to make these more appetising. The housewife can also assist in preserving protective foods from waste. Sir Frederick Keeble tells us that 3,000 tons of nutritious minerals are poured down the sink each year in the water in which greens have been cooked. The housewife should learn the art of home-bottling and the preservation of fruit and vegetables; she should learn to choose those fruits such as tomato, and those vegetables, such as mustard-and-cress, which are rich in vitamin C, and among many other arts she should learn the value of the stockpot.

One must ask why more serious efforts have not been made to regulate the diet of our people according to scientific principles. If meat is not essential to health, why do we continue to import it in such quantities and from far distant places at considerable risk of shipping loss? If the same amount of fodder fed to a milch cow will produce four times the value of food in the form of milk than in the form of meat if fed to the bullock, why continue to import foodstuffs for other cattle? If milk is almost, if not completely, the most valuable form of food for both children and grown-ups, why continue to fatten sheep

and plough up grass land, and why not energetically pursue a policy of fertilisation and resowing of grass-land? If a 72 per cent. extraction flour contains nothing of value to man other than a source of energy, why continue to feed to animals the remaining 28 per cent. rich in protective properties? Why, in fact, tolerate at all a denaturalised flour? If in any event the potato exceeds grain in its value to man, why not take advantage of such a startling revelation and increase greatly the consumption of potatoes? Where are the industrial productions of crystalline products which many of the most essential vitamins are now known to be, and where the large scale utilisation of yeast? These and many more questions about the anomalies of our present-day diet need to be answered. Cannot the Minister of Food, himself a man of energy, take steps to bring about the reforms of diet which were overdue in peace-time and for which war is now clamorous?

Tyneside : The Social Facts. By D. M. GOODFELLOW, PH.D. Introduction by R. H. Tawney. Preface by David Adams, M.P. Co-operative Printing Society, Newcastle-on-Tyne. Price 1s. net.

This little volume presents in a clear and attractive form the results of a survey of local conditions undertaken by the author, assisted by members of a W.E.A. tutorial class. Their object was to build up, from the statistical data available in local government offices and in reports and from their personal observations, a faithful picture of the social effects on Tyneside of the adverse economic conditions prevailing there since the last war. As an indication of living conditions the tuberculosis and infantile mortality rates are analysed, and the results compared with those for the country generally at various dates and for certain selected areas. It is shown that depression has had serious effects on such areas on Tyneside.

Dr. Goodfellow considers next the machinery for mitigating the adverse effects of living conditions—the health and educational services and concludes by showing the anomalies in local government which hamper the efficient development of that machinery.

Perhaps the most striking fact that emerges from this study is the inequality of pace between different regions in this country in combating tuberculosis and infantile mortality. Climatic conditions and prolonged industrial depression are largely responsible for the comparatively high mortality figures from these two causes in the Tyneside region, but the intractability of the problems makes it all the more urgent that the local resources available should be fully mobilised to meet them. The rationalisation of local government in this area is long overdue, but to present and enforce a reasonable solution is a formidable task, and consequently one which is likely to be shelved for as long as possible. The difficulties to be overcome are twofold, firstly to reconcile the conflicting interests involved and secondly to grope one's way through a multitude of minor considerations to the essential principles on which a just and sensible solution must be based. Dr. Goodfellow's book is a masterly treatment of this subject and may well guide us to a solution.

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Editorial

The Danger of Epidemics

When war broke out and evacuation occurred on a large scale it was anticipated that the exposure of hitherto protected child communities to unusual pathogenic flora would cause grave epidemics. This apprehension, based on the scientific work of Topley and Greenwood in experimental epidemiology and on numerous field observations of the past, was not confirmed by last winter's experience. Explanations have been sought in such things as the closure of schools and the consequent reduction in exposure of children to infection, but they are not convincing. It has been shown, for instance, that the absence of an expected epidemic of measles was not a phenomenon peculiar to this or any other country subject to war disorganisation. One epidemic which had been foreseen did materialise, *viz.*, cerebro-spinal fever. It would be gravely short-sighted to assume that the favourable experiences of 1939-40 will be repeated in 1940-41, and it will be wise to be prepared not only for a recrudescence of cerebro-spinal fever but also for the delayed onset of the epidemics we missed last year. Already there are suggestions that the *gravis* type of *Corynebacterium diphtheriae* is more prevalent in some reception areas, although, unfortunately, it is just in these areas that investigation of the strains of micro-organisms causing disease was least often pursued before the war.

The new situation created by continuous night attack from the air brings our attention back to the congested centres of population. The danger of disease from overcrowding in air-raid shelters was admirably described in a broadcast address by Mr. Malcolm MacDonald, Minister of Health, on October 29th. The remedy is not easy. It will be generally agreed that the first steps lie outside the field of direct public health administration, involving as they do more evacuation and more shelters of the right kind for those who must remain. Whatever the reaction of the public may be to the official advocacy of dispersal in small shelters, there can be no question that the family shelter is infinitely safer than the communal

in so far as infection is concerned; and if it is reasonably protected from cold and damp its other effects on physical health should be negligible. But psychological factors must be recognised, and if the people find they can rest better and keep easier minds in deep communal shelters they may be right in flocking to them. In congested areas communal shelters may be the only solution of the problem and it is the task of the public health departments to make them epidemiologically as safe as possible.

The problem resolves itself broadly into two parts, the prevention of alimentary and insect-borne disease, and the prevention of infection by droplets or droplet-nuclei, although the factor of overcrowding is important in relation to both, and the spread of skin diseases like impetigo by direct or indirect contagion may be serious enough. The prevention of the enterics, dysenteries and diarrhoeas, and of the rickettsial group of diseases, and of the distresses attendant on bug infestation, are problems well within the range of ordinary public health activity, however difficult they may prove to be in the present circumstances. They require a sufficiency of sanitary conveniences, thorough and repeated cleansing and disinfection of shelters and of the bedding and bunks used by the people, and close supervision of their persons, clothing and habits. We have to think in terms of the conditions which gave rise to the public health legislation of 100 years ago. But we may also be wise to call to our aid modern methods of specific prophylaxis as an adjuvant to, not a substitute for straightforward sanitation. This course has been followed in Southampton by Dr. Maurice Williams.

The air-borne infections are another matter, though the sanitary engineer is also concerned, since spacing can never be so satisfactory as to render mechanical means of ventilation unnecessary in large communal shelters, and ventilation is inextricably bound up with the maintenance of a proper degree of warmth. Constant observation of the state of the atmosphere is desirable and the subjective sensation of those spending many hours in such places is not enough. The simplest instrument for measuring both temperature and humidity is the wet- and dry-bulb thermometer, a convenient form of which is the Briggs Hygrograph. It is obvious that specific prophylaxis is of limited value for this great group of diseases which constitute our main epidemic problem, though the case for pushing forward with diphtheria immunisation and vaccination against smallpox is incontrovertible, and, if provision is made for medical men or women to be in regular attendance, it may be practicable.

It is possible that comparatively recent observations

on air-borne infections may lead us to other practical methods of direct attack. This work has recently been summarised in our columns by Dr. Robert Cruickshank.* The extent to which infection is borne in currents of air, as the result of evaporation of the most minute of the droplets expelled from the mouth or nose, has been elaborately investigated by the Wells of Philadelphia, who have pinned their faith on sterilisation of atmosphere by ultra-violet radiation. A quite adequate summary of their work is contained in a pamphlet entitled "Air-Borne Infection and Air Sanitation" issued by Hanovia Ltd., Slough. It should be noted, however, that success in the destruction of micro-organisms by U.V.R. has been attained under controlled conditions of ventilation common in the United States, and that this method may prove impracticable away from them. In the conditions prevailing in this country, and especially in shelters, the germicidal sprays of what Trillat has called "aerosols," described in Dr. Cruickshank's article, may be found more easy to apply and it is understood that experiments have passed from the laboratory to a shelter or shelters in at least one Metropolitan Borough. They should certainly be pressed forward, and their results quickly made known to the scheme-making authorities. The possibility of using simple masks by shelter inmates should also not be overlooked. The people are now more receptive to new ideas than in normal times and less self-conscious about appearances, but the provision of even simple masks and their replacement or cleansing and sterilisation would require considerable organisation.

*Public Health (September, 1940), 53, 254.

Public Health in Canada

The publication of a comprehensive account of the development of public health in Canada* is of more than topical interest to members of the public health service in this country, for it refreshes our knowledge of the historical origins of the greatest of all the British Dominions, whose ties with us are closer than ever in these difficult times. It is edited and prefaced by Dr. R. D. Defries, Associate Director of the School of Hygiene and Connaught Laboratories of the University of Toronto, and consists of contributions from public health experts, mostly attached to the National or Provincial administrations. The origins of the public health movement and its evolution closely resemble those with which we here are familiar. The epidemics

*The Development of Public Health in Canada. Canadian Public Health Association, 111, Avenue Road, Toronto, Ontario. 1490.

of the 18th and 19th centuries, however, fell from time to time like a thunderbolt on a population protected to some extent from the internal propagation of infection by its sparse distribution over wide areas. When members of the seafaring population, and above all ship loads of immigrants, brought typhus, smallpox and cholera, concentrated and probably enhanced in virulence by incubation under the intolerable conditions of the long voyages of those days, the effects were devastating. As in Britain, Boards of Health and other temporary expedients were devised for each emergency and allowed to fall into disuse when the immediate urgency had passed. It was only as the population grew and government developed, and especially as the result of the vigorous efforts of enlightened and courageous medical men, that gradually a stable system of public health administration came into being. It is all so familiar to those who have studied the growth of deliberate public health efforts in this country. We inherit the same good-natured reluctance to having our lives ordered by government, which is both the strength and weakness of democracy.

The course and timing of the evolution is remarkably similar, revealing the concentration on environmental hygiene at the middle of last century as a bulwark against the alimentary and insect-borne infections, with active immunisation against smallpox and isolation as the main specific measures for the control of infectious disease. Thus the early laws of public health resemble our own Act of 1875, with emphasis on water supplies, disposal of excrement, the prevention of the sale of unsound and contaminated food and the restrictions imposed on infective persons and things, with the same strikingly beneficial results. Early in the present century we see the new orientation to personal hygiene through maternal, child and school medical services, the marriage of prevention and cure in the care of the tuberculous and those suffering from venereal diseases, and the growth out of these services of organised public health education and public health nursing. In advance of us some of the Provinces have launched their campaign against cancer. In all these developments Canada is in the fortunate position of having intimate contact with the vigorous public health movement of the U.S.A., while maintaining its interest in the steady and uniform, if more pedestrian, growth of our own services. It has outstripped us, for instance, in the specific prophylaxis of diphtheria, but has been more conservative in its adoption of new rapid methods of immunisation than some of the American States.

The organisation of local and central administration is more like that of the United States than ours. Inevitably so, for geographical and historical reasons.

In Canada eleven million people occupy nearly four million square miles of territory; in the United Kingdom nearly forty-six millions dwell in a land of less than 89,000 square miles. In the pioneer days affairs had to be managed over wide tracts where the population was far more sparse even than it is now. The separate Provinces, of which there are now nine, came into being naturally with autonomous governments, which remain largely independent even since the British North America Act of 1867 created a Federal government. The Provincial health departments are both legislative and executive, while the Federal department—the Department of Pensions and National Health—is largely advisory, stimulating and investigatory, although it is administratively responsible for quarantine, food and drugs control, supervision of narcotics and matters which are of an international character. Indeed, the system closely resembles that of the United States. The Federal Department has used the compelling influence of conditional grants less than the United States Public Health Service is now doing, but it seems likely that by this and other means it will gradually assume more responsibility for Provincial activities, just as the Provincial departments are organizing local health in a way which will eliminate the inefficiency of small units. In these days, when there is obviously so much dissatisfaction with the divided functions of local authorities of different types and sizes in our own country, there is much to be learned from a study of the evolution of government in Canada which is so clearly described in this admirable publication.

Health Studies in Melbourne

The Annual Report for 1939 of the Health Committee of the City of Melbourne, Victoria, is concerned with the health of a population of about 100,000 living in the heart of the Metropolitan Area which has more than a million inhabitants. The population of the central area is shifting, about 25 per cent. moving away every year. As in similar quarters of other large towns the population tends to decline by movement to the periphery; the birth rate is also falling and the death rate is rising (apart from fluctuations associated mainly with influenza) so that for the third time in recent years the death rate in 1939 (13.36 per 1,000) exceeded the birth rate (12.22 per 1,000). The reports of the Medical Officer of Health, Dr. John Dale, and his assistants contain much interesting matter. Dr. Dale points out that the death rate may be expected to rise to 15 or 16 per 1,000 in spite of advances in medical science unless the birth rate definitely increases. He is modest about the infant mortality rate of 36.2 per 1,000 live births, a new low record, remarking that similar low rates now occur in many other parts of the world. The rate for Greater Melbourne was 32.5 and for the whole state of Victoria 35.6. More detailed analysis by Dr. Hilda Kincaid shows that the neo-natal mortality rate has fallen only from 27.1 in 1932 to 26.2 in 1939, whereas the rate for

children between four weeks of age and the end of the first year of life has declined from 30.9 to 10.0 in the same period. Even in Melbourne neo-natal mortality is refractory. When the figures for six years 1934-39 are analysed so as to compare the inner industrial districts with outer residential districts, the latter are rather more favourably placed for neo-natal mortality with an average rate of 26.0 as against 27.8, but far in advance at ages from one month to one year, the rate being 9.0 against 20.3. The large part which prematurity plays in neo-natal mortality is emphasised, but Dr. Dale believes that the Rhondda experience points to nutrition as an important factor. In this connection it may be noted that the Rhondda records have not yet been analysed for age and parity, which Verushalmy *et al.* have recently shown to affect not only material but also neo-natal mortality and the stillbirth rates.*

A special enquiry into the growth of children by order of birth has been made in Melbourne for the Parliamentary Committee on Child Endowment. Charts included in the report indicate clearly that later-born children progress less in height and weight from birth to the end of the sixth year, although fourth children are, on the average, slightly larger at birth. While it is recognised that such statistical comparisons involving children of different families are open to fallacy, they suggest that increasing strain on financial resources comes with additions to the household, and support the case for family allowances.

There has been a steady fall in the incidence of diphtheria as shown by figures compiled by Dr. Hilda Bull. The case rate per 100,000 has declined from 266 in 1935 to 118 in 1939. Along with this the percentage fatality has fallen from 2.7 to 1.8, so that the death rate per 100,000 of the population is now 2.1 as compared with 7.5 in 1935. In the more stable families resident in the city 50 per cent. of the children have been immunised, but Dr. Dale is cautious in claiming that this is the reason for the recent decline of incidence. Of great interest is an article by Dr. Hilda Bull embodied in the report, dealing with measles. It has been suggested that the recent exemption of England and Wales from measles in 1939-40 when it was expected, was not due, as some thought, to the war closure of schools but to secular changes in its cycle.† This is borne out by the experience of Australia. Dr. Bull does not deal with incidence over a long period but she quotes Commonwealth death figures which indicate that measles was highly prevalent in 1935 and at a very low ebb thereafter until 1939. Records for South Australia, where the disease has been notifiable for 30 years, suggest that epidemics fell biennially on the odd years until 1937 where there was a misfire, to be succeeded in 1939 by an exceptionally severe outbreak.‡ Australia, therefore, has shared with Great Britain and New York this departure from expectation without mass movement of the population or widespread school closure, but it occurred earlier. The opportunity was seized in Melbourne to make immunisation available to the general

population on quite a considerable scale in 1939. Pooled adult serum was given in doses averaging 15 ml., and varying according to age from 10 to 20 ml., usually within four days after the rash appeared in the infecting case. Serum three years old seemed to be as potent as that of recent collection. It is believed that a third of all cases which occurred under five years of age in Melbourne had received prophylactic treatment, the aim being modification rather than prevention. Altogether 258 contacts, mostly one to four years of age, were given serum, of whom 67 escaped altogether, 152 had attacks so mild as to be almost unrecognisable, 37 had mild to moderate attacks and 3 had severe attacks, one of whom had a small patch of broncho-pneumonia. The attenuated attacks are described as "amazingly mild." Among 229 observed controls under six years, whose parents applied too late or refused immunisation, only 23 escaped and 31 were severely ill, mostly requiring hospital treatment. Two of them died. The unmodified measles was, in fact, of a severe type, 17 per cent. in the second year and 14 per cent. in the third year requiring hospital care and suffering usually from pneumonia. The scheme of modification received excellent support from the public with few exceptions and its success should be a stimulus to public health administrators not only in Australia.

†*Med. Offr.* 64, 49, 71 and 92.

‡Cent. Bd. of Health, Adelaide; *Health Notes*, Jan. 1940.

Diphtheria Immunisation by Single-dose A.P.T.

We have made frequent reference to a difference in practice, if not in policy, between the U.S.A. on the one hand and Britain and Canada on the other as to the use of alum-precipitated toxoid in single dose as a prophylactic agent against diphtheria. While it is so employed widely in the States, workers in Britain and Canada have repeatedly deprecated the practice as likely to bring immunisation into disrepute. Interest therefore attaches to observations made by Murphy *et al.* in Texas, which cast doubts on its efficacy.* As laboratory workers they have had no contact with patients but for the past two years they have collected case histories of all positive diphtheria cultures, numbering 103, submitted to them. Thirteen of the clinical cases were found to have previously been immunised with one dose of A.P.T., the interval between injection and disease varying from three months to five years. None of the other cases had been immunised by any other method. The writers consider the facts significant, but it may be noted that no information is given as to the relative numbers immunised by single-dose A.P.T. and by other methods in the area sending material to the laboratory, or as to the total numbers immunised by single-dose A.P.T. on which this incidence of diphtheria fell. All the thirteen cases were tabulated as mild.

*Clinical Cases of Diphtheria occurring in Patients who had previously received One Injection of Alum Precipitated Diphtheria Toxoid. Murphy, J. N., Cook, E. B. and Bohls, S. W. *Canad. Publ. Hlth. J.*, (June, 1940) 31, 276.

CIVILIAN HEALTH RISKS IN WAR*

By E. D. IRVINE, M.D. (LIV.), M.R.C.S., D.P.H.,

Medical Officer of Health, Shipley U.D.

Never before have we in this country had to face a situation comparable with the present. The constant threat of destruction from the air, the ruthlessness of modern methods of war, and the universal nature of the danger make this conflict unique in our history. The prospect of invasion appears happily to be receding but even in the present phase of the war, civilians no less than soldiers, women and children no less than men, the aged and infirm no less than the young and robust are sharing the common danger to life and limb, to security and to happiness. War inevitably brings in its train sickness for combatants and non-combatants alike, and in this war it is quite certain the civilian health risks assume, for us at any rate, greater significance than ever before.

The experience of one war is no sure guide to the next. The tempo of life has been quickened even in peace-time as a result of the advance of science, of speed of communication and of the development of machinery. All these involve increasing risks in war; but against these must be set the progress of preventive medicine and of curative science, the development of social and health services as a result of the discovery of remediable and preventable defects in the community or in response to public demand, and the need of governments to conserve the health of their peoples. At long range the effects of the interruption of progress in public health work will be offset by the opportunities for large-scale research into human disease and the ultimate progress of social improvements in the more depressed sections of the community.

The health risks of the population at large can conveniently be considered in four groups: (1) physical injury due to enemy action; (2) infection; (3) anxiety and fatigue, and (4) food shortage. Obviously they are closely inter-related.

The risk to health by direct physical injury is so obvious as to need no labouring, whether it be by explosives, burns or chemicals (gas), falling masonry and so on. One might only stress the chronic chest diseases resulting from poison gas exposure in the last war; probably 150,000 cases of gas poisoning occurred in the British army in the last war, and of these one in 40 died¹; but many more must have died in the interim from chronic bronchitis and tuberculosis. The civilian population is, however, well protected, if they use the means available, from the known gases; still there will certainly be some casualties among them if gas be used. It should be remembered that the injuries of the last war provided the occasion for striking advances in neurosurgery and in the study of functional nervous diseases, and that the evolution of the steel helmet and vizor, which is now important to civilians, was the fruit of the work of medical men^{2, 3}.

Every war has brought the problem of infection in its train and despite our advances in sanitary science, there is small doubt the risk still obtains. "Famine and

pestilence are the camp followers of war." There is always the danger of a "new disease," as encephalitis lethargica was described at the end of the last war; but through the ages the war pestilences have been typhus fever, bubonic plague, cholera, typhoid fever, dysentery and smallpox. Whether they are the result of a spontaneous increase in the infective power of the organism, or of the weakening of the people due to war, does not affect the significance of wars as predisposing to large-scale infections. Interference with food supplies, the breakdown of sanitary precautions, the anxiety associated with war, and the movement of infected persons all play their part.

From the plague of Athens (480-425 B.C.) to the pandemic of influenza (1918-19) which began in China and America, history is studded with examples of the pestilences of war. Smallpox throughout Europe in 1871-2, with half a million deaths, finds a counterpart in the plague of the Antonines in the second century. Typhus fever in Germany in the closing years of the Napoleonic wars had appeared before as the Hungarian disease in the 15th and 16th centuries. "English sweating sickness" originating in Henry VII's troops at Bosworth (1486) caused more deaths in London, Bedford and Cambridge than the sword in 80 years of civil war. Cholera wiped out 150,000 in Austria in the German war in the middle of the last century. The crusades spread leprosy; foot soldiers spread syphilis in the middle ages, and Barbarossa's army in Rome, victorious in war, was routed by bubonic plague, which subsequently ravaged Europe⁴.

The return of soldiers from a foreign soil is always a likely source of infection, and at the end of the last war, the repatriation of prisoners of war caused Port Sanitary Authorities much anxiety lest typhus, dysentery and influenza should thereby be introduced⁵. Further, Dr. Carnwath has told us that in some areas there was evidence that the return of soldiers and sailors, convalescent or on leave, had been an important factor in spreading influenza in 1918-19⁶. One speculates as to whether the present increase in enteric fever is due in part to the return of soldiers from France.

The transference of population, whether planned, as the evacuation at the outset of war, or unplanned as in the case of refugees from zones of active combat, adds to civilian health risks. The evacuation of mothers and children at the outset of war coincided with an unexpected reduction in the incidence of the common infectious diseases⁷. It had been thought that the introduction of presumed carriers into presumably susceptible populations would have increased the incidence of these diseases. The expected measles epidemic did not materialise. School closure at the outset of the war was regarded as an important factor, but so far as measles is concerned recent correspondence in *The Medical Officer* shows that a variability in the timing of measles outbreaks was not unknown even prior to this date⁸. Refugees always provide an acute problem, but fortunately we have been spared this time the wholesale importation of refugees from abroad. Typhus fever, malaria and respiratory diseases have been prominent among Polish refugees in Rumania and Hungary; but dysentery and typhoid, against which the

* Paper read at a meeting of the Yorkshire Branch, Society of Medical Officers of Health, September 27th, 1940.

*U.S. Pub. Health Serv. *Pub. Health Reps.*, 1940, 55, 1195.

refugees were inoculated, have not been evident⁹. Neither typhus, malaria nor dysentery affected the civil population in this country during the last war to any great extent, but now dysentery and respiratory infections seem very real risks.

The high incidence of cerebrospinal fever during the first twelve months of this war has been interesting in view of the marked increase of the disease among the civil population in this country during the last war, which was then attributed to the presence of the carrier state of soldiers exposed to infection in overcrowded camps.

Syphilis is generally regarded, no doubt correctly, as one of the diseases spread by war; the conscription of armies, the general loosening of sex morality, and the scattering of troops in rural areas are generally held to be important factors in its spread among civilians; but, apart from the increase recorded in the deaths of syphilitic infants during the period 1917¹⁰, it is hard to obtain definite evidence of an increase in the disease in the civil population as a result of war.

Other sources of risk include damage to public utilities such as waterworks and mains, sewage disposal plants and sewers, and pasteurising plants; sabotage by the introduction of bacteria into milk and water supplies; and bacterial and chemical warfare by the introduction of cholera or typhoid, lewisite or mustard gas, or poisonous alkaloids, such as strychnine, into water supplies from the air; but this last is considered impracticable, and so long as chlorination is carried out, bacterial pollution of water is likely to be ineffective, and contamination by mustard gas neutralised. Accidental transmission by aerial transport of such diseases as yellow fever does not seem to be an unduly great risk.

During the last war, dysentery was widespread in the civil populations of Germany, Russia and even France, but not in England, this freedom being attributed to our better food supply and nutrition, the precautions taken in our army, our insular position and the maintenance of good sanitary conditions in this country¹¹. The notifications of dysentery have mounted rapidly during the past few years (though in 1939 the notifications were markedly less than in 1938), and whereas formerly amoebic dysentery was the common type, latterly the bacillary form (mainly Sonne and mainly mild), a more probable cause of epidemics, has been much more important^{12 13}. The danger of dysentery thus seems a very real one to the civilian population under war conditions.

In the war of 1914, paratyphoid among our troops was perhaps commoner than typhoid and since then paratyphoid, formerly uncommon here, has been much more widely recognised. Without the Widal reaction many of these would be otherwise diagnosed. Though no outbreak of enteric resulted from the return of 31,000 convalescent (enteric) soldiers from the South African war¹⁴, recent experience in this country shows the risk from one carrier if the circumstances are all in favour of spread.

Intestinal infections must be much commoner than the notifications would indicate; in my own district this year there has been much more than for many years: but of 52 cases of dysentery only 22 were notified, and it is probable that these would not have been notified

but that one case proved fatal. Many of the patients did not consult a doctor at all, and yet there was no doubt of the diagnosis. (Incidentally, I was surprised how often the father who had visited the case proved to be a cook in the army, precautions becoming necessary). The Widal defines the typhoid case but the laboratory diagnosis of dysentery is much more difficult.

Overcrowding in shelters or rest centres brings its own problems, and I think we may expect a definite increase of respiratory infections. Difficulty of ventilation of factories and homes, and increase of smoke pollution, may add their toll. In my own district, my health visitors have gained the impression that catarrhal infections amongst infants are unduly prevalent this year—not, perhaps, a scientific observation, but interesting. The discharge from sanatoria of patients with open tuberculosis, as a result of the need of extended hospital provision, adds a further risk to the general public. I cannot but believe that the frequent exposure to sudden changes of temperature whilst going to shelters outside dwellings will result in an increase of common colds, influenza attacks and pneumonia. In fact, one feels that in not yet frequently bombed towns, the use of public siren warnings should be limited as far as possible to occasions of great and immediate danger. The problem of sanitation in public shelters needs no emphasis, and the danger of flies is self evident.

Sleeplessness due to air raid warnings, or bombing, or excessive volunteer activity at night is a matter of great importance to the nation, particularly when combined with the seasonal risks in winter. The nation cannot work if its workers cannot sleep, and cannot resist disease if it is undermined by fatigue.

Mass anxiety was extremely evident at the time of the Munich crisis. Although the morale of the public is now amazingly good, there must be much anxiety in those areas subject to heavy bombing. This is important in reducing the resistance of the public to disease, and it is this general effect that seems to me more significant than the immediate danger of mental breakdowns. Wright¹⁵ said in 1939, "however powerful our defences, however well organised the nation, war will take a terrible toll of civilian population, not only in physical injuries, but through the stress of long continued fear and anxiety affecting not only the mind and feelings, but every organ and function of the body." The possibility of a marked increase amongst psychological casualties in the general population cannot be denied; Wright and Mira¹⁶ both stress the importance of the fear of economic insecurity in causing breakdowns, and Mira also emphasises the effect of food shortage. Though there is a body of informed opinion which asserts that war does not increase the general amount of mental morbidity in the community^{16 17}, it must be remembered that the effects of a period of stress may not be immediately evident and, also, that the last war does not give us a sure guide to this. It seems not improbable that cardiovascular disease, including hyperpiesis and coronary disease, may show more prominently yet amongst civilians as the result of various stresses and strains, and not least mental, of the present war. The rising trend of death and disability from diseases of the heart and blood vessels may thus be further accentuated.

The reaction of the public to the successful evacuation from Dunkirk was quite manifest and readily understood but if, as seems probable, expeditionary forces are once more to be sent from our shores, anxiety on the part of wives and mothers and children must again increase. School teachers with whom I have spoken are almost unanimous in declaring that the children show markedly increased restlessness; but otherwise they think there has been no appreciable adverse effect on them as a result of the war. As a whole children may be expected to show less anxiety than adults: many treat going into shelters as a game: but the effects of seeing the results of war may cause much mental distress. The relentless continuance of stress is all important.

Industrial fatigue took a definite toll of the women engaged in industry during 1914-18. The mortality from tuberculosis rose steeply among the young women (and may do so again), particularly in industrial towns, although the trend in tuberculosis in this direction had begun before the war began^{18 19 20 21}. It has been estimated that 33 per cent. of the women in industry showed then definite signs of fatigue or ill-health and, to look after their interests, the Health of Munition Workers Committee was established in 1915, now superseded by the Industrial Health Research Board. The importance of industrial welfare is more and more manifest, and the Minister of Labour has recently obtained power to compel factories to appoint a doctor or nurse if the Factory Department thinks it necessary: this will doubtless prove a public health measure of great importance. One specific risk of war workers is trinitrotoluene poisoning, of which 400 cases were recorded during 1916-18²².

Before the war it was suggested that anxiety might lead to an increase in uterine inertia in labour. Whether this has been proved correct I do not know.

Food shortage is in no sense an immediate danger in this country; but quite apart from the danger to the war effort of a shortage of food as in 1917, partial deprivation either in quality or quantity is always a serious matter. Medical officers have special opportunities to assist the public by education, and through the activity of Health Visitors, to gain a sounder knowledge, in simple form, of the foods necessary for health, and of successful budgeting. Another method by which we, as public health officers, can help, is by developing in clinics and schools the policy of supplementing diets by cod liver oil preparations or vitamin concentrates.

Food shortage was a prime factor in the defeat of the Germans in the Great War, and of the Spanish Republicans in the Civil War, undermining the morale of the civilian populations. In addition, however, in Germany it caused serious increase of disease among children, particularly tuberculosis, and the deficiency diseases were so prominent afterwards in Austria that the children there tragically became a fruitful field for the study of rickets, and the object of universal sympathy. Children born in Germany at the end of the last war showed the effects of this starvation in height and weight when they entered school, but later recovered the ground lost²³. It is also true that children under 19 years of age in this country born before the war but not those born during the war, showed an increased mortality during the war; but those who survived, in both groups,

showed no apparent increase in the death rate afterwards at any rate up to the age of 19 years²⁴. But the death rate, though perhaps the only one readily available, is a poor yardstick for the health of a community. The risks to food by glass splinter and gas contamination are well known to all sanitary officials, but probably the chances of anyone consuming such food are remote. It is interesting to recall that Gessner²⁵ has asserted that a partial deprivation of fat and protein was responsible for a decline in eclampsia in Baden during the 1914 war, but this conclusion has been challenged by Bublitschenko²⁶ in Leningrad where, he says, eclampsia increased during the starvation, and is regarded as at least not proved, by Lichenstein²⁷ of Leipzig who, however, suggests that hyperemesis gravidarum decreased there during the war. Ujma²⁸ thinks the food shortage was responsible for the subsequent occurrence of atonic puerperal haemorrhage in females who had reached puberty at that time. All this indicates clearly the need for planned large-scale research into all the health problems arising from the war. Every hospital should be asked to contribute annually information on certain predetermined lines. Far from cramping individual research which probably yields the richest results, this will lead to a wide realisation of the need for planned study.

In fine, it seems to me that the principal health risks of war are, apart from direct injury, infections, both intestinal, and particularly dysenteric, and respiratory, with an increase in tuberculosis; an increase in the mental morbidity in the population, and in cardiovascular disorders. The progress of medicine will not in the long range be stayed; industrial hygiene may well be the main beneficiary, and neo-natal deaths and stillbirths are likely to be the objects of much study; no nation can afford to neglect the conservation of infant life. Propaganda, and not least among school children, in personal hygiene must be vigorously maintained, and every effort made to control pests and vermin, in particular lice and flies.

The nett effect of the influence of war is determined by the risks to which the population are subjected, and the measures taken to prevent or ameliorate the possible consequent effects. The improvement of social standards in the community is the duty of governments; but preventive medical officers have a special duty and special opportunities in helping to direct the national effort. The depression of the standard of living during war usually yields at length to the advance of science and the demand of the public for social improvements. It is unnecessary to emphasise that the effects of the war on the health of the civil population cannot be estimated solely by the number of deaths, nor by the apparent incidence of disease at the time. Only a complete study of the course of life—in health and disease—of the whole generation, with due regard to the influence of new factors, will suffice, and this may well be impossible. The maximum use must be made of the information available from every hospital, from every health office, and from the National Health Insurance Service. Intelligently to anticipate the probable sources of ill-health and to effect the appropriate preventive measures, as well as initiating in advance a well planned study of the reaction of the population to the health hazards to which they will be exposed, are one means towards

securing, on the one hand, the minimum of evil and, on the other, the maximum of good from the horrors of war.

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DISCUSSION.

Dr. D. D. Payne discussed a recent epidemic of acute anterior poliomyelitis in Harrogate. He stated that there had been no cases amongst soldiers and only five secondary cases out of a total of 69 persons affected. It had been impossible to detect the source of the infection.

Dr. P. R. McNaught drew attention to the fact that in the matter of cerebro-spinal fever this war is running parallel to the last. He suggested that the compulsory use of shelters during the coming winter might cause more deaths from bacteria than from bombs.

Dr. J. F. Galloway thought that the effect of the war upon mental states would be important. This war was different from the last because the factor of personal fear was now present. We were now living in a state of chronic anxiety which would reduce efficiency and would precipitate latent neuroses.

Dr. W. J. Frain agreed that an increase of respiratory infection and of anxiety neuroses would almost certainly result.

The President (Dr. J. Sharpe) welcomed the new interest of the Ministry of Health in the welfare of the worker, which was a field that had been much neglected in the past; he considered it full of promise for the future. He thought it important that medical officers of health should interest themselves in this work and guide the developments along the most disinterested lines. The Society as a body should place its services at the disposal of industry as a whole.

Dr. J. M. Gibson thought that the high rate of stillbirths was due not so much to the state of employment as to the effects of unsuccessful attempted abortion. He thought an increase of pulmonary infections a great danger, especially in regard to the discharge from sanatoria of open cases of tuberculosis.

In reply **Dr. Irvine** thanked the speakers for the appreciation which they had all expressed and returned his thanks for the kindness he had always received from the members of the Branch.

CONFERENCE ON HEALTH CONDITIONS IN REST CENTRES AND AIR RAID SHELTERS

At a meeting on October 10th at the Ministry of Health, under the chairmanship of Sir George Chrystal, Sir Arthur MacNalty, with other officers of the Ministry of Health, together with representatives of the Ministry of Home Security and the Department of Health for Scotland, met the Medical Officers of Health of the Metropolitan Boroughs to discuss measures for the prevention of epidemic and other disease in rest centres and air raid shelters. Lord Horder and Dr. Daley of the London County Council were present and took part in the discussion.

Sir George Chrystal explained that the primary responsibility for the control and management of shelters belonged to the Ministry of Home Security but the Ministry of Health had great interest in and responsibility for matters affecting public health. Lord Horder's Committee had made recommendations which were necessarily in general terms. As regards rest centres, Dr. Daley explained that the London County Council were providing doctors and nurses, sick bays and drugs at the centres on behalf of the Ministry of Health. The beds available for the chronic sick had been for various reasons greatly reduced but hospital provision was being made for them. It was explained that people were staying too long in the rest centres and it was agreed that local authorities should be pressed to expedite the provision of billets and the emergency repairs to houses.

Was it possible to prevent persons suffering from infectious disease to enter shelters? It was generally agreed that this was impracticable and a suggestion of some form of cursory inspection at the entrance was discussed but rejected. The real solution consisted in reducing the numbers using the shelters by evacuation of the population to less crowded parts of the country. There was some diversity of opinion as to whether the provision of bunks would necessarily mean a reduction in the number of persons using the shelters. Various suggestions put forward in a report by Dr. Maitland Radford (St. Pancras) were received with approval and the meeting was informed that the question of payment for the medical and nursing work involved was under urgent consideration by the Ministry of Home Security. The desirability of compulsory inoculation against diphtheria and typhoid was discussed. It was agreed that it would be very difficult to arrange for a doctor to be in continuous attendance in the shelters, with the exception possibly of very large ones, but some scheme should be worked out in each borough to ensure that the services of a doctor were available for cases which could not be dealt with by nursing and first aid personnel. Dr. Fenton described such a scheme which was in operation in Kensington. The provision of Red Cross nurses with a Home Nursing training should be possible and the difficulties in the way of provision of some sick bay space were not insuperable. The prevalence of nasopharyngitis was referred to and scabies of a septic type was recorded from one area. Lord Horder's Committee was considering the question of

disinfection and disinfestation with the aid of expert committees of the Medical Research Council. The Ministry of Home Security was devising a code of good conduct by-laws for shelters, which would shortly be issued.

WELFARE AUTHORITIES AND THE FOOD EDUCATION CAMPAIGN

We believe that the public health service have given the most willing co-operation in the campaign inaugurated last April by the Minister of Food, to which further reference is made in Circular 217, of the Ministry of Health addressed to Welfare Authorities on October 14th. The circular states that the Minister of Food has consulted the Minister of Health with a view to getting the active assistance of all welfare authorities in the campaign. The Minister of Health therefore invites all such authorities to support the educational measures which have already been put into operation by education authorities. He believes that the personal contacts established by medical officers and health visitors in the course of their ordinary duties are the most effective means of imparting knowledge of food and nutrition to the public. While aware that much instruction is already given in welfare centres and by health visitors in the people's homes, he asks that it should be intensified and brought into line with the Food Education Campaign, which takes into account the war-time problems of supply. The Ministry of Food, knowing the state of supplies, will direct their publicity campaign so as to encourage the use of foods which are in good supply and to economise in those which are scarce. Thus welfare authorities are asked to keep close touch with the Ministry of Food's announcements, especially in regard to local catering and cooking classes. Full particulars of supplementary services, such as a film library, a panel of speakers, bills, leaflets, etc., can be obtained from the Food Education Division of the Ministry of Food, Colwyn Bay, North Wales.

[PUBLIC HEALTH has endeavoured to keep the subjects of diet and nutrition in the forefront, and we would draw our readers' attention once again to "The Nation's Larder," reviewed in our last issue, and to the B.M.A. booklet, "The Doctors Tell You What to Eat in War-Time."]

THE PROVISION OF MEALS AND MILK FOR SCHOOL CHILDREN

The Board of Education draw attention to their administrative memorandum No. 250, issued to Local Education Authorities on September 24th, 1940. It reads as follows:—

Local Education Authorities will be aware from Circular 1520 that the Board attach great importance to the development of the provision of meals and milk for school children, whether free or on payment of the cost of the food. In order to assist authorities in planning such development the Board have invited Mr. C. W. Maudslay, C.B., who will retire on September 26th from the post of Principal Assistant Secretary

in charge of their Medical Branch, and who had in that capacity been closely concerned with this question for the last 10 years, to continue in part-time employment under them for the purpose of visiting areas where the proposals of the Authority under the Circular do not appear to meet fully the needs of the area, and discussing the matter with representatives of the Authority.

The areas to be visited will, as a rule, be selected by the Board after consideration of the Authorities' reply to Circular 1520, but if any Authorities desire to apply for a visit of Mr. Maudslay, the Board will endeavour to arrange for such a visit. It may, however, be some time before he is able to visit all parts of the country, and it is therefore important that the Authority's submission of their proposals to the Board should not be held up pending his visit.

It will be understood that Mr. Maudslay will be mainly concerned with the administrative questions involved. The arrangements for the provision of meals and milk will continue to be investigated by the Board's Medical Officers in the course of their inspections of the School Health Services, but these inspections cover a much wider field and are necessarily held at long intervals in view of the limited number of Medical Officers on the Board's staff. Miss E. M. Langley, the Board's Inspector of Provision of Meals arrangements, will continue to advise Authorities in regard to the actual feeding arrangements, including questions of dietary, premises and equipment.

RECENT APPOINTMENTS IN THE PUBLIC HEALTH SERVICE

The following are some recent appointments to the health departments of various local authorities.

The Editor will be grateful if members of the Society will notify him at once of any new appointments.

LEIGH M.B.: A.M.O.H., Dr. Mary S. Miller. Salary £600, rising to £700.

PLYMOUTH C.B.: A.M.O.H., Dr. H. B. Boucher.

ST. HELENS C.B.: A.M.O.H., Dr. J. F. Martin (A.M.O.H., Birmingham C.B.).

TODMORDEN M.B.: M.O.H. & S.M.O., Dr. A. J. Muir (A.M.O.H. & A.S.M.O., Ealing M.B.).

Bulletin of War Medicine.—The Medical Research Council have just issued the first number of the above publication, dated September, 1940, and published by H.M. Stationery Office, price 2s. 6d. The *Bulletin* is edited by the Staff of the Bureau of Hygiene and Tropical Diseases and is on very much the same lines as the *Bulletin of Hygiene*. It contains abstracts of papers both from British and foreign sources, and is arranged under the general headings of wounds and injuries, anaesthesia, blood transfusion, X-rays and radio-active substances, diseases, war gases and explosives, pharmacology and general therapeutic measures, naval medicine, aviation medicine, industrial hygiene, food and drink, general sanitation, and civil evacuation. The last four headings will be those of main concern to our readers, but the above list will indicate the comprehensive character of this publication which it is proposed to issue every two months.

CORRESPONDENCE

THE FORTIFICATION OF FOODSTUFFS.

To the Editor of PUBLIC HEALTH.

Very much has been said and written in recent years about the need for an adequate amount of protective foods in the diet. Professor Drummond* has recommended a return to the simple diet of the 18th century peasant which consisted of wholemeal cereals, potatoes, green vegetables, fruits and the products of the dairy, in particular, milk, for in such a diet all the factors which make the protective foods of value to growth and health, namely, vitamins, mineral salts and the essential amino-acids, abound.

Unfortunately, such a diet is far removed from our customary fare for, speaking generally, as a nation we consume to-day much that is of little use and much that is definitely harmful. As the whole fascinating story of diet is unravelled, it becomes more and more clear that our tastes have been trained to enjoy the very foods which benefit us least. Most of us enjoy a low extraction flour, abhor milk, crave for meat, decline juices of fruits and ignore the possibilities of salads or raw vegetables. Few indeed appreciate the extent to which our diet to-day has departed from that ideal which Professor Drummond has attributed to the peasant who lived more than 200 years ago; to all who have made this realisation, there appears little opportunity of a return except by a long period of re-education.

At such a time as this, when the nation should be straining every effort for greater efficiency we cannot ignore the need for a better and more health-giving diet. Is there no remedy which might have effect more rapidly? It is possible that fortification of foodstuffs may in some measure supply the answer. To supply that which is necessary is easier than to ask for radical changes in the diet and it is clear that such a step can be taken without too great difficulty and without calling upon people to make too drastic alterations in their food habits.

It is perhaps not generally realised to what extent the fortification of foodstuffs, with the knowledge we have to-day, might have prevented many of the ill-effects in Germany during the last war which many believe to have brought about their final collapse. Indeed, investigations in Germany and Austria after the last war showed a shockingly high incident of food deficiency diseases which at that time were considered to be due mainly to starvation as the result of our blockade. It is, of course, now known that Germany's food troubles were due mainly to the absence of protective foods upon which health and growth mainly depend, and not because of a decline in the calorie value of the diet. In fact, the 2,400 calories required in the adult to maintain normal, non-manual activities, is relatively easy to obtain, and sufficient sources, even allowing for the use of fat in munition making, were in all probability still available in Germany at the end of the last war.

There is no better example of the value of fortifying foodstuffs than that provided by present-day margarine. As is well known, fats are a valuable raw material for munitions and, therefore, liable to fall off in the war-time diet. In the Great War of 1914-18, as no doubt she is doing in this war, Germany diverted large quantities of butter fat to the war machine, and by this one act alone, went far to bring about her own undoing. Yet it must not be thought that this result came about because the German people were deprived of fat as such, but because they failed to obtain the daily requirements of about 5,000 International Units of vitamin A and 500 International Units of vitamin D, or anything like those amounts, which butter in the normal diet goes a long way to provide. Butter is, in fact, almost the only natural source of vitamin D in the normal diet and it is small wonder that the prevalence of rickets in Germany and Austria was so great in the post-war years. Had these two vitamins been supplied from other sources as vitamin D is now supplied in margarine, the deficiency of butter fat might have had far less ill effects. Such a step was, of course, impossible during the last war, but to-day it presents no difficulties, for painstaking research has with remarkable rapidity not only discovered the existence of these vitamins and their relationship to deficiency diseases, but has also discovered their chemical constitution and the methods by which they can be synthesised in the laboratory. Synthetic vitamins A and D are identical with the natural products, and, moreover, vitamin D is capable of production by the irradiation of ergosterol or of cholesterol and can also be provided in milk by the feeding of cattle on irradiated yeast.

What has been said about vitamins A and D applies very largely to other known vitamins. Vitamin C and the three vitamins of the B complex, namely, thiamin, riboflavin and nicotinic acid, are also capable of synthesis, so that their proportion and addition to suitable foodstuffs would present little difficulty. A rough computation suggests that about 100 lbs. of synthetic thiamin daily would supply the whole needs of the population of England, Scotland and Wales.

For those who still hesitate to seek the assistance of the laboratory, those persons in fact who resist the knowledge that vitamins are known organic chemical substances, it should still be possible in many instances to fortify food with natural products prepared on a commercial basis. As an example, brewer's yeast is enormously rich in all the known substances which go to make up the vitamin B complex and it is clearly capable of preparation and extraction on a commercial basis. An extract of yeast admittedly has a pungent flavour, but it is almost certain that if it was used to fortify foodstuffs, this disadvantage could be overcome.

It would be an unforgivable mistake to assume at this stage that all, or even an appreciable fraction, of the vitamins have been discovered. No doubt many others will be isolated, and further of the ailments of mankind will come to be known as due to their absence. Yet our knowledge has already made manifest the extent to which the absence of those vitamins

which have already been isolated was playing a large part in the dire results of food shortage in the last war. In view of this, and in the certainty that even the peace-time diet of a large proportion of the people of England would benefit from an increase of many of these vital substances, may I suggest that the Minister of Food should give further intensive and sympathetic consideration to the possibilities of using more extensively the method of fortifying our food.

The possibilities of further scientific control of the nation's diet do not, of course, as your leading article pointed out, end with the vitamins. Minerals, salts and the essential amino-acids which play an equally important part in the maintenance of health and the furtherance of growth have been shown to exist in plant and animal tissues in forms which permit them to be added artificially to suitable foods. Although these mineral salts and amino-acids cannot be prepared synthetically in the exact form which the body requires, yet advantage can be taken of their presence in certain natural products capable of production on a larger scale.

Most minerals and all the essential amino-acids have been shown to be present in a high state of biological availability in both yeast and milk. Sir Frederick Keeble* has emphasised the need to increase the production of milk and it is clear that there is a very good case for a large extension in the use of dried milk. Full cream dried milk is very nearly as valuable as the milk in liquid form, very little damage having been done by the process of drying to either the essential amino-acids or the mineral salts which it contains. Dried milk has been shown to be capable of being effectively added to flour, and in fact, many maintain that the fortified product makes a pleasanter bread. May I suggest there would be a good case for increasing largely the imports of dried milk for this purpose from America and the Dominions.

There is one mineral which would still be absent after fortification by dried milk and yeast, namely, iron, and as it would seem desirable to ensure that the diet contains more of this substance than the present-day diet contains, it might be worth while experimenting in the use of an inorganic iron salt. It has, of course, been shown that inorganic salts of iron are absorbed and there would now seem to be no good reason why these substances should continue to emanate solely from the doctor's dispensary or the chemist's shop. I would suggest that use should be made of ferrous sulphate or some other iron salt for this purpose.

It is a remarkable fact that so many of the protective foods can now be so easily provided in the people's food, and without going any more deeply into the matter, there would appear to be a strong case for fortification of foodstuffs by synthetically prepared vitamins, yeast, iron and dried milk. There should be no great difficulty in finding a suitable vehicle capable of carrying some or all of these ingredients, for

example, flour, which would be readily consumed by all sections of the community.

I am, Sir,

Yours, etc.,

FRASER BROCKINGTON,

Deputy County M.O.H., Warwickshire C.C.

Shire Hall,

Warwick.

October 23rd, 1940.

OBITUARY

ERNEST HUGH SNELL, M.D., B.SC. (LOND.), M.R.C.S.,
L.R.C.P., D.P.H., F.R.S. (ED.), Barrister-at-law.
President of the Society, 1926-27.

It came as a sad shock to the Society that the first of its members to lose his life by "enemy action" should have been Dr. E. H. Snell. Dr. Snell retired from his post as medical officer of health of the City of Coventry ten years ago, but no senior member of the public health service kept in more active touch with new legislation and progress than did he, for he continued as a member of the Councils of the Society and the B.M.A. for several years after giving up municipal work. Dr. Snell was born in 1865. Educated at Birmingham and London Universities, he qualified M.B., Lond., in 1889, and took his M.D. in 1891, and the D.P.H. in 1893. After holding various appointments, including that of Assistant Medical Superintendent, Paddington Infirmary, and house appointments at Queen's Hospital, Birmingham, he became M.O.H., Coventry, in 1897, where he introduced many new branches of public health development.

He joined the Society in 1897 (the year of his M.O.H.-ship, Coventry), and his part in the Society's work is described by Dr. R. H. Jolly, Hon. Secretary of the Midland Branch, who writes as follows:—

"It is difficult to express the feeling of sadness and the sense of personal loss occasioned by the sudden death of Dr. E. H. Snell on October 22nd as a result of enemy action.

"From the day when he was first appointed Medical Officer of Health of Coventry he had worked wholeheartedly for the profession of which he was such a distinguished member, as well as for that branch of it to which most of his career was devoted. Prominent in the British Medical Association, he had been equally prominent in the Society of Medical Officers of Health. Snell was President of the Midland Branch in 1901 and again in 1921. From 1908 to 1920 he held the office of Hon. Secretary of that branch and from 1927 to the time of his death he was its Treasurer. Although Snell was a hard-working member of the Council of the Society for very many years and did a great deal of excellent work on its various Committees, the "high spot" of his association with that body came in 1926 when he was unanimously elected President. Those who were present at the Annual Dinner of the Society at which he presided will remember his genial and unassuming manner, his kindness, his dry humour, and especially the merry twinkle in his eye.

*The Nation's Larder. 1940. London: G. Bell & Son.
(See *Public Health*, October, 1940, pp. 3 and 14.)

*The Nation's Larder. 1940. London: G. Bell & Son.
(See *Public Health*, October, 1940, pp. 3 and 14.)

"He belonged to the older school of administrators who have had to build up the various services assigned to their direction, and he liked to maintain a personal contact with all who were working in his department. It was this personal touch which helped to make him so popular with the members of his staff. To the younger generation of the Public Health Service he was the wise and kindly counsellor, always ready to give helpful advice when it was sought but never presuming upon his experience or seniority."

"After his retirement from active work in 1930 he continued to maintain a close interest in the work of the B.M.A. and the Society, and attended meetings of both bodies whenever possible."

"He will be greatly missed by all his colleagues in the Public Health Service as well as by a much wider circle of friends all over the country."

DR. N. M. J. JITTA.

The Permanent Committee of the International Public Health Office announces with great regret the death of its distinguished Honorary President, Dr. N. M. Josephus Jitta, on June 4th, 1940.

Dr. Jitta had been the delegate for Holland on the Committee from 1920 until early in the present year. His health had been failing for some time and when his term of office as President of the Permanent Committee came to an end in October, 1938, he did not wish to stand again for the position of President, on grounds of ill-health. Dr. M. T. Morgan (British Colonies) was therefore elected in his place.

Dr. Jitta had had a long and fruitful career as clinician and hygienist and as the administrative head of the health services of his country. He had held the post of President of the Council of Hygiene of the Netherlands since 1920 and had directed important researches on such questions as vaccination and post-vaccinal encephalitis. Dr. Jitta was the representative of the International Office of Public Health on the Health Organisation of the League of Nations for many years and he did much to co-ordinate the activities of the two bodies. He took a considerable part in the work preparatory to the revision of the International Sanitary Convention of 1926, especially in connection with problems concerning the Suez Canal and the Mecca pilgrimage. In 1935 he replaced Sir George Buchanan as President of the Permanent Committee.

All those who knew Dr. Jitta personally were particularly struck by his kindly manner and by the sureness and subtlety of his judgment. His long experience of international hygiene made his advice particularly welcome to his colleagues.

DR. ROBERT NICKLE DENNING, J.P.

Dr. R. N. Denning, whose death occurred on October 22nd, was the most senior of the Society in years, having reached the age of 89, and had been a member since 1897. He was born in 1851, and in 1880 was appointed part-time Medical Officer of Health for Elland Urban District, from which post he only retired a few years

back. In his long medical career, Dr. Denning was a respected figure in his area of Yorkshire, where he had a busy practice. He found time to attend meetings of the Yorkshire Branch over a long period, and he was elected a life Fellow of the Society on that Branch's recommendation when he retired from his M.O.H.-ship.

KATE PLATT, M.D., B.S. (LOND.).

Dr. Kate Platt, whose death by "enemy action" occurred recently, was for some years a Fellow of the Society. The main part of her career was spent in India, where she played a pioneer part in teaching medicine to Indian women of various races and castes, as the first Principal of the Lady Hardinge Medical College for Women at New Delhi. After retiring from India through ill-health in 1921, Dr. Platt came home and found many outlets for her activity, including much lecturing on subjects of social hygiene. She was attached to the Maternity and Child Welfare Group of the Society from 1924-29.

BOOK REVIEW

Industrial Hygiene. A Handbook of Hygiene and Toxicology for Engineers and Plant Managers. By LAURENCE B. CHESWETH, B.A., M.D., and WILLARD MACHLE, B.S., M.D. 1939. London. Sir Isaac Pitman. pp. ix + 235. Price 10s. 6d. net.

This book, written by two prominent American workers in the field of industrial hygiene is in some ways unusual. The authors point out that it is intended primarily as a textbook for engineering students and also as a work of ready reference for engineers and plant managers. Though the text is not sufficient to include the volume in the list of works on industrial hygiene intended for the medical profession, it embraces certain subjects which are not usually found in them, and it may therefore claim with some justice to be a book of reference for lay persons actually engaged in responsible positions in industry.

The first portion of the book deals with workmen's compensation (American law), industrial accidents, fatigue in industry, physical factors in industrial hygiene, the health service in industry, and the first-aid treatment of injuries. The chapter on accidents contains a clear statement of Heinrich's analysis of 75,000 cases, and should be useful to factory administrators. The chapter on first-aid contains many good photographs and diagrams, and bandaging and stretcher drill are well dealt with in an appendix to the book.

A large portion of the second part of the book is devoted to a description of the causes of occupational intoxication, and other chapters deal with burns, asphyxia, dust diseases, respirators and skin diseases. The section on intoxication is surprisingly full for a work of this type, though the medical descriptions are necessarily meagre. The section on respirators is clear and well illustrated.

This book should prove valuable to the type of reader for whom it is intended, and medical men who are not specialists in industrial diseases will find in it much useful information.

The Society of Medical Officers of Health

ANNUAL GENERAL MEETING.

Notice is hereby given that the *Annual General Meeting* of the Society will be held at Tavistock House, Tavistock Square, W.C.1, on Friday, November 15th, 1940, at close of Council Meeting and not before 3.15 p.m.

AGENDA.

1. Minutes.
2. Correspondence.
3. Installation of President.
4. Annual Reports of the Council, Hon. Treasurer and Editor (together with Balance Sheet and Revenue Account) for the Session 1939-40 (printed in PUBLIC HEALTH, November, 1940, p. 29, *et. seq.*).
5. Election of Auditor.
6. To sanction postponement by Council of Elections under Articles 19(d) and (f) of the Society's Articles of Association owing to emergency cancellation of September meeting of Council.
7. Election of Fellows (see list below).
8. Nomination of Candidates for election.
9. Vote of thanks to the President.
10. Any other business.

By Order,
G. S. ELLISTON,
Acting Executive Secretary.

Candidates Awaiting Election on Friday, November 15th, 1940

AS FELLOWS.					
Branch.	Name.	Address.	Appointment.	Proposer and Seconder.	
E.M.	Briggs, Geoffrey Oswald Atyeo,	74, Burlington Road,	Med. Supt., Newstead	J. C. H. Mackenzie	
	M.B., B.Ch. (CAMB.), D.P.H.	Sherwood, Nottingham	Sanatorium, Nottingham	E. Milford Ward	
N.W.	Bunting, Frederick Wm., M.D.	Malvern, Prescott Road, St.	A.C.M.O.H., Lanes C.C.	F. Hall	
	(GLAS.), D.P.H.	Helens, Lanes		J. C. H. Porter	
N.	Cleminson, John, M.B., B.S.	Aysgarth, Underhill Road,	M.O.H., Boldon U.D.	J. A. Charles	
	B.H.V. (DUBL.), D.P.H.	Cleadon, Co. Durham	and Sunderlans R.D.	E. F. Dawson-Walker	
E.M.	Daniels, Mare, L.R.C.P.S., D.P.H.	Beaconsfield, Grantham	A.C.M.O.H., Kesteven C.C.	J. H. Clarke	
				T. J. O'Sullivan	
Mid.	Maitland, Charles Titterton, M.D.	Ministry of Health Regional	Princ. Regional Medical	R. H. H. Jolly	
	(LOND.), F.R.C.P.	Offices, 139, Hagley Road, Edgbaston, Birmingham	Officer	Hugh Paul	
Wa.	Stubbins, Haydn Rees, M.D.	Public Health Dept., Neath	M.O.H., Neath M.B.	R. M. F. Picken	
	(EDIN.), D.P.H.			Tudor D. Llewellyn	
S.	Taylor, George Rowland, M.B.,	"Caradon," University Road,	Sen. A.S.M.O., South-	H. C. Maurice Williams	
	B.S. (LOND.), D.P.H.	Southampton	ampton C.B.	Wm. Stewart	

Annual Reports of the Council, the Hon. Treasurer and the Editor for the Session, 1939-1940

ANNUAL REPORT OF THE COUNCIL, SESSION 1939-40

1. *New Members and Resignations.*

During the past session 57 candidates have been elected as Fellows or Associates of the Society; 111 resignations have been accepted from members on their retirement from active practice or for other reasons (23 of these are temporary withdrawals for the duration of war) but it has been found possible to retain in the register on the basis of fully-paid life membership (provided for in Article 12) 19 members who have subscribed to the Society for 25 years or more and who would otherwise have been lost by resignation.

2. *Deaths.*

The Society has to mourn the loss by death since October 1st, 1939, of Drs. Jessie Balsillie (M.O., M. & C.W., Stoke-on-Trent), Joseph Buck (M.O.H., Hunslet R.D.), W. J. Butcher (formerly M.O.H., West Sussex C.D.), J. W. E. Cole (Deputy M.O.H. for School Services) Plymouth C.B.), A. Day (M.O.H., Glendale R.D.), C. C. Finlator (C.M.O.H., Clackmannan C.C.), T. B. Flint (M.O.H., Buxton M.B.), J. A. R. Glennie (formerly M.O.H., Launceston R.D. and Broadwoodwedger R.D.), V. J. Glover (M.O.H., Waterloo with Seaforth U.D.), M. C. R. Grahame (formerly Deputy M.O.H. and T.O., Burnley C.B.), Jane A. D. Maclean (A.C.M.O.H., Nottinghamshire

C.C.), J. Middleton Martin (formerly C.M.O.H., Gloucestershire C.C.), S. G. Moore (formerly M.O.H., Huddersfield C.B.), W. J. M. Slowan (formerly A.M.O., L.C.C.), J. A. Stephen (formerly M.O., M. & C.W., Aberdeen City), L. E. W. Stephens (formerly M.O.H., Warblington U.D.), A. N. Stevens (M.O.H., Great Yarmouth C.B.), and John Tate (C.M.O.H., Middlesex C.C.).

3. *Present Strength and Recruitment.*

The net loss in the membership of the Society during the session has, therefore, been 72 members, making the total strength 1,834 on September 30th, 1940. We are gratified at the way in which members have recognised the importance of maintaining their support of the Society during a period of great stress and strain for the public health service. We have been able to make some useful representations to Government departments on behalf of all our members, including those who are temporarily with the fighting services, but the main point to be borne in mind is the importance of preserving a vital and well-organised service ready to deal with the new problems which will arise after the war.

4. *Meetings held during the Session.*

The uncertainties of the year under review decided the President to omit the usual programme of papers and discussions at the Society's headquarters, but the following formal meetings were held:—

November 17th, 1939—Installation of President for 1939-40 (Dr. F. T. H. Wood) and election of new members.

March 15th, 1940—Election of new members.

July 19th, 1940—Election of President for 1940-41 (Dr. Wood re-elected) and new members.

5. *Annual Luncheon.*

The President and Officers made a courageous decision to hold a luncheon in place of the usual dinner, and this step proved to be a most welcome one, as approximately 150 members and guests attended the luncheon, when it was held at the Piccadilly Hotel on Friday, April 5th, 1940. The chief guest was the Minister of Health, the Rt. Hon. Walter Elliot, who proposed the toast of the Society, to which the President (Dr. F. T. H. Wood) replied. Many other distinguished guests were present and all present enjoyed the Society's war-time substitute for the usual more formal occasion.

6. *Work of the Council and Committees.*

At the outbreak of war, it was thought that the conduct of the Society's business might have to be left to a small emergency committee, but in fact it was possible to continue normal working until September, 1940. During the session there were held three meetings of the Council, five of the General Purposes Committee and three of the Journal Committee. A special committee on A.R.P. matters also continued in existence and was available for immediate consultation by the Ministry of Health and Home Security: as a result of special representations, the

Society also obtained facilities for getting its own views on these matters discussed with the Departments. Several such consultations took place in the course of the session and were useful in settling difficulties or misunderstandings.

Problems of A.R.P. and evacuation were in fact the main features of the Society's Council and Committee meetings during this session, but other war-time questions were also prominent, notably those of the adjustment of pay for medical officers released by their local authorities for service with the Forces and of the filling of vacancies occurring in the public health service during the war period. These questions are still under active consideration and will be fully reported on in future proceedings of the Council.

Another matter to which the Society gave much attention during the session was that of the reduced price milk scheme for nursing and expectant mothers and children under five. The original scheme was introduced by the Ministry of Health and was proposed to be worked through the welfare authorities; it was opposed by the Society on the grounds that it might be prejudicial to the existing M. & C.W. scheme. The later Government scheme, now in operation, was that of the Ministry of Food, and the Society's representatives effectively argued that it should be administered by special Milk Officers rather than by the local health departments.

In order to keep members fully informed of the matters under discussion, summaries of the proceedings of the General Purposes Committee have been published in *PUBLIC HEALTH* in the intervals between meetings of the Council.

7. *Co-operation with the British Medical Association.*

Close contact has been maintained with the Association, both through the public health service representatives on the Council of that body (the President of the Society and Professor Picken) and through consultation between the central offices. The Association has as usual shown the utmost willingness to support the representations of the public health service in matters of salary and conditions of service, which are, by the established agreement, handled by the larger body.

8. *Central Medical War Committee.*

All matters concerning the allocation of the country's medical personnel for war service have been settled by this composite body of representatives from the Government departments, from the B.M.A. and from other medical bodies, including the Society. Dr. Gordon Lilico was appointed the Society's representative during the past session, in place of Dr. James Fenton, who was compelled to retire owing to pressure of other duties. Professor Picken, who is one of the B.M.A. members, has also rendered valuable service in advising on the respective requirements of the fighting and public health services. On the whole the call of the armed forces for specialists in hygiene has not so far been exceptionally heavy, and the majority of members of the public health service have been reserved for the demands of civil defence and evacuation.

9. *The President, 1939-40 and 1940-41.*

In these exceptional times the Society has been fortunate to find a worthy President to undertake office for successive years. Dr. Wood gave much time and thought to the Society's interests during the session under review, and unselfishly agreed to continue in office for a second year. We express to him the Society's gratitude for his conduct of the Presidential office and hope that his renewed tenure of it may see the return of quieter times, when the public health service can return to more constructive work.

10. *Other Officers and Retiring Members of the Council.*

The thanks of the Society are once again due to the Hon. Treasurer (Dr. George F. Buchan), whose careful stewardship is shown by the satisfactory financial position after a year of war: also to the Chairmen of Committees, Dr. Cyril Banks (General Purposes) and Professor R. M. F. Picken (Journal).

The annual interchange of Branch and Group representatives on the Council involves the retirement of Drs. J. Johnstone Jervis, G. Jessel, J. Mair and W. A. Young, to whom the Society's thanks are also due.

11. *Secretariat.*

With the consent of the Council, Mr. G. L. C. Elliston, Executive Secretary, applied for and was granted a commission in the Royal Naval Volunteer Reserve in June. The Council was in a position to facilitate Mr. Elliston's temporary absence owing to the willingness of Captain G. S. Elliston, M.C., M.A., M.P., the Consultant Secretary, to undertake on a part-time basis duties as Acting Executive.

The Council is indebted to both of these officers for their good services during the year.

REPORT OF THE HONORARY TREASURER FOR THE SESSION 1939-40

I have pleasure in submitting my report for the year ended September 30th, 1940.

Revenue Account.—The total income received during the year was £3,757 6s 8d., being a reduction of £509 12s 4d, as compared with last year's income. All the principal headings of income have been less than last year.

Expenditure.—This year's expenditure has amounted to £2,998 12s 3d. or £1,425 14s. 0d. less than for the previous year. Expenditure under all the principal headings shows a reduction as compared with last year.

It is pleasing to record that the revenue account shows a credit balance of £758 14s. 5d. at the end of the year.

Balance Sheet.—The balance sheet discloses that the Society possesses investments to the value of £7,834 19s. 7d. The market price of these investments at September 30th, 1939, was £5,970 16s. 8d. At September 30th, 1940, the value of these investments was £6,812 6s. 7d.

Staff.—I have again to record my indebtedness to the Executive Secretary and also to the Acting Executive Secretary, Captain G. S. Elliston, M.P. It is a matter for congratulation that Captain Elliston is again with us and the Society may feel confident that their affairs are in the best hands.

GEORGE F. BUCHAN, *Hon. Treasurer.*

REPORT OF THE EDITOR OF "PUBLIC HEALTH" FOR THE SESSION 1939-40.

I beg to present a brief report in regard to Volume 53 of *PUBLIC HEALTH*, covering the issues of October, 1939, to September, 1940, inclusive. The total number of editorial pages in this volume was 264, as compared with 240 in Volume 52, but the comparison is not strictly relative, for the reasons mentioned below. The number of special articles in Volume 53 was 37, compared with 42 in Volume 52.

While Hitler has not yet completely changed the face of Europe or of the world, he has to some extent been responsible for changing the face of *PUBLIC HEALTH*, as our readers may see by comparing a pre-war with any recent number. At the outset of the war we were compelled, by a certain difficulty in getting together the usual volume of material, to reduce the number of pages by about one-third. After the Scandinavian invasions shortage of paper materials became acute, and in order to keep within our allocation we decided to print the editorial annotations and special articles in a smaller type than the rather extravagant one used hitherto; also to do without such luxuries as double-column headings. I think that the new type-size is quite adequate and might well be adhered to when peace returns. The old size of type gave 58 lines and about 410 words per column; the new gives 64 lines and about 510 words. In my opinion, legibility has not suffered and the neatness of the printed page in *PUBLIC HEALTH* has been enhanced.

The gathering of editorial material during the past session has not always been an easy task, but on the whole one feels that the journal has provided members of the Society with topical and varied reading. I owe special gratitude to the chairman of the Journal Committee (Prof. Picken) and other contributors of editorials and articles for their ungrudging help during a time when the public health service has had so many new calls made upon it.

It is gratifying that advertisers in *PUBLIC HEALTH* have shown their continued confidence in the value of our journal. This, combined with the enforced economies in paper-consumption and in printing charges, has resulted in a financial year with a lower net cost to the Society than in any previous year.

Lastly, I should like to express thanks to Messrs. H. R. Grubb, Ltd., our printers, for their usual co-operation, and to the Council of the Society for permitting their Editor to continue his functions in the intervals of duty with the Senior Service.

G. L. C. ELLISTON,
Editor of PUBLIC HEALTH.

October 21st, 1940.

The Society of Medical Officers of Health

BALANCE SHEET

At 30th September, 1940 (with comparative figures of previous year).

LIABILITIES.				ASSETS.			
1939.	£ s. d.	1940.	£ s. d.	1939.	£ s. d.	1940.	£ s. d.
CAPITAL ACCOUNT—				*INVESTMENTS AT COST—			
4000 0 0	Mr. Berridge's Bequest	4000 0 0		4000 0 0	£4099 17s. 5d. India 3% Consol.	4000 0 0	
150 0 0	Dr. Neech's Gift	150 0 0		500 0 0	£514 16s. 0d. Metropolitan 2½% Consol.	500 0 0	
4150 0 0		4150 0 0		659 9 6	£650 3½% War Loan	659 9 6	
ACCUMULATED BALANCES—				250 0 0	£320 16s. 7d. 2½% Consols	250 0 0	
4479 14 5	Resulting from accrued sums being excess of Income over Expenditure...	4522 7 2		511 13 3	£500 3½% Conversion Stock	511 13 3	
42 12 9	Add Excess of Income over Expenditure, 1939-40	758 14 5		921 3 10	£1000 Local Loans 3% Stock	921 3 10	
4522 7 2		5281 1 7		483 3 6	£500 Manchester Corporation 3% Stock	483 3 6	
451 10 0	Furniture and Library	451 10 0		509 9 6	£500 Birmingham 3% Stock	509 9 6	
25 0 0	Provision for Doubtful Debtors	25 0 0		7834 19 7		7834 19 7	
48 17 4	Sundry Creditors	34 19 10		167 0 0	Furniture and Library	165 0 0	
				1 0 0	Telephone payment in advance	1 0 0	
				SUNDRY DEBTORS			
				35 10 7	Dividends accrued	35 10 7	
				137 19 6	Advertising	133 15 2	
				3 5 6	Reprints	1 1 0	
				34 18 6	Lettings	18 18 0	
				26 15 4	Miscellaneous	14 19 0	
				238 9 5		204 3 1	
				CASH BALANCE—			
				1145 7 8	At Bank	2174 14 5	
				219 16 2	Less Cheques outstanding	487 14 10	
				925 11 6		1686 19 7	
				32 14 0	Add Petty Cash underspent	50 8 6	
				958 5 6		1737 8 1	
9197 14 6		9942 11 5		9197 14 6		9942 11 1	

*Note.—The market price of the Society's Investments last year and at the present time.

1939.	£ s. d.	1940.	£ s. d.
2736 15 0	£4099 17s. 5d. India 3% Stock at 66½ and 79½	3244 2 6	
473 16 0	£514 16s. 0d. Metropolitan 2½% Stock at 92 and 97	499 11 0	
576 17 6	£650 3½% War Loan at 88½ and 101½	662 3 9	
204 12 9	£320 16s. 7d. 2½% Consols at 63½ and 74½	238 6 10	
438 15 0	£500 3½% Conversion Stock at 87½ and 100½	504 7 6	
745 0 0	£1000 3% Local Loans at 74½ and 86½	868 15 0	
305 0 0	£500 Manchester 3% Stock at 73 and 79½	397 10 0	
430 0 0	£500 Birmingham 3% Stock at 86 and 79½	397 10 0	
5970 16 3		6812 6 7	

I hereby certify that I have audited the several accounts of which the foregoing is the Balance Sheet, and have verified the Capital investments and cash balances set forth above. The entries appear to be complete and correct, and to present a true record of the financial position of the Society.

Dated this 31st day of October, 1940.

(Signed) J. T. HARRIS,
Auditor.

REVENUE ACCOUNT

Year ended 30th September, 1940 (with comparative figures of previous year).

EXPENDITURE.				INCOME.			
1939.	£ s. d.	1940.	£ s. d.	1939.	£ s. d.	1940.	£ s. d.
152 10 0	To Rent	200 0 0		3147 17 5	By SUBSCRIPTIONS	2870 12 9	
74 19 6	.. Rates and Taxes, etc.	8 17 0			.. INCOME FROM INVESTMENTS—		
52 3 8	.. Redemption of Lease	—		89 3 4	Dividends on £4099 17s. 5d. India 3% Consolidated Stock	76 17 5	
7 18 6	.. Repairs and Decorations	—		9 6 8	On £514 16s. 0d. Metropolitan 2½% Consolidated Stock	7 8 1	
60 17 6	.. Fuel and Lighting	14 16 1		22 15 0	On £650 3½% War Loan	22 15 0	
21 15 3	.. Maintenance	30 18 11		5 16 4	On £320 16s. 7d. 2½% Consols	5 0 4	
370 4 5		254 12 0		12 13 10	On £500 3½% Conversion Stock	11 7 7	
500 0 0	.. SALARIES—			21 15 0	Interest on £1000 Local Loans at 3%	18 15 0	
—	Executive Secretary	464 11 8		10 17 6	On £500 Manchester Corporation Stock at 3%	9 0 0	
74 2 0	Acting Executive Secretary	25 0 0		19 17 6	On £500 Birmingham Corporation Stock at 3%	9 0 0	
—	Caretaker	—					
574 2 0		489 11 8		183 5 2		160 3 5	
585 2 9	.. JOURNAL ACCOUNT—			14 17 0	.. REFRESHER COURSE: Balance	—	
22 15 2	Printing	516 16 4			.. RENT—		
150 0 0	Reprints	17 8 11		87 10 0	Maisonette	—	
40 11 6	Salary of Editor	150 0 0		30 9 6	Sundry Lettings	18 18 0	
79 10 0	Editorial	34 18 0		117 19 6		18 18 0	
18 8 6	Clerical Assistance	84 10 0			.. JOURNAL ACCOUNT—		
171 9 4	Libel Insurance	18 8 6		54 2 11	Sales	36 16 4	
1067 17 3	Postages	133 3 3		114 13 2	Subscriptions	102 10 9	
123 11 0		955 5 0		23 4 8	Reprints	20 13 6	
52 0 8	.. ROLL OF MEMBERS PRINTING	2 10 3		580 12 8	Advertising	547 11 11	
152 9 8	.. GENERAL PRINTING	8 0 6		772 13 5		707 12 6	
	.. STATIONERY	106 6 7			.. ROLL OF MEMBERS ADVERTISING	—	
79 19 9	.. CENTRAL OFFICE—						
21 19 0	Postages	53 15 6					
423 15 0	Telephone	18 7 3					
63 0 11	Clerical Assistance	451 10 0					
12 12 2	Miscellaneous	32 1 1					
1 14 0	Library	14 13 11					
603 0 10	Office Equipment	22 10 4					
21 0 0	.. Auditor's Fee	21 0 0					
65 15 8	.. Dinner Account	46 13 4					
241 0 1	.. Travelling Expenses	164 15 7					
5 5 0	.. Neech Prize	5 5 0					
	.. PROPORTION OF SUBSCRIPTIONS DUE TO BRANCHES—						
27 15 0	North-Western Branch	26 2 6					
21 2 6	Yorkshire Branch	20 7 6					
32 0 0	Metropolitan Branch	29 2 6					
6 5 0	Eastern Branch	6 7 6					
9 10 0	Southern Branch	10 12 6					
13 5 0	Northern Branch	12 10 0					
43 12 6	Home Counties Branch	40 10 0					
11 7 6	West of England Branch	11 7 6					
11 10 0	Welsh Branch	11 0 0					
12 5 0	East Midland Branch	13 7 6					
12 15 0	Scottish Branch	12 10 0					
18 10 0	Midland Branch	15 7 6					
42 5 0	Dental Officers' Group	36 15 0					
262 2 6		246 0 0					
24 6 11	.. BRANCH AND GROUP MEETING EXPENSES	7 14 0					
38 16 3	.. PENSION SCHEMES—						
25 0 0	Executive Secretary	38 16 3					
13 12 4	Mrs. Swain's Gratuity	—					
	Mrs. Swain's Weekly Pension	26 0 0					
77 8 7		64 16 3					
450 0 0	.. REMOVAL EXPENSES—						
127 6 8	Dilapidations	—					
6 15 0	Equipment and Alterations	—					
584 1 8	Sundry Expenses	4 0 0					
—	.. REFRESHER COURSE: Fee Repayments	4 4 0					
—	.. ACTING EXECUTIVE SECRETARY'S EXPENSES	25 0 0					
42 12 9	.. Balance: being excess of Income over Expenditure	758 14 5					
4266 19 0		3757 6 8					

BRANCH & GROUP MEETINGS

NOTICE.

DENTAL OFFICERS' GROUP.

Travelling and other conditions make the holding of the Annual General Meeting at present impracticable and it has accordingly been postponed until conditions improve.

The Yorkshire Sub-Group (Hon. Secretary: J. Jackson, Esq.) has arranged to hold the usual programme of meetings and the first meeting was held on October 19th to receive the Presidential address of G. S. Cubitt, Esq.

In the absence of meetings Mr. K. C. B. Webster will be pleased to receive contributed articles with the view to publication in PUBLIC HEALTH.

A. GORDON TAYLOR, L.D.S., R.C.S.,
28, Battlefield Road, Hon. Secretary.
St. Albans, Herts.
October 21st, 1940.

MIDLAND BRANCH.

President: Dr. Hugh Paul (M.O.H., Smethwick C.B.).
Hon. Secretary: Dr. R. H. H. Jolly (M.O.H., Wolverhampton C.B.).

The first meeting of the Session was held at St. Chad's Hospital, Birmingham, on October 2nd, 1940, at 8.30 p.m. The President was in the chair and was supported by 16 other members.

The minutes of the previous meeting, which had been published, were taken as read, and signed.

The Honorary Secretary was instructed to write to Dr. Kynaston, offering him the sympathy of the Branch in his illness, and wishing him a speedy recovery.

It was reported that in view of the decision not to hold an Annual Meeting last summer, the Officers and Council for the Session now commencing had not yet been appointed.

The Secretary read a recommendation of the Branch Council that all present officers and elected members of the Council be re-appointed for another year; this was unanimously agreed to. It was further agreed to re-appoint Dr. H. Gibbons Ward and Dr. R. H. H. Jolly as Branch Representatives on the Council of the Society. A further recommendation to the effect that the "Branch Council be empowered to act on the Branch's behalf in any emergency arising out of War Conditions" also met with unanimous approval.

Dr. Paul proposed and Dr. Jolly seconded that Dr. E. Stanley Robinson, who is shortly giving up his duties as Medical Officer of Health, Stourport, and who has been a member of the Society since 1895, be nominated for fully paid life membership of the Society. This was carried unanimously.

After thanking the Branch for his re-election, the President invited Dr. Paul to initiate a discussion on "Public Health Problems in War-time." In his remarks Dr. Paul mentioned a diversity of subjects of present interest to Medical Officers, including: (a) the ventilation of ordinary air raid shelters and of gas-proof shelters; (b) the Government cheap milk scheme; (c) general immunisation against typhoid and tetanus,

and (d) the risks of spreading infectious diseases in public and communal air raid shelters.

It was this last subject which received most attention in the discussion which followed. The general opinion was that every possible step should be taken to prevent persons suffering from all forms of notifiable diseases (including measles and whooping cough) from going into communal shelters and that the necessary legal powers to enforce such action were given by Section 136 of the Public Health Act, 1936.

Some speakers doubted if any policy of exclusion of infectious persons could be rigidly enforced, and argued that no bench of magistrates would convict in such cases. To parents of a child with measles or other childish ailments the risk of sudden death above ground would far outweigh the greater chances of transmitting disease to others in a shelter. The danger of the admission of persons with feverish and influenzal colds was also mentioned.

YORKSHIRE BRANCH.

President: Dr. J. Sharpe (Dep. M.O.H., Leeds C.B.).
Hon. Secretary: Dr. R. Sutherland (M.O.H., Brighouse M.B.).

An ordinary meeting of the Branch was held at the Civic Hall, Leeds, on Friday, September 27th, 1940, at 8 p.m. The President was in the chair and was supported by 15 other members.

The minutes of the last meeting were read, approved, and signed.

Letters were read from Dr. James Mair and from Dr. Alexander Anderson, expressing their appreciation of the honour which the Branch had done them in recommending their election to the status of fully-paid Life Fellows of the Society. A letter was read from Dr. L. Pickering Pick expressing the regret with which he severed his connection with the Yorkshire Branch of the Society. The Secretary was instructed to write to Dr. Pickering Pick reciprocating his good wishes and it was unanimously decided that Dr. Pickering Pick should be recommended for election to the status of a fully-paid Life Member of the Society subject to his being eligible for such election. It was decided that the Annual Luncheon for members and their guests should be held at the Hotel Metropole, Leeds, on Friday, October 25th, at 1 p.m., to be preceded by a Council Meeting at 12.30 p.m., and to be followed by an Ordinary Meeting of the Branch at which Dr. N. Gebbie, the Medical Officer of Health of Hull, would be inducted to the office of President for the forthcoming session.

At the request of the President, Dr. Frain introduced Dr. Settle, his successor at Pudsey. Dr. Settle was welcomed by the President, and made a suitable reply. There were then short discussions upon the questions of maternity hospital treatment of destitute women, raised by Dr. Payne, and upon the employment of school girls, raised by Dr. Sutherland. The President then called upon Dr. E. D. Irvine, of Shipley, to address the Branch on "Civilian Health Risks in War-Time." This paper and the subsequent discussion are printed in this issue of PUBLIC HEALTH.

PUBLIC HEALTH

THE JOURNAL OF

THE SOCIETY OF MEDICAL OFFICERS OF HEALTH

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DECEMBER, 1940

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"Public Health" is the Official Organ of the Society of Medical Officers of Health and a suitable medium for the advertisement of official appointments vacant in the health service. Space is also available for a certain number of approved commercial advertisements. Application should be made to the Executive Secretary of the Society, at Tavistock House South, Tavistock Square, W.C.1.

Telephone: Euston 3923. Telegrams: Epidaurus, Westcent.

Editorial

Changes at the Ministry of Health

It has been announced that Sir George Chrystal, Secretary of the Ministry of Health, and Sir Arthur MacNalty, Chief Medical Officer of the Ministry and of the Board of Education, have retired on reaching the age limit. These important posts have been filled by the appointment of Sir John Maude, who has been Deputy-Secretary, to be Secretary, and Sir Wilson Jameson, as Chief Medical Officer. Our readers hardly require to be reminded that Sir Wilson Jameson has been Professor of Public Health in the University of London since 1929, Dean of the London School of Hygiene and Tropical Medicine since the death of Sir Andrew Balfour and, more recently, Medical Adviser to the Colonial Office, posts which he now relinquishes.

The public health service has naturally a special interest in the holder of the supreme governmental medical position in the country. The contacts of its members with Sir Arthur MacNalty have been of the friendliest character during his long career in the Ministry and they have appreciated his keen interest in their work and his outstanding contributions to the study of epidemiology. They wish him the greatest happiness in his retirement from the labours which have become so arduous in recent years. They will also be gratified at the choice of his successor. Sir Wilson Jameson was apprenticed in the field work of public health and became Medical Officer of Health of Hornsey and Finchley before accepting the academic posts we have mentioned. His firm roots in that field have been of inestimable value not only in keeping post-graduate teaching of public health from drifting away from practicality, but also in preserving contact between the London School of Hygiene and public health workers and helping them in the solution of their problems. He has been the guide and friend of the large number of local government officers who have sought his help. His wise counsel has often been invaluable in the Council of the Society of Medical Officers of Health, of which he has been not only a distinguished member for many years but in whose deliberations he has taken an active and regular part. We are assured, therefore, that the collaboration and unity of objective which have always existed between the medical staff of the Ministry and the medical service engaged in local government will be well maintained.

Lastly, it is good news that Sir Wilson's former "right-hand man," Lt.-Col. G. S. Parkinson, has taken up duty again at the London School as Acting Dean and Director of the Public Health Division.

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Degrees and Diplomas in Public Health

In normal times a Report* circulated last summer to licensing bodies by the General Medical Council would probably have received some notice in the medical press. Throughout 1938 and 1939 members of the Public Health Committee of the Council visited examinations for Degrees or Diplomas in Public Health conducted by a majority of the licensing bodies in Great Britain and Ireland and reported back to the Committee. The Visitors and the Committee have obviously been dissatisfied with the method of conducting some examinations and with what appeared to be unjustifiable variations of standards as between one licensing body and another. Although the present time is recognized as being unsuitable for revision of the Rules, the G.M.C. has thought it desirable to circulate the Report among licensing and teaching bodies for their observations.

The Visitors appear to have been impressed with the extent to which the examinations differ from one another in respect of the number of written questions to be answered and of the balance of their subject-matter, of the number, scope and duration of the practical tests, and of the marks allocated to different parts of the examinations. The Committee emphasises especially the need for an adequate number of examiners in both Part I and Part II to permit of expert assessment of candidates' knowledge in each subject of the Part, and go so far as to say that it is almost impossible for two persons to possess between them a sufficiently precise and accurate knowledge of the multiplicity of subjects which figure in each Part to act as competent examiners. They regard the combination of internal and external examiners in each Part as the ideal. They consider bacteriology to be the only subject requiring practical examination in Part I, but it should cover immunology, serology, protozoology and other branches of parasitology, including helminthology and medical entomology, and should extend over two days so as to allow the candidates to examine and report on cultures made by themselves. They deprecate the setting of questions in Part I on British law and administration, since this examination is concerned with basic knowledge of principles, and they draw attention to an excessive preoccupation with public health law and administration in the Part II examination of at least one body. They comment unfavourably on the weakness of some so-called clinical examinations in infectious diseases. They consider vital statistics worthy of a separate paper in Part II, or at least of combination in one paper with epidemiology, and suggest that more attention should be given to statistical method. They seem to regret the fact that only two examining bodies devote a separate paper and oral practical examinations to sanitary construction and planning.

This very condensed summary of the contents of the Report is perhaps sufficient to indicate its nature and its limitations. Running through it there is a strong current of dissatisfaction with the arrangements made

by all but a few examining bodies and the impression created in the mind of its reader is that, if every candidate were examined at every examination on every separate subject the G.M.C. has included in its Rules for instruction, and if there were sufficiently numerous expert examiners, the examination would be regarded as a good one. Perhaps this comment is a little unfair, but it is made in order to mark the danger of attempts by any dominant body to prescribe an examination in too much detail. The quality and value of an examination depend far more upon the nature of the questions set than their number, and above all on the competence of the examiners to judge of their merit; in an essentially vocational examination like that for a public health qualification, a small number of examiners in practical day-to-day contact with public health problems is probably better than a diffuse board of academic experts. The most cogent criticism of examinations in recent times has been made by an English Committee of the International Institute Examination Enquiry.* The diversity of assessment is so great as to be irremediable by mere multiplication of examiners.

The point we have made is specially directed to Part II, and it may be suggested without offence that the Public Health Committee of the G.M.C. is not strongly representative of those who practise preventive medicine in the field and are therefore competent to judge the quality of this Part. It is believed that they were not entirely without outside advice in the final stages of the preparation of their Report, but as it recommends that the Council should in due course adopt new Rules dealing with examinations (presumably on the basis of this Report) the question arises as to whether some new procedure should be adopted before important decisions of this kind are taken. When the Rules for instruction were revised in 1937 the Society of Medical Officers of Health had an opportunity of making suggestions and a committee was specially constituted to report on the matter. Many of us felt that the Rules then adopted had defects, but so long as the examination requirements were in general terms the prescription of courses without special emphasis on any one subject might be regarded as innocuous. If a more detailed prescription of examinations is contemplated, it is desirable that the syllabus should be subjected to fresh scrutiny, and the dual object might best be attained by the establishment by the G.M.C. for this purpose of an advisory committee representative not only of the Public Health Committee itself and of teachers and examiners in both Parts, but also of public health officers. Indeed its reference might be extended to cover a wider field of post-graduate instruction for all types of public health work, for the present practice of making the D.P.H., or a similar general qualification, the sole portal of entry into most branches of the public health service may be open to criticism. The recent adoption by the Ministry of such a qualification as essential for supervisors of midwife† is a case in point.

* "An Examination of Examinations," 1936. MacMillan & Co., Ltd.

† The Midwives (Qualifications of Supervisors) Regulations, S.R.O., 1937, No. 398.

HEALTH AND THE STATE

By JAMES GRANT, M.D., CH.B. (GLASG.), D.P.H.,
Medical Officer of Health, Gateshead C.B.

In the modern practice of medicine, a complex and interwoven web of ethics and customs, sanctions and duties has grown up around the treatment of disease, which in its narrowest essential is but a simple relationship between two people. Yet all this organic development has been the fruit of experience and dictated by the communal interest, and to reach the present level has taken 3,500 years of known history, during which whole civilisations have appeared and had their brief moments of lustre before descending to oblivion. Mankind has seen many murderous international struggles and the effect on medical progress has been profound. Either war eradicated all medical culture or, more frequently, it produced a convalescent period of intensive reconstruction, during which great progress has been made. The latter effect of war often suggests a human repentance of bloodshed with amendment as a self-imposed penitential task. At this very moment, when the world is gripped in the throes of a bitter cataclysm, it should not be thought inappropriate to look ahead and past the end, and an obvious necessity for a huge post-war reorganisation and extension of the entire health services compels such an attitude. That a great change was due before the present war was only too evident, and the failure to attempt this task arose out of our fatal tendency towards *laissez-faire*, reinforced by the influence of vested interests, particularly the instrument of high finance, which has so often exercised its power to suspend, obstruct, and even veto expenditure necessary in the national interest.

Organised Health Services in the Past

In primitive tribal existence, medicine figured as an affair of superstitions, charms, spells and plant lore, individuals with a talent for these things becoming medicine men, who often claimed awesome powers, which they sought to extend by intensive study of the plants and a display of primitive surgical ability. Nor did their research stop here, for the stimulus of competition directed their attention to natural phenomena, such as storms, eclipses and movement of the astral bodies. It was from these men that we gained our knowledge of the properties of digitalis and opium, and even the ultra-modern practices of hypnosis and massage were far from unknown to the Hindus and the Polynesians respectively. Quite naturally, such medicine men, from the status of unofficial servants to the tribe, came to fulfil also official functions, such as the priesthood, in the Egyptian and Babylonian civilisations.

The physicians of Greece fostered the cult of Aesculapius, son of Apollo and patron of healing, and the temples of this god became the diagnostic and treatment centres. Grateful patients paid for service by offerings of money and goods in the temples, from which the Aesclepiads benefited. From Hippocrates,

* Presidential Address to the Northern Branch, Society of Medical Officers of Health, October 19th, 1940.

disciple of this cult, came the scientific attitude to medicine, manifested by systematic observation of disease and rational treatment. With the Roman Empire, a fall in the status of the physician left the practice of healing to be carried out by Greek slaves, who later won their liberty to become the private practitioners of the eternal city. The official Roman attitude to health was architectural and directed much more to environmental hygiene than to disease. Roman ideas of town planning, aqueducts, sewage and refuse disposal endured, but with the fall of the city in the Fifth Century, Europe entered the long night of the Dark Ages, when Greco-Roman culture was preserved in the Byzantine Empire. Christianity taught charity to one's neighbours as a solemn religious duty, and everywhere the faith spread, the Church, which so often combined in itself the central and local government machinery of the State, set up monastic hospitals to care for the feeble and the afflicted. Much knowledge was lost in the tribal migrations following the fall of Rome, but the great Galen had already provided the authoritative comprehensive text book for the physicians of the religious orders. With the later rise and spread of Islam in the East, endeavours were made by the Arabs to continue Hippocratic research and medical schools were established at Damascus and Cairo. The bent of the Arabian physicians was chiefly towards the clinical study of disease and its pharmacological treatment.

Gradually medical learning spread among the religious of the European concert of nations, so that universities and medical schools were instituted under ecclesiastical patronage at Salerno, Paris, Bologna and Padua, to mention but a few. The practice of nursing as an ancillary to medicine was also of Christian development, commemorated by the names of the Beguins and the Knights Hospitallers of St. John. The fall of Constantinople in 1453 dispersed the Byzantine scholars and their treasure of learning throughout Europe, so that in the new spirit of the age, the era of original research began with Vesalius and the Italian anatomists to continue, despite frequent interruptions from the religious wars, throughout the 16th and 17th centuries, as exemplified by names like our own Harvey and Sydenham. But the hospital service received a tremendous set-back with the disunity of religion, and it was not until the 18th century that it recommenced, and then again as a public work of charity, with voluntary professional help. Then the revolutionary doctrine of democratic liberty spread from France and, as an aftermath of war, led in Britain to the great Reform Act of 1832, and to the elected parliament, which dug the foundations of the present system of preventive medicine in the Public Health Act.

From this much abbreviated summary of medical history it is maintained that peace made for an orderly but slow progress of medical science and practice, whereas war, when it did not destroy civilisation, brought a temporary suspension of progress, followed in peace by a period of intense and rapid reorganisation, not always of an orderly character.

Not until the 20th century, however, did organised medicine depart from purely empirical practice and

* General Medical Council. Public Health Committee. General Report on the Visitation (1938-39) of Examinations for Diplomas and Degrees in Sanitary Science, Public Health and State Medicine.

systematically apply the fruits of medical research to the public good. Prevention of epidemics and eradication of fever mortality by environmental improvement certainly rank as triumphs but they are of comparatively small importance when compared with the institution of a primitive and incomplete state medical service in 1911. Nor were the aims of medicine confined to the prevention and treatment of disease as expressed in the Health Insurance Act, but, with the initiation of maternity, child welfare and school medical services and of care of the mentally defective, a wider objective was being proclaimed, the custody of the national welfare. Under political pressure, the preventive mind became busy also with the hygiene of the factory and care of the health of workers, and the whole movement received a great impetus with the first great war, so that during the succeeding peace, "the social services" became of the greatest importance.

The Voice of Criticism

That all was far from well in the organisation of the health and allied services was apparent from the frequent allusions to inco-ordination, over-lapping and inefficiency previous to the present war. A Royal Commission on National Health Insurance in 1926 made certain recommendations for improvement, but on many principles revealed discordant views.

The medical profession itself, through the medium of the British Medical Association, expressed its mind and presented to the nation its plan for a general medical service. Later the Department of Health for Scotland set up a committee to review the entire health services and this body made many far-reaching recommendations in its report of 1936. The same ground was even more intensively covered by the PEP Report on the British Health Services, published in 1937. With the aid of these documents the principal defects in medical organisation can be stated.

No single national body exercises a complete supervision over all the health services, and there is little liaison between the Ministry of Health and other Ministries, or between the many departments of the Ministry itself.

The local authorities are badly arranged, represent communities of extreme diversity of size, show great variation in their standard of services and are entirely separate from Health Insurance Committees.

Treatment of insured patients under the Insurance Scheme ceases at the moment when the patient becomes so ill as to require institutional care or specialist skill.

General practice has degenerated into a commercial undertaking, while the abilities of practitioners vary from downright incompetence to near-specialism. A large proportion of the population cannot afford the services of a medical practitioner, unless where a public medical service has been set up by the B.M.A. Single-handed, no practitioner can practise with success the many branches of diagnosis and treatment.

Consultant practice is anomalous in the fact that the main income of the specialist is derived from relatively few wealthy patients, and most of his apprenticeship and half of his mature work is performed for little reward in the voluntary hospitals, while municipal hospitals pay for his services on an agreed scale.

The hospital accommodation necessary for the treatment of disease is inadequate and unsatisfactory. This applies to all categories, including isolation, tuberculosis, maternity, general, mental and specialised institutions. The principal general hospitals are run by so-called voluntary bodies, which, while dependent on public subscriptions, resent any interference and are badly organised so that there are long waiting lists and over-crowded out-patient departments. The latter indeed have been carrying out the work, which should be done by general practitioners and have given consultant service to individuals who could well afford specialist's fees. Municipal hospitals, either of new erection, or converted from poor law purposes have relieved the situation, but payment in accordance with means is a necessary condition of the use of the facilities. Local authority institutions of the hospital class are not used to the best advantage because of the anomalies of local authority organisation, and in many areas are insufficient. Special forms of treatment are only available to the general public at a few centres.

In the Scottish departmental report, other matters besides health are stressed as of importance. The virility of the nation is decaying on account of a falling birth rate in conjunction with an increased average duration of life. This necessitates a great increase in the institutional care of the elderly and infirm who have no posterity to look after them. Economic causes are leaving whole areas destitute of the means of support and crowding other areas, while rural inhabitants are abandoning agriculture and adding still more to the congestion of cities and towns.

Various Constructive Proposals

In dealing with the purely medical aspects of these imperfections, a fair consensus of constructive opinion emerges from the three relevant documents. When unified and re-organised, the Central Authority must be given more power and exercise more initiative. The British Medical Association suggests that functions not directly bearing on health, e.g., housing, should be transferred to other departments and that the medical duties of the Board of Education and of the Home Office should be assumed. The Central Authority should be charged with ensuring uniformity in the standard of services provided for the country.

Although all three reports declare that the local authorities are an important integral part of the health machinery, what would seem desirable is the creation of a new local authority, representing a community of not less than 75,000 people, as the sole local health authority within its area. The PEP Report holds that the model authority for this purpose is the County Borough Council, and the B.M.A. policy is that all health services should be under the control of a statutory health committee of the local authority, and that this committee should be reinforced by the co-option of medical practitioners. The Scottish Report would leave the areas as they are, but the institutional problem is treated separately. Even so, the Scottish Report fails to suggest a remedy for a certain cleavage of health functions in the Scottish school medical service, for in the large burghs, the welfare of school children remains the business of the education committees of the

counties, and for this purpose members appointed from the burgh councils have seats on the county council, with powers to vote only on educational matters.

In regard to National Health Insurance, the B.M.A. plan is to treat the scheme as essentially national, with local health committees strongly represented on the insurance committees. On the other hand, the Scottish Report favours the abolition of insurance committees and the transfer of their functions to the health committees of the local councils, reinforced by co-option of representatives of local practitioners and Friendly Societies. The PEP Report conveys the idea that insurance committees are largely redundant, except for the machinery for dealing with complaints against practitioners, and the Scottish Committee criticises the cumbersome machinery of handling these complaints.

That the Medical Officer of Health is the natural head of the schemes of health administration under local control meets with no dissent. The B.M.A. would have him assisted by an advisory committee of local practitioners, while the PEP Report suggests that some existing anomalies require to be rectified in the scope of his office in certain areas, due primarily to bad arrangement of committee work, and cites the existence of independent school medical officers.

In striking unanimity, it is held that the general practitioner, as family medical adviser, must be the pivot of the domiciliary medical services. No member of the community should be debarred from having access to a chosen family practitioner, and the favoured view is that this ideal should be attained by extending medical benefit to the dependants of injured persons and to others of similar economic status. Thus, the Poor Law domiciliary service would disappear, while the maternity, child welfare and school medical services would be modified to allow very close co-operation with the family practitioner. The sphere of the local authority would then be to co-ordinate, educate and provide some forms of treatment at the appropriate centres. In such a domiciliary service, the PEP Report insists that the practitioner should have at his disposal centres equipped with diagnostic and therapeutic apparatus, and with such facilities as a small operating theatre and a pathological laboratory, an application of the clinic system of the local authorities to general practice. Both B.M.A. policy and the Scottish Report agree that a doctor and not a midwife should assume charge in midwifery.

In regard to specialists, who are defined with some difficulty and without gradation by the B.M.A., there are no recommendations of note, apart from the professional tenet that the specialist should be paid for all his hospital work, and that specialist hospital appointments should be on a part-time basis.

For institutions, all recommend some form of regional grouping, in the B.M.A. and Scottish suggestions around a large teaching hospital, which would serve as a base hospital, and in the PEP Report in areas formed by joint boards and committees set up by local authorities. It is fairly clear that additions to the bed accommodation and considerable re-organisation of the hospitals within the regions are demanded. No

answer is forthcoming to the question of municipal versus voluntary control of institutions, the impression created being that by the application of pious platitudes there is room for both systems within the same region. The PEP Report, however, does put forward a principle, namely that for purposes no longer experimental but tried and proved, State control is preferable, while the sphere of the voluntary body would lie in work which is of a controversial or pioneering character, and therefore requires the widest freedom.

Sanitary and environmental services, such as the provision of water, disposal of refuse and sewage and the control of the food supply are criticised, with the conclusion that under re-organised local authorities great improvements should be achieved. From different angles, both Scottish and PEP Reports tackle the subject of finance. The Scottish Report visualises the health services as being financed by contributions from the employed in regard to domiciliary services and by Exchequer grants, combined with local rates for other local health services. The PEP Report gives some interesting costs, bringing out the small sums devoted to prevention, as compared with the cost of sickness and concludes that finance is of little importance, for in the long view there will always result a real saving from money expended on the health services.

In short, the B.M.A. seeks to amplify the present health services and produce a co-ordinated and unified system. The Scottish Committee concludes that the health services should be animated by concern for individual health and for the physical and mental quality of the race. The PEP Report declares that the salvage rôle is no longer tenable by the health services, and that the present overlapping and confusion must go.

Effect of the War

As is customary in democracies, these criticisms and suggestions have been planted in the minds of all interested people to germinate slowly. Unfortunately, the onset of the second great war has exacerbated the grounds for criticism. The Central Authorities have been found too often to be out of touch with the real problems of the people and obsessed with preconceived ideas, while bureaucratic methods and inflexible control have led to delay and confusion and destroyed the local initiative which might have replaced them, for example, in dealing with the shelter problems and evacuation schemes.

Local authorities have revealed the impossibility of the present system, whereby two sets of councils carry out allied but distinct functions in one area. Local authorities, receiving refugees from more dangerous areas had to improvise, in rural areas, health services equivalent to those normally provided in the former.

General practitioners have seen, in many instances, flourishing practices ruined by the evacuation of civilians and many practitioners have sacrificed their practices in order to serve their country. General practitioners have had to be incorporated in a domiciliary service for unaccompanied evacuated children, air raid casualties and service invalids.

Consultant practice has suffered severely, for many specialists have seen their private practices disappear and in spite of whole-time appointments and sessional

fees in the emergency medical service, have not achieved anything approaching pre-war incomes.

The hospitals, with the exception of the isolation hospitals, have been taken into direct control by the Ministry of Health, which in acquiring new experience as an executive body, made tremendous blunders, such as the clearance of sanatoria at the onset of war. The task of the Ministry in co-ordinating the hospitals is undoubtedly immense, but too little use has been made of the expert knowledge of the local authorities, either singly or in combination. Nevertheless it is worthy of note that the Ministry has had to adopt a regional pattern in the arrangement of its war-time responsibility. Mental hospitals, children's sanatoria and similar institutions situated in the country have had general hospitals attached to them under the same management, and it cannot be maintained that staffing arrangements have been always satisfactory. Then, too, difficulties of obtaining admission of non-acute civilian cases have been increased, while the special treatments are less available than before the war.

The initiative in making a concrete suggestion for the reorganisation of medicine has been taken by the Medical Practitioner's Union, which predicts that force of circumstances will compel the Government to introduce a whole-time salaried State medical service administered by the Minister of Health in association with local health authorities, and asks that this State service should provide, as a first instalment, for the home treatment of the population not already covered by the Insurance Act, *i.e.*, the dependants of men in the Armed Forces, evacuated children and persons injured in air raids. The Union holds that at the termination of the war hundreds of medical men will be unemployed, yet unwilling to face the uncertainties of competitive general practice.

First Principles of Reconstruction

It must be apparent that what is desired in any reorganisation of the health services is a set of acknowledged axioms or elementary principles. In a state, by tradition opposed to any system of tyranny, liberty of thought and of action must be preserved, so long as this does not menace the liberties and rights of others. It follows that there must be a basic "free choice" for doctor and patient in domiciliary medical treatment. The individual doctor must be left free to exercise his calling, subject to the provision that his liberty must not cut across his duties. The right of "free choice" must carry with it a guarantee that through his doctor, each patient should have access to the highest skill in diagnosis and treatment, and the doctor must be held at fault if he does not provide it.

A second principle is that the practitioners of healing must be able to live on the fruit of their labours and that, where possible, their reward must be obtained from the persons making use of their services. The scheme must be designed to allow of promotion or other reward for lengthy experience or intensive work.

Medicine must be treated as a unity throughout the scheme and not as a mere accessory to politics, education, industry or other national function. Laymen can only play a small part in the medical services and then only as auxiliaries, never as directors.

Although the practice of healing can be left as a casual mutual bargain between patient and doctor, the nation has an over-riding duty to protect and foster national welfare, best defined as the greatest good for the greatest number. Any national health scheme must accord with the expression of the popular will, and must be interpreted and applied by the local authorities in the light of local conditions and feelings.

Suggested Basis of Reconstruction

Applying these principles, the Ministry of Health, governed by a chief medical officer, should be answerable in Parliament, through the Minister, for carrying out national health policy and securing uniformity, along with a gradual heightening of the standards of the service. This body would not generally be concerned with local matters of detail. It should convey advice on matters which are of primary or secondary health interest to the government and other departments, with whom close contact should be maintained. Such advice should be upon medical aspects of the industrial, agricultural, and economic systems of the nation such as covered in the Scottish Report. The Central Authority ought to operate through a regionalised medical staff, which would report and advise on the work of subordinate authorities without legal or clerical intervention and these medical officers should be men of tried and proved experience in the executive posts of local authorities. The Ministry of Health would redistribute to the local health services the monies collected by taxation and revenue from the people, or, in other words, even up the financial levels of the wealthy and the poorer areas. These Exchequer grants must not convey the notion that they are Government funds provided in a mysterious way; it must never be forgotten that they are essentially from the people of the area which receives them.

The local authorities must clearly be reorganised and my suggestion is that "districts" might be formed by associating the large towns with adjacent rural and semi-rural areas, so as to provide communities of not less than 100,000 people, linked by local interests and provided with a convenient centre. The district councils, as I should prefer to call them, would be the sole local authority responsible for implementing national health policy in the environmental, domiciliary and preventive spheres, with the exception of hospitals. For these tasks, a statutory health committee should be set up, by compulsion representative of interested parties, such as Friendly Societies, doctors, dentists, nurses and chemists, in addition to the elected councillors. The local authority welfare and school medical services would require some modification and closer co-operation with practitioners. The councils of the districts proposed would have resources enough to administer other local services, besides health, *e.g.*, cleansing, public utilities, police and fire service.

The Medical Officer of Health to the district council would be administrative head of all the local health services and would report directly to the council.

Regions would be formed, similarly to the districts, around the nearest large city, preferably one with a teaching hospital and a medical school. The district councils, by delegation of representatives in ratio to

their populations, along with professional representation, would provide a joint regional board, an *ad hoc* body, responsible solely for the co-ordination, finance and policy of all hospitals within the region. Such a board might, and indeed should, delegate the routine management of many of these institutions to the local district councils, but any recalcitrant district council, which insisted on being out of step with the regional plan, would be superseded. The regional hospitals will, of course, be available for the citizens of any district council within the region.

The chief officer and medical adviser of a regional board would be called the hospital officer, with responsibility for advising his authority on all matters affecting the hospitals, and giving effect to its decisions. To assist him in this task, all the medical officers of the constituent district councils might act as an advisory body. The district medical officers would also have the right to make representations indirectly to the regional board, through the district councils. A further consultative body, representing the specialists of the region ought to be set up, to provide a further link between the regional board and the hospital officer on the one hand and the regional hospitals on the other. Through the district medical officers, the hospital officer will be regularly informed as to the bed state and waiting lists of the regional hospitals, and his office would act as the clearing house, so as to eliminate a great scandal of the past by farming out the work of waiting lists to idle institutions. The hospital officer would also be responsible for setting up a hospital bureau for doctors seeking institutional care for their patients. The regional boards should be responsible directly to the Ministry of Health for their functions. Local grievances of district councils in relation to institutions should be dealt with by the regional board, being proportionately representative of all the districts.

Staffing of hospitals must vary with their nature, but in general hospitals, the main work should be carried out by consultants, employed on the part-time basis, the work being so arranged that the younger consultants, *i.e.*, the assistants to the clinical teachers, should carry out most of the routine work at the peripheral receiving hospitals, as I like to think of them, while the senior consultants, who would be the teaching clinicians and responsible for the work of their assistants, would carry out the difficult work in the central group of hospitals in the specialised units associated with the medical school. Patients with illnesses running a favourable course would be treated in the peripheral hospitals, while the complicated or difficult cases would filter through to the teaching hospitals. All consultants would be paid on a salaried or sessional basis for their work in hospitals, clinics or in the homes of patients. They would also be left free to treat and advise patients privately, and to undertake other work, such as compensation reports, to augment their income and retain a necessary amount of freedom outside the State organisation. The upkeep of hospitals would be by receipts from patients, by Exchequer grants, and by precept from the constituent district councils of the region. Use of hospital services by the individual would be free or paid for according to means and the type of accommodation required.

bearing in mind that in taxes or local rates, the individual is already making a continuous contribution. It will be noted that the so-called voluntary hospital system has disappeared entirely, the State, through the regional boards, taking over entire control, together with endowments. The out-patient departments would be for consultative and follow-up purposes entirely, and patients should only arrive through the general practitioners, except in emergencies.

For the domiciliary medical service a *per capita* contract, made nationally, would be administered by the local health committee in respect of every individual within the district, and would be financed by local rates and by contributions from the workers, collected nationally and returned to the district council as grants. The scheme would provide for a comprehensive service on the lines of the panel system, but linked to the hospitals and open to everyone, each doctor being allowed his quota of patients up to a fixed number, but not transferable in the sale of a practice. For this the doctor would be bound to provide domiciliary and surgery attention in the case of illness and injury and would carry out such routine examinations as were laid down in the national scheme. To help the general practitioners, the hospital out-patient departments and clinics of local authorities would remain available as centres for consultation, diagnosis, education and certain forms of treatment. The practitioners should have available regional consultant advice.

A right of access and of information must be given to the family practitioner wherever his patient goes within the local regional scheme. In this way new developments of medicine would be brought to the notice of the practitioner and prevent the stagnation which is apparent to-day. The medical record of the citizen, in health and illness, would be collected locally and filed for reference in the department of the registrar. In such a service the competitive urge is retained as an incentive to a better service, while private patients would still exist as the reward of merit, for there will always be people who prefer to make private arrangements. Professional freedom will be retained, only if doctors can make a living outside the State system. A State service would no doubt require constant stimulation and practitioners will require some disciplinary control, not only in the matter of ethics and professional conduct, but also in the methods of diagnosis and treatment. Punishment of such lapses should be at the hands of professional brethren, and, in many cases, might take the form of compulsory refresher courses. A superannuation fund should be established for practitioners, as an offset to the loss of value in the sale of practices.

In these constructive proposals, I do not claim to have outlined more than a framework, which I feel leaves many blanks. That the structure would stand erect, leaving the embellishments to be completed at leisure in the light of experience, is my confirmed opinion. The adoption of this scheme would not be out of line with previous constructive proposals, nor with the health organisation forced upon us by war. The most difficult task, the delineation of the new districts, should not be impracticable at the end of a war which has convulsed the map of Europe.

AGE AND SEX INCIDENCE, AS DISTINCT FROM MORTALITY, IN RESPIRATORY TUBERCULOSIS

By RALPH M. F. PICKEN, B.Sc., M.B., CH.B., D.P.H.L.
Mansel Talbot Professor of Preventive Medicine,
University of Wales.

The reluctance of tuberculosis to decline in young adult life, especially among females, during the past 30 years or more is so important a phenomenon that any observation that may throw even the faintest glimmer of light upon it is worth recording. The course of the mortality from tuberculosis by age and sex has been frequently described and is dealt with in a brief paper which appeared in this journal last April.¹ The explanations of its vagaries propounded by Hill, Hart and Wright, and Wolff were discussed as some length in a leading article in the same issue.² These articles and the interesting explanations offered by the Registrar-General were based on mortality statistics for the whole country. When we confine our attention to Wales and Monmouthshire, which have experienced a less satisfactory rate of decline of mortality at all ages since 1918 than England, it is found that the excessive mortality from respiratory tuberculosis in recent years is almost entirely confined to the ages under 35, and that the mortality among females especially is remarkably high in the age-groups 15 to 24, and 25 to 34, as compared with other regions of the country.³ It is clear from such age- and sex-distributions as are available for Wales and Monmouth over a long series of years that subsequently to 1911 the same progressive concentration of mortality on the 15 to 24 age-group occurred among females, and to a much lesser extent among males, as affected the whole country. While it is not the object of the present article to discuss again the reasons for this secular trend, it may be mentioned that overcrowding in houses on which such stress was laid by Hart and Wright has been grave in the rural parts of Wales, but less so in the urbanised industrial areas of South Wales which furnish by far the highest proportion of the deaths in adolescence and young adult life;⁴ that poverty,

with its probable effect on nutrition, has fallen heavily on all parts of Wales, especially since 1921, but was certainly not excessive in the industrial south before then; that women have never been heavily engaged in industry; that there has been active emigration both from industrial and rural Wales; and that early marriage and child-bearing, accompanied by a marked fall in births beyond those of the first order, have produced in industrial Wales the conditions which on Wolff's⁵ hypothesis might account for the stand-still of mortality among young women. It is not possible from general observations of this kind to put one's finger on any aspect of life in Wales which would account for the heavy mortality among young people in both the industrial and agricultural areas. The study of the subject may be carried a little further by examining the incidence as distinct from the mortality in Wales. In the last four Annual Reports of the Welsh National Memorial Association the Principal Medical Officer (Dr. Dan Powell) has included tabular analyses of the new cases of tuberculosis, respiratory and other forms being separated. The former are distributed by age and sex, divided into those with positive sputum and those with negative, and each of these latter categories is grouped into one of three stages to which the disease had advanced at first examination. It should be understood that these tables include only patients coming under careful examination, including X-ray examination in a large proportion of cases, before they are accepted and classified. They are not merely notified cases uncritically accepted as tuberculous, but constituting over 75 per cent. of all notified cases they represent a fair sample of the newly ascertained tuberculous population. By combining the records of four years it is possible to obtain a sufficiently large number of observations in each class to make study worth while. The total number of new cases classified in the four years was 9,339, consisting of 5,040 males and 4,299 females. In Table I they are set out by age and sex, clinical grouping and according to whether tubercle bacilli had been detected in their sputum. When cases at all ages are classified according to the result of sputum examination the proportion of males

TABLE I.
WALES AND MONMOUTHSHIRE. NEW CASES OF RESPIRATORY TUBERCULOSIS BY AGE, SEX, PRESENCE OR ABSENCE OF TB., AND GROUP, 1936-39.

		Group.	TB. + or —.	All Ages.	0—	5—	15—	25—	35—	45—	55—	65—
Males	...	1	+	217	—	7	72	76	30	21	8	3
			—	911	17	153	368	170	106	59	32	6
	...	2	+	1,073	—	11	291	296	202	161	95	17
			—	914	13	85	256	172	138	139	87	24
	...	3	+	1,552	—	21	326	352	296	302	200	61
			—	373	7	20	90	57	56	61	58	21
Females	...	1	+	167	—	5	75	59	19	5	3	1
			—	886	16	138	369	234	81	35	7	6
	...	2	+	898	1	29	373	286	123	60	22	4
			—	795	8	74	297	222	97	44	28	25
	...	3	+	1,155	1	31	487	322	164	85	45	20
			—	398	7	33	159	82	38	31	27	21

with tubercle bacilli in the sputum is seen to be rather higher than of females, but this relative position is not maintained in each age-group. A glance at Table II reveals that the sex relationship in this respect is reversed at ages 5 to 14 and 15 to 24. It is after 25 years of age that the sputum positive state becomes commoner in the male than in the female and this persists at higher ages. In a well organised clinical service like that in Wales clinical grouping is probably a better measure of the extent to which the disease has advanced than the presence or absence of tubercle bacilli in the sputum. This is shown in Table III for the same age-groups as in Table II. Here again it will be seen that the new female cases ascertained are slightly better placed as regards the stage of the disease when cases at all ages are taken together, rather a higher proportion being in Group 1 and a lower in Group 3. But, as before, the position is quite definitely reversed at ages 5 to 14 and 15 to 24, at which ages, it may be noted, nearly one-half of all the female cases first come under notice. Not only do a much larger ratio of the female cases than the male occur at young ages (see Table IV), but also at these ages the prognosis is less favourable as measured by the presence of tubercle bacilli in the sputum or by the clinical stage to which the disease has progressed. Comparison of Age-Distribution of Cases and Deaths Since the age-grouping adopted by the Welsh National Memorial Association corresponds with that

used for deaths by the Registrar-General, it is possible to compare age- and sex-mortality with age- and sex-incidence. Death statistics are not yet available for the year 1939, but the combined figures for 1936, 1937 and 1938 will serve. For the purpose of comparison it is convenient and quite satisfactory to distribute the cases and deaths in age-groups as percentages of cases or deaths at all ages in either sex, since they affect the same population. The result is shown in Figs. 1 and 2. Although male incidence shows a greater spread over the years of life than the female, corresponding to the familiar contrast of mortality, there is another interesting difference between the two graphs. Whereas the peak of female incidence falls like that of mortality upon the age-group 15 to 24, and the concentration of cases at this age is only moderately greater than that of deaths, the divergence of the curves of male cases and deaths is striking. The peak of male cases, also at ages 15 to 24, is ten years earlier than that of deaths, and the weight of mortality falls much more heavily on the later years of life than incidence does. Comparison of Age-Distribution in Clinical Groups When the percentage age-distribution of the new cases in each clinical group is considered separately we get the picture shown in Figs. 3 and 4. There is little difference between the age-incidence of female cases in Groups 1, 2 and 3. They all tend to cluster in the age-group 15 to 24. With males, however, it is otherwise. The curve for Group 1 resembles that

TABLE II.
PERCENTAGE OF CASES TB. + OR TB. — AT CERTAIN AGES FOR EACH SEX.

		All Ages.		5-14		15-24		25-34		35 and over.	
		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
TB. +	...	56.4	51.6	13.1	20.1	49.1	53.1	64.5	55.3	63.8	55.6
TB. —	...	43.6	48.4	86.9	79.9	50.9	46.9	35.5	44.6	36.2	44.4
		100	100	100	100	100	100	100	100	100	100

TABLE III.
PERCENTAGE OF CASES IN EACH CLINICAL GROUP AT CERTAIN AGES FOR EACH SEX.

		All Ages.		5-14		15-24		25-34		35 and over.	
		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Group 1	...	22.4	24.5	53.9	46.1	31.4	25.2	21.9	24.3	12.2	15.8
Group 2	...	39.4	39.4	32.3	33.2	39.0	38.1	41.7	42.2	39.6	40.7
Group 3	...	38.2	36.1	13.8	20.6	29.6	36.7	36.4	33.5	48.3	43.5
		100	100	100	100	100	100	100	100	100	100

TABLE IV.
PERCENTAGE OF CASES BY AGE AND SEX.

		All Ages.	0—	5—	15—	25—	35—	45—	55—	65—
Males	...	100	0.7	5.9	27.8	22.3	16.3	14.7	9.5	2.
Females	...	100	0.8	7.2	40.9	28.0	12.1	6.0	3.1	1.8

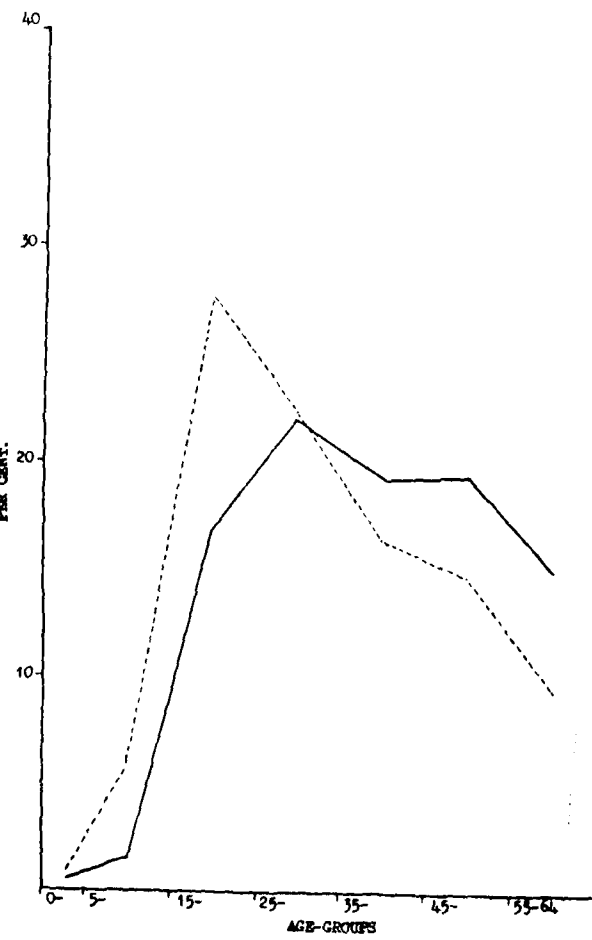


FIG. 1. MALES: Percentage age-distribution of cases (1936-1939) and deaths (1936-1938).
Deaths ——— Cases

for females, but the Group 2 cases are pushed toward higher ages and group 3 begins to approach the still older age-distribution shown for deaths in Fig. 1, although the peak just remains at ages 15 to 24.

Proportion of Deaths to Cases by Age and Sex

The question naturally arises as to whether the disease, which is so much heavier in incidence and mortality among females at ages under 35, and so much lower in these respects at older ages than in males, in Wales and Monmouth, really varies in the same way as regards its power to kill when contracted. It is difficult to examine this aspect of the subject from the available data but Table V has been introduced as perhaps giving some inkling of the true state of affairs. It shows for each age-group the proportion of deaths to new cases recorded in the years 1936, 1937 and 1938. These percentages are, of course, not presented as fatality-rates, since we are not placing all the notified cases against the deaths, and in any case only a proportion of the cases ascertained in these years died during them. They may, however, fairly be used for comparing the relative positions of the two sexes if it can be assumed that the proportion of notified cases examined was approximately the same, a point which cannot be

determined from any published statistics. It will be observed that the ratio of all deaths to cases classified by the Welsh National Memorial Association is higher among females than males, not only in youth but in every age-group up to 65 years as well as at all ages taken together. The evidence, such as it is, suggests that respiratory tuberculosis, once it has been contracted, is a disease of more serious prognostic import among females at practically any age, even though the clinical grouping may appear more favourable.

Discussion

From a knowledge of the differences in the age of death from respiratory tuberculosis among males and females, it seemed likely that similar differences would occur in incidence and, indeed, clinicians are aware that they do. The observations presented above demonstrate from a sufficiently large body of data that whereas the disease tends to be less advanced in females than in males over 25 years of age when it is first ascertained, this is not the case at younger ages. Moreover, the advanced cases among females are as much concentrated in the young age periods as the early cases and the deaths not much less so, whereas

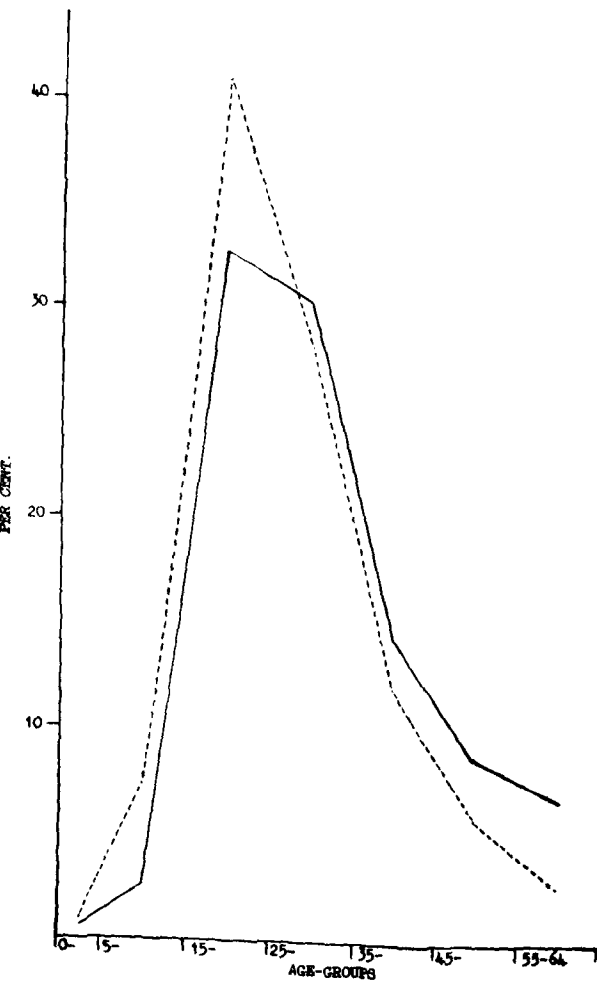


FIG. 2. FEMALES: Percentage age-distribution of cases (1936-1939) and deaths (1936-1938).
Deaths ——— Cases

there is a definite movement to higher ages among males (which is according to expectation for a chronic disease) when we pass from early to intermediate and advanced cases and ultimately to death. It is unlikely that young females are any more reluctant to submit to early examination than males, so that there is probably no artificial selection. Under 15 years of age, at least, the sexes are subject to the same scrutiny by the school medical service, and early signs and symptoms should be noted with equal frequency. The conclusion seems unavoidable that respiratory tuberculosis in Wales, besides affecting girls and young women more frequently than boys and young men, is a much more rapidly progressive disease among them when they are affected. This again is a common clinical observation. It is possible, even, that the

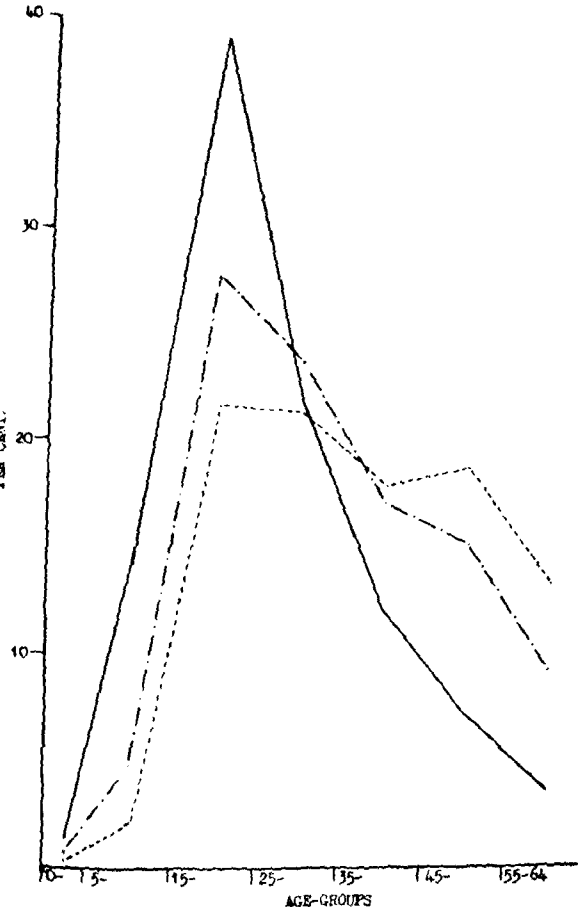


FIG. 3. MALES: Percentage age-distribution of cases in clinical groups.
Group 1, ——— Group 2, - - - - Group 3,

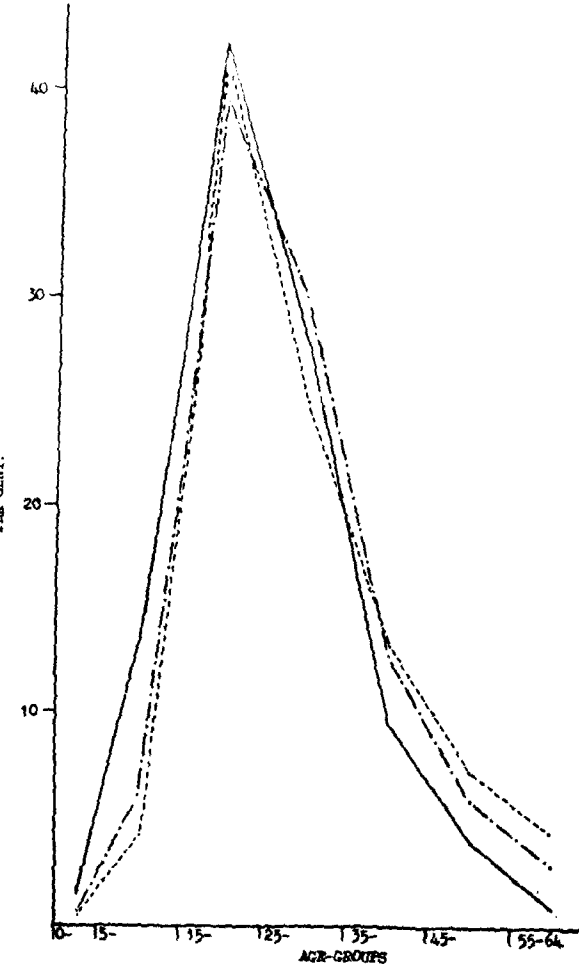


FIG. 4. FEMALES: Percentage age-distribution of cases in clinical groups.
Group 1, ——— Group 2, - - - - Group 3,

disease is more rapidly and certainly progressive to death among females than males at any age, although it is detected in Wales at a less advanced stage among older women than older men.

It would appear that investigation of the secular trend of mortality from tuberculosis in the younger age-groups, which has received so much attention, is not likely to be fruitful so long as these fundamental differences in the behaviour of the disease in males and females remain unexplained. Examination of such figures of cases and deaths as one can expect to find in periodical reports can do little more than point the way to further investigations by those who are intimately concerned with the tuberculous patient. Are

		TABLE V. DEATHS PER 100 NEW CASES BY AGE AND SEX, 1936-38.								
		All Ages.	0-	5-	15-	25-	35-	45-	55-	65-
Males	...	72	41	13	44	70	85	92	117	175
Females	...	75	55	25	60	82	91	106	169	163

girls and young women, for instance, more exposed to massive infection at home than males? There is some evidence that such exposure may govern the early onset of clinical disease.⁶ Or is their special susceptibility entirely physiological? The material required for dissecting out from one another the various factors which may influence the differential incidence of tuberculosis at ages on males and females, some of which have been mentioned earlier in this article, is in the possession of, or can be gathered by, the tuberculosis departments of the counties and large towns or bodies like the Welsh National Memorial Association. Investigation of this kind involves a combination of clinical and pathological observation with social enquiry, the results being recorded in such a form that they are capable of statistical analysis. The tuberculosis departments alone are in a position to carry out such a programme, but it must be carefully planned somewhat on the lines of the enquiry into tuberculosis in rural Tennessee conducted under the guidance of the late Professor W. H. Frost. When we have found the reason for the permanent difference of age-incidence as between males and females, we may be well on the way to understanding why the decline of the rates in adolescence and young adult life, especially in females, has lagged behind that at other ages.

Summary

(1) While new male cases of tuberculosis at all ages in Wales are more advanced at the time of detection than female cases, the reverse is the case at ages 5 to 14 and 15 to 24.

(2) There is a greater lag between the modal age of ascertainment and death in males than in females.

(3) Whereas in males the average age of Group 2 and Group 3 cases is progressively higher than that of Group 1 cases, there is little difference in this respect among females.

(4) The observations support the view that tuberculosis is much more rapidly progressive in girls and young women, and possibly even in women at all ages.

(5) The reason for this state of affairs is worthy of detailed study by tuberculosis organisations.

REFERENCES.

- ¹*Public Health*. (1940). 53, 145.
²*Ibid.* (1940). 53, 139.
³*Ibid.* (1938). 52, 33.
⁴Min. of Hlth., Rep. on Overcrowding Survey in Eng. and Wales, 1936.
⁵*Amer. J. Hyg.* (1939). 30, Sec. A, 63.
⁶Sweany, H. C. (1939). *Act. Tub. Scand.*, 13 (1-2), 67.

Members of the Society are cordially invited to attend a meeting which is to be held at the Royal Society of Medicine, 1, Wimpole Street, London, W.1, on "Hygiene in Air-Raid Shelters," on Friday, December 20th, 1940, at 2.30 p.m. Free speaking will be encouraged at this meeting.

Correspondence

THE NATION'S LARDER.

To the Editor of PUBLIC HEALTH.

SIR, The prominence given to this publication by your reviewer in the October number is very commendable.

It is remarkable that nutritional principles which now receive wide acceptance and which are put forward in this book are by no means new. Well over 30 years ago the so-called Food Reform movement, consisting of small groups of enthusiasts inspired by a sense of humanity and a profound belief that escape from disease could only be achieved by living in accordance with the laws of nature, advocated all these things which are now being broadcast on the highest scientific and official authority. Several decades ago food reform pioneers advocated the use of whole cereals; the greater use of vegetables and the special value of the green vegetable; the conservative cooking of vegetables to save the dissolved salts, and pointed out the harm done by the use of soda; they recommended the greater use of fruits and salads; the eating of less or no meat, and more milk, cheese, butter and eggs.

Since then practically every detail of what those food reformers urged and practised has been justified and the reasons demonstrated by the biochemist's researches. The idea that the whole cereal is vastly superior to the denuded white product has been shown to contain therapeutic truth applicable in the prevention and cure of a wide range of diseased conditions. Marmite, a favourite condiment with the food reformer, has been justified by its richness in the B complex. Even the 25-year-old belief that there was valuable nutriment immediately under the skins of fruits has been shown to be sound, due to a greater concentration of vitamin C near the surface. The greater fitness of the vegetarian athlete, and his freedom from muscle soreness and cramp, especially in feats of long endurance, has turned out to be attributable to the high content of thiamin in his diet of more natural foodstuffs. That the flesh of livestock was an uneconomical food—a fact for the second time brought into prominence by a war—was familiar to the food reformer of 30 years ago; and indeed the fact was authoritatively emphasised 20 years ago by Professor Starling and others as having much to do with the collapse of Germany in the last war.

These ideas, at first put forward by the few and much scoffed at by the medical profession, are now substantiated on the highest authority; it is a lesson that some of us might well ponder. One cannot remember too often that new-fangled ideas may contain valuable truth, and are not necessarily wrong because they are held by a few, just as minorities are not necessarily wrong because they are minorities. Orthodoxy often shuts its eyes to demonstrated fact, as in its neglect for the best part of a half-century of Captain Cook's discovery of the antiscorbutic principle. And I can well remember how, not very many years ago, the idea that one could live healthily, even superbly, without meat was much ridiculed by people in high places.

It might be pointed out that recent advance in nutritional science has been little more than to fill in the details of how and why the food reformer was right in his advocacy of more natural whole foods. It has needed the work of the laboratory technician to impress advancing nutritional knowledge on both lay and professional unbelievers. Mere diet reform was too much like washing in Jordan to be medically acceptable, and we still err in concealing social principles of feeding in the mystery prescription of tablet and medicine bottle.

Yours faithfully,

11, Vesey Road, E. H. WILKINS,
 Wyld Green, Birmingham. M.B., D.P.H.
 November 28th, 1940.

OBITUARY

ALBERT JAMES TILL, M.B. (EDIN.), D.P.H.

The death, through enemy action, of Dr. A. T. Till, Medical Officer of Health for the Borough of Mitcham, has deprived the public health service of a keen and efficient member at the early age of 40.

Dr. Till was born in South Africa and received his medical education at Edinburgh, where he qualified in 1924. He also took the D.T.M. & H. and worked subsequently in Damascus and in Swaziland with medical missions. Eventually ill-health from malaria caused his return to England, and in 1931 he took the D.P.H. and was appointed M.O.H., Mitcham, where he served successfully until his death. He became a Fellow of the Society in 1930 and was a regular participant at Home Counties Branch meetings. Deep sympathy will be felt for his widow and young daughter.

RECENT APPOINTMENTS IN THE PUBLIC HEALTH SERVICE

The following are some recent appointments to the health departments of various local authorities.

The Editor will be grateful if members of the Society will notify him at once of any new appointments.

BIRMINGHAM C.B.: Temp. A.M.O.H., Dr. L. J. Bacon (A.M.O.H. & A.S.M.O., Heston & Isleworth M.B.).

BLACKBURN R.D.: Deputy M.O.H., Dr. T. J. Burke. CHORLEY M.B.: M.O.H., Dr. J. F. Russell (Dep. M.O.H., Great Yarmouth C.B.).

DUNFERMLINE B.C.: A.M.O.H., Dr. Sarah Clark (née Harris) (A.M.O.H., Twickenham M.B.).

DURHAM C.C.: A.M.O.s. M. & C.W., Dr. Phyllis Dixon and Dr. Mary G. Masterton.

GRAVESEND M.B.: M.O.H., Dr. H. S. Davies (M.O.H., Newton-le-Willows and Golborne U.D.).

ISLINGTON MET. B.: M.O.H., Dr. Victor Freeman (A.M.O.H., Islington). Salary £1,400, rising to a maximum of £1,600.

LONDON SCHOOL OF HYGIENE & TROPICAL MEDICINE: Acting Dean and Acting Director of the Public Health Division, Lt.-Col. G. S. Parkinson, D.S.O., R.A.M.C. (ret.).

TIPTON M.B.: M.O.H., Dr. E. C. Downer (M.O.H., Chorley M.B.).

THE SOCIETY OF MEDICAL OFFICERS OF HEALTH

GENERAL PURPOSES COMMITTEE MEETING.

1. A meeting of the General Purposes Committee was held at Tavistock House, Tavistock Square, on Friday, November 15th, 1940, at 12 noon.

PRESENT.—Drs. Cyril Banks (Chairman), Vynne Borland, G. F. Buchan, James Fenton, E. H. T. Nash, Prof. R. M. F. Picken, Drs. T. N. V. Potts and Ernest Ward.

Apologies for absence were received from the President (Dr. F. T. H. Wood), Drs. J. S. Anderson, James Ferguson, R. H. H. Jolly, Catherine Morris Jones, Sir Wm. Savage, Drs. J. A. Stirling and H. Gibbons Ward.

2. Minutes of the last meeting, held on May 17th, were confirmed and signed.

3. The Committee considered a memorandum drafted by Dr. J. A. Charles embodying criticisms and suggestions in reference to the Liquid and Dried Milk Schemes of the Ministry of Food, as follows:—

NATIONAL LIQUID MILK SCHEME.

i. The present position is that liquid milk is made available under the scheme, at a reduced price and in certain cases free of cost, to:—

- (a) any child under the age of five years;
- (b) any expectant mother, and
- (c) any nursing mother.

The only governing condition, apart from the question of income scales, is that the milk should be consumed by the persons for whom it is intended.

ii. Three main points arise from this position:—

(a) There is no attempt to apply bacteriological standards as to the safety of the milk.

(b) The purpose of the scheme is nutritional only, and the milk is provided as a food. Whether it is in fact, a suitable or safe food for certain of the categories of recipients is not taken into consideration. From this arises the further point that liquid milk is available for any child under the age of five years, and may, in fact, be provided for a newly born infant.

(c) The scheme has been devised without consideration of its possible effects upon the existing arrangements for the welfare of expectant and nursing mothers and young children, under the Maternity and Child Welfare organisation, and upon the former practice whereby the great majority of artificially fed infants received the safe dried milk appropriate to their age and constitutional state.

Dealing with the above *seriatim*:—

(a) Although in theory local authorities are able to institute measures for obtaining clean and safe milk supplies, in practice the legal powers available are insufficient to achieve the aim stated. This has been recognised by the inclusion in:—

- (i) Milk in Schools Schemes.
- (ii) Cheap Milk Schemes established by the Commissioner for the Special Areas, and
- (iii) Cheap Milk Schemes under Ministry of Health Circular 1840;

of a clause whereby it was required that "the source and quality of milk supplied under this scheme must be approved by the Medical Officer of Health of the Welfare Authority." The introduction of some such powers in

the National Liquid Milk Scheme would not necessarily be administratively difficult and would serve to exclude notorious purveyors of dirty milk.

(b) Liquid milk, whether safe or otherwise, is not a suitable food for newly born infants, unless under medical direction. Yet the existing scheme allows liquid milk to be issued to newly born infants *without* medical certificate, whereas the issue of national dried milk to the same category of recipients can only be authorised on the production of a medical certificate.

It is suggested that dried milk is the appropriate food for children under 12 months and not liquid milk. (See iv (c) below.)

(c) (i) Evidence is accumulating to show that attendances at child welfare centres and the consumption of dried milk (including issues of national dried milk) have been reduced in recent months. It is difficult to evaluate the respective importance of the various causes of this phenomenon, but undoubtedly the introduction of the National Liquid Milk Scheme is in part responsible.

It is suggested that everything possible should be done to maintain the supervisory influence of the child welfare organisation over these children, and that the National Liquid and Dried Milk Schemes should be so directed as to encourage them.

(c) (ii) There is evidence to show that there has been some reduction in the attendances of expectant mothers at ante-natal clinics, where liquid or dried milk has previously been issued under the auspices of the Welfare Authority. Here again, other causes may operate, but the ready availability of national liquid milk is no doubt a factor to be considered.

It is suggested that the issue of liquid milk to an expectant mother should be contingent upon her presenting evidence that she is receiving ante-natal care and supervision either at a recognised ante-natal clinic or from a medical practitioner.

(c) (iii) It is the opinion of experienced paediatricians that liquid or dried milk issued to nursing mothers tends to be deviated to the infant, unless both mother and child are under medical supervision. Certain welfare authorities have realised the danger to "breast feeding" inherent in the distribution of free or cheap milk to nursing mothers, by issuing to such mothers a milk food which cannot be used for infant feeding.

The provision of a suitable milk food for nursing mothers in replacement of, or as an alternative to, liquid milk is recommended to the Ministry of Food for consideration.

NATIONAL DRIED MILK SCHEME.

iii. The present position is that national dried milk (a whole cream roller process preparation without added vitamins or iron salts) is available to children under the age of 12 months after medical certification.

iv. Four points arise from this position:—

(a) The adequacy, or otherwise, of one type of dried milk for infant feeding.

(b) The question of enrichment with vitamin preparations and iron salts.

(c) The advisability of making the issue of dried milk to children under the age of 12 months contingent upon medical certification.

(d) The question of restricting the issue of dried milk to children under the age of 12 months in areas where milk of dubious bacteriological content is distributed.

Dealing with the above *seriatim*:—

(a) While there is little doubt that a full cream dried milk can, under adequate supervision, be used to feed normal infants, the provision of a "modified" milk con-

taining a reduced fat and an increased sugar content would simplify the feeding of infants in the earlier months. The provision of a "modified" food, while not essential, can be recommended as highly desirable.

(b) Addition of vitamins and iron salts.

(i) Vitamins C and D are essential for the infant if scurvy and rickets are to be prevented. The former is now widely given in the form of orange juice, the latter in the form of cod-liver oil. Supplies of the latter are becoming more difficult to obtain, and the cost, both of natural cod-liver oil and of the synthetic vitamin is high. It is suggested, therefore, that synthetic vitamin D should be added to the dried milk, and as any added quantity should be enough to prevent rickets in the normal infant, at least 5,000 international units per 20 oz. packet will be necessary.

(ii) Iron salts (Ferri et ammon cit.) added to dried milk will prevent the development of nutritional anaemia of infancy (*vide* Dr. H. H. M. Mackay, Nutritional Anaemia in Infancy, Medical Research Council Report, No. 157, 1931). To do this, however, the salts must be added in sufficient quantity to be effective (c. 30 grs. ferri et ammon cit. per lb. dried milk). The addition of this quantity makes the milk darker when prepared, and makes it less well tolerated by young infants. It is difficult, therefore, to recommend the addition of iron if only one type of milk is produced, but if, as urged, a "modified" and a full cream milk are produced, then iron could be added to the latter, and would prevent the development of the nutritional anaemia of infancy.

(c) The use of dried milk powder has certain advantages over liquid milk. Its usage is:—

(1) Simpler.

(2) Safer, especially under bad domestic conditions where facilities do not exist for the storage of liquid milk, or where the supply of liquid milk is not bacteriologically above suspicion.

This latter consideration applies in large areas of the country, and therefore it is recommended that dried milk should replace liquid milk as the milk supplied for children under the age of 12 months.

(d) In areas where the milk supply is frequently found to contain tubercle bacilli, and the necessary safeguards, e.g. pasteurisation, are difficult of application.

Consideration should be given to the supply of dried milk to children over the age of one year.

CONCLUSION.

The above suggestions are designed to adapt the National Liquid and Dried Milk Schemes so as to obtain:—

(a) Safer supplies of liquid milk and the consequent prevention of tuberculosis and other milk-borne diseases.

(b) An improvement in the teaching and practice of infant feeding.

(c) The safeguarding of the health of artificially fed infants.

(d) The prevention of any increased incidence of rickets during the war period.

(e) The encouragement of breast feeding.

(f) The maintenance of the Maternity and Child Welfare organisation as an integral part of health service of the community.

After discussion of the memorandum it was decided to RECOMMEND to the Council that copies should be sent to the Ministry of Health, the Ministry of Food and the British Medical Association with the following submissions:—

(a) that the scheme has no regard for the safety of milk supplies;

(b) that milk for mothers and children should be given under medical supervision; and

(c) that dried milks and modified milks should be available on medical advice for all participants under the scheme.

4. PUBLIC HEALTH DIPLOMAS AND DEGREES.—In accordance with a request of the General Medical Council it was decided to recommend the appointment of a committee to consider the general report on the visitation of examinations for Degrees and Diplomas in Sanitary Science, Public Health or State Medicine. It was agreed to RECOMMEND to the Council that the committee be constituted as follows: The President (Dr. F. T. H. Wood), Sir William Savage, Professors R. M. F. Picken and J. A. Charles, Dr. G. F. Buchan and Dr. James Fenton.

5. TUBERCULOUS PERSONS IN RAID SHELTERS.—Arising out of correspondence forwarded by Dr. Ernest Ward, the Acting Executive Secretary had obtained from the Metropolitan Tuberculosis Sub-Group an emergency report on the dangers represented by the presence of tuberculous persons in raid shelters, and other war-time conditions conducive to the spread of infection. The report read as follows:—

The Tuberculosis Sub-Group, viewing with grave concern the prevalent habit of many tuberculous persons sleeping nightly in public air raid shelters, rest centres, or sharing Anderson shelters with others, made the subject of tuberculous persons in war-time conditions the theme for special discussion at their meeting held on November 6th, 1940.

Whilst the Sub-Group fully realise the difficulties in dealing adequately with the tuberculous population in conditions of aerial warfare as at the present time, they consider that certain measures should be urgently adopted, both in the interests of public health and of patients themselves.

Of these the most urgent would seem to be an evacuation of those more or less chronic cases willing to avail themselves of such action, and although formerly many such patients have declined any suggestion of removal, the continuation of the air war has undoubtedly made a difference, and it is now probable that many would be willing to go into the country or safe areas if provision could be made for them.

The Sub-Group also put forward their opinion that the "Hospitalisation" of tuberculous patients (as a general rule) in London, is at present undesirable, as so many patients of open and advanced type are liable to be discharged home on account of enemy action (some possibly at their own request), and decline to be transferred or to go elsewhere after one unfortunate experience.

The Sub-Group recognise that complete control of the tuberculous population is not possible under existing circumstances; but in earnest endeavour to lessen the dangers of universal infection, so obviously increased by present war conditions, they wish to bring forward the following resolution:—

RESOLUTION:—

"That provision should be made in the country, or in safe areas of:—

(1) Hospital accommodation for those patients who require active treatment, but who would not normally be recommended for sanatorium, and

(2) Hostel or other suitable accommodation for those who whilst not in special need of active treatment, might possibly be a source of infection to others."

In forwarding this resolution, the Metropolitan Tuberculosis Sub-Group desire it to be understood that it refers only to the area of Greater London.

It was decided to RECOMMEND the Council to forward the report to the Standing Advisory Committee on Tuberculosis of the Ministry of Health.

6. The Committee gave preliminary consideration to other matters postponed by the emergency cancellation of their September meeting, and approved their inclusion in the agenda of the Council meeting to be held that day.

The Committee then adjourned.

COUNCIL MEETING.

A meeting of the Council was held at Tavistock House, Tavistock Square, on Friday, November 15th, 1940, at 1 p.m. In the unavoidable absence of the President, whose journey was interrupted at Rugby, Dr. G. F. Buchan was voted to the chair.

There were also present Drs. Cyril Banks, Vynne Borland, J. J. Buchan, James Fenton, E. H. T. Nash, Professor R. M. F. Picken, Drs. T. N. V. Potts, A. T. W. Powell, Maitland Radford, R. Sutherland, Mr. A. G. Taylor, Drs. E. W. Caryl Thomas, A. G. G. Thompson, Ernest Ward and H. C. Maurice Williams.

Apologies for absence were received from Drs. J. S. Anderson, J. A. Charles, James Ferguson, Sir Francis Freemantle, Drs. J. M. Gibson, A. G. Glass, C. E. Herington, J. W. Hunter, A. W. Johns, R. H. H. Jolly, A. S. M. Macgregor, Catherine Morris Jones, T. P. Puddicombe, Muriel Radford, Sir William Savage, Drs. F. A. Sharpe, J. E. Spence, J. A. Stirling, H. G. Trayer, H. Gibbons Ward and F. T. H. Wood.

The minutes of the last meeting, held on Friday, July 19th (*see* PUBLIC HEALTH, August, 1940, pp. 243-246) were confirmed and signed.

REPORT OF THE GENERAL PURPOSES COMMITTEE.—Dr. Cyril Banks presented the report of the General Purposes Committee (*see* above) and their recommendations were approved as follows:—

NATIONAL MILK SCHEME.—It was agreed to forward the memorandum drafted by Dr. J. A. Charles with accompanying submissions to the Ministry of Health, the Ministry of Food and the British Medical Association.

DEGREES AND DIPLOMAS IN PUBLIC HEALTH.—A Committee was appointed to consider the report of the General Medical Council on the visitation of examinations as follows: The President (Dr. F. T. H. Wood), Sir William Savage, Professors R. M. F. Picken and J. A. Charles, Dr. G. F. Buchan and Dr. James Fenton.

TUBERCULOUS PERSONS IN RAID SHELTERS.—It was agreed to forward the report of the Metropolitan Tuberculosis Sub-Group to the Standing Advisory Committee on Tuberculosis of the Ministry of Health.

SIR WILSON JAMESON.—On the motion of the Chairman, the Council agreed to send cordial congratulations to their colleague, Sir Wilson Jameson, on his

appointment as Chief Medical Officer of the Ministry of Health and the Board of Education.

VOTES OF CONDOLENCE.—The Acting Executive Secretary was directed to send letters of deep sympathy to the families of Dr. E. H. Snell and Dr. A. T. Till, who had recently met their deaths by enemy action.

MEMBERS OF COUNCIL, 1940-41. The following members were elected to the Council for the Session, 1940-41, under Article 19(d), viz.: Drs. Cyril Banks, J. J. Buchan, James Ferguson, Thomas Orr, T. N. V. Potts and Sir Wm. Savage; and as Departmental Officers—Drs. H. Stanley Banks, Louisa Adams and H. G. Trayer.

The following were re-elected for the Session, 1940-41, under Article 19(f), viz.: Sir Francis Fremantle, M.P., Sir Wilson Jameson, Professor R. M. F. Picken and Capt. G. S. Elliston, M.P.

ELECTION OF COMMITTEES.—Committees were elected for the Session 1940-41, as follows:

General Purposes Committee.—The President (Dr. F. T. H. Wood), Vice-Presidents (Drs. E. H. T. Nash, James Fenton and E. Ward) and Hon. Treasurer (Dr. G. F. Buchan), Drs. J. S. Anderson, Cyril Banks, Vynne Borland, J. J. Buchan, James Ferguson, R. H. H. Jolly, C. Morris Jones, Gordon Lilico, Professor R. M. F. Picken, Dr. T. N. V. Potts, Sir William Savage, Drs. J. A. Stirling, H. Gibbons Ward, Maitland Radford and R. Sutherland.

Journal Committee.—The President (*ex-officio*), Drs. G. F. Buchan, James Fenton, Professor R. M. F. Picken, Drs. E. W. Caryl Thomas, Ernest Ward and Fraser Brockington, with power to co-opt two additional members.

LIFE MEMBERSHIP.—Dr. E. Stanley Robinson, formerly Medical Officer of Health for Stourport R.D., who joined the Society in 1895, was elected a fully-paid Life Member.

TUBERCULOSIS IN PIGS.—The Association of Municipal Corporations having requested the Society's observations on a letter they had received from the Town Clerk of a municipal borough in regard to the sterilisation of milk fed to pigs, the President decided to refer the matter to Sir William Savage, who had now reported as follows:—

The problem of tuberculosis in pigs has never, to my knowledge, received adequate consideration. Roughly the types of tubercle bacilli isolated from tuberculous pigs in this country is bovine tuberculosis 68 per cent., avian tuberculosis 30 per cent., human tuberculosis 2 per cent. In Germany and Denmark the avian type is considerably more prevalent.

When systematic examination of pig carcasses is undertaken a high percentage of tuberculosis is usually found. While I am unaware of any very detailed studies as to sources of infection I believe that a very material proportion of this infection can be traced to infection from bovine sources particularly feeding with milk products containing tubercle bacilli.

I am in favour of making compulsory the previous boiling, i.e. bring to the boil, of all skim milk or other milk products. I think this might also apply to whey as we do not know that tubercle bacilli are destroyed in whey and I should think this is unlikely. More accurate information is desirable as to whey since this is so much used for

pig feeding. We need to know the extent to which whey contains tubercle bacilli and their survival period in whey. The percentage is likely to be considerably lower than in the corresponding milk since a high proportion of tubercle bacilli are entangled in the fat and so left behind. It may be that infection is in this way materially reduced so that it is not of sufficient moment to worry about. This certainly does not apply to skim milk and this should invariably be brought to the boil.

I do not think the Tuberculosis Order comes to any material extent into the picture and I do not consider it worth while to make requests for its more stringent observance. It is an extremely ineffective instrument to deal with tuberculosis and whether it is enforced or not makes little or no difference to the spread of bovine tuberculosis.

In my view the Society M.O.H. might very well:

- (1) Emphasise the material loss in food from the considerable amount of preventable tuberculosis in pigs.
- (2) Urge and support the pre-boiling of milk in any form given to pigs.
- (3) Urge an investigation into whey as a means of spreading tuberculosis to pigs.

It was decided to forward the above report to the Association of Municipal Corporations and the M.R.C. Laboratory Services, endorsing the recommendations of Sir William Savage and submitting that the manner of keeping pigs was another factor in the incidence of pig tuberculosis which should not be overlooked.

TRAVELLING ALLOWANCES. The Hon. Treasurer reported that difficult conditions of travel, involving much discomfort for members of Council, made it desirable to allow first-class travelling expenses. This concession was approved for the duration of the war.

EMERGENCY NOMINATIONS. The Council confirmed nominations by the President as follows:

(a) Dr. G. F. Buchan and Dr. A. Massey to represent the Society on B.M.A. Commission to consider the problems of reconstruction in the field of medicine after the war.

(b) Dr. A. G. G. Thompson, Dr. A. Massey and Dr. James Ferguson to serve on an informal committee set up by the Ministry of Health to deal with A.R.P. Casualty Services.

(c) Dr. G. F. Buchan, Dr. Vynne Borland and Dr. James Ferguson for conference convened by the Ministry of Food to secure co-operation of L.A.s in Food Campaign.

(d) Dr. F. T. H. Wood or Dr. T. N. V. Potts for a Provincial Standing Conference in connection with the Emergency Hospital Scheme of the Ministry of Health.

In reference to (c) a memorandum was received from Dr. Vynne Borland as follows:

The following is a brief note of the conference on the subject of food education which took place at the Ministry of Health on September 3rd.

In addition to Dr. Ferguson and myself, there were present Mr. Vincent of the Ministry of Food, Dr. McGee and Miss Puxley, Dr. Taylor and Mr. Smith of the Ministry of Health.

It was generally agreed that the Health Visitor would be the chief agent in the campaign, although there might be necessary variations in the methods adopted in particular areas. In a poor area a suitable programme would be:—

- (i) Talks by experts to health visitors;

(ii) Talks by health visitors to groups of mothers at clinics;

(iii) Health visitors following up these talks in the home. The Ministry of Food would issue appropriate posters which could be put up in the clinics, and they would also provide leaflets for general distribution. The doctor at the clinic would be the best medium of distribution by handing them out to mothers at the clinics. Suitable cookery demonstrations would also be arranged.

The Ministry of Food will give information as to the available foods from time to time and the best way of getting their full value. The Ministry will also continue B.B.C. talks and their advertisements in the Press.

A circular will be issued by the Ministry of Health to welfare authorities as to the best medium of propaganda. Various forms of propaganda will be suggested so that each medical officer of health can choose which may be most suitable for his particular area.

COST OF LIVING BONUS.—The Acting Executive Secretary reported several enquiries from members regarding this matter, and quoted the following statement from the British Medical Association (September 24th, 1940):—

The Association has made representations to the Ministry of Health that its refusal to sanction for grant purposes bonus payments to medical officers of health and other officers whose salaries are subject to Ministry approval and who are earning more than £260 per annum involves unfair discrimination between local authority officers of comparable status. The Ministry has been urged to take action to remedy the inequalities and inconsistencies of the present situation. Beyond an acknowledgment that the matter is receiving attention, we have as yet received no further information from the Ministry.

The Society had since been in correspondence with other professional bodies, and a case had been submitted for consideration by the National Joint Whitley Council.

SALARY INCREMENTS FOR A.R.P. WORK.—In reply to further enquiries from members, the Council reaffirmed their previous decision that as a general rule whole-time medical officers should not specially press for increased salaries because of extra duties in connection with A.R.P. work. It was agreed, however, that the position was different in regard to part-time medical officers whose applications for extra remuneration were being supported by the B.M.A.

HYGIENE OF AIR RAID SHELTERS.—Letters were received from the Yorkshire Branch, Dr. J. H. Weir and others, drawing attention to urgent health problems in connection with air raid shelters and suggesting that the Society should be adequately represented upon any committees appointed to deal with such problems. It was agreed to bring these suggestions to the notice of the Ministry of Health.

DIPHTHERIA IMMUNISATION. In view of war conditions it was agreed that the Ministry of Health should be asked to urge upon local authorities the great protective value of active immunisation against diphtheria. It was also agreed that the Ministry should be asked to consider means of securing parental consent for the immunisation of unaccompanied children in reception areas.

INOCULATION AGAINST TYPHOID.—Dr. Maurice Williams reported the completion of 12,000 inocula-

tions against typhoid at Southampton Clinics since the third week in September. Only 2 per cent. of the cases had been incapacitated for one day. Dr. Williams was invited to forward a further report for publication in the Society's journal.

WHOLE-TIME APPOINTMENTS IN WAR-TIME.—The following letter addressed to the British Medical Association by the Ministry of Health (August 8th, 1940) was forwarded for the information of the Society.

I am directed by the Minister of Health to refer to the interview which took place on April 26th last with representatives of the Association and of the Society of Medical Officers of Health, with regard to the desirability of temporary appointments of medical officers to whole-time public health posts with local authorities during the war.

In pursuance of the undertaking given at that interview, the Minister has consulted the several Associations of local authorities on the subject and has invited their views. I am to enclose for your information copies of the replies which have since been received from the Associations.

As you will appreciate, the Minister shares the anxiety of the Association and of the Society of Medical Officers of Health that nothing should be done which would unnecessarily prejudice the prospects of promotion, or of future appointment, of officers absent on national service.

At the same time, he appreciates that there will be circumstances in which the making of new permanent appointments may continue to be justifiable in particular cases, e.g. where it is impossible to obtain a suitably qualified officer by advertising a temporary appointment only. It appears to him that the decision whether to make a temporary or permanent appointment in any individual case must be left to the responsible local authority to decide in the light of the circumstances; he is confident that the local authorities will generally have in mind the desirability of avoiding unnecessary prejudice to those officers away on national service and he does not propose at present to issue any general circular on the subject. Wherever the matter comes before him for approval, however, he will certainly for his part place no obstacle in the way of a proposed temporary appointment in any appropriate cases, and it is of course open to your Association or the Society of Medical Officers of Health to consult the Associations of local authorities on the subject if it is felt desirable to do so.

REPORTS FOR ANNUAL GENERAL MEETING.—The annual reports of the Council, the Hon. Treasurer, the Auditor and the Editor, as published in PUBLIC HEALTH (November, 1940, pp. 29-31) were approved and adopted for submission to the Annual General Meeting.

REPRESENTATION OF THE SOCIETY.—Dr. T. P. Puddicombe was re-elected to represent the Society on the Central Association for Mental Welfare during the Session 1940-41.

Other matters were deferred for consideration at the next meeting.

The Council adjourned at 3.15 p.m.

ANNUAL GENERAL MEETING.

The Annual General Meeting of the Society was held at Tavistock House, Tavistock Square, at 3.15 p.m. on Friday, November 15th, 1940, with Dr. G. F. Buchan in the chair.

The minutes of the last Annual General Meeting, held on November 17th, 1939, having been read and confirmed, the meeting approved by acclamation the re-election of Dr. F. T. H. Wood as President for the Session 1940-41.

The annual reports of the Council, Hon. Treasurer and Editor (together with Balance Sheet and Revenue Account) for the Session 1939-40, as printed in PUBLIC HEALTH, November, p. 29 *et seq.*, were approved and adopted.

Mr. J. T. Harris was re-elected Auditor for 1940-41.

The meeting then approved the postponement of elections to Council under Article 19 (d) and (f) until November 15th owing to the emergency cancellation of the September meeting of Council.

The following candidates having been duly proposed and seconded were then elected to membership of the Society:

As Fellows: Drs. Geoffrey Oswald Atyeo Briggs, M.B., B.CH. (CAMB.), D.P.H.; Frederick Wm. Bunting, M.D. (GLAS.), D.P.H.; John Cleminson, M.B., B.S., B.H.V. (DURH.), D.P.H.; Marc Daniels, L.R.C.P.E., D.P.H.; Charles Titterton Maitland, M.D. (LOND.), F.R.C.P.; Haydn Rees Stubbins, M.D. (EDIN.), D.P.H.; George Rowland Taylor, M.B., B.S. (LOND.), D.P.H.

A nomination was then received in respect of Dr. Gladys M. Cox (A.M.O., M. & C.W., Durham C.C.).

The meeting closed with a hearty vote of thanks to the President for his services during the past year.

MIDLAND BRANCH.

President: Dr. C. W. Sharpley (M.O.H., Oldbury U.D.).
Hon. Secretary: Dr. R. H. H. Jolly (M.O.H., Wolverhampton C.B.).

The second meeting of the session was held at St. Chad's Hospital, Hagley Road, Birmingham, on Thursday, November 7th, 1940, at 3 p.m. The President was in the chair and was supported by 17 other members.

A letter was submitted from Dr. Kynaston, expressing to the branch his appreciation of the good wishes tendered to him for his speedy recovery from his recent illness.

The President announced the death through enemy action of the Honorary Treasurer, Dr. E. H. Snell, and paid tribute to Dr. Snell's long career of distinguished service both to public health and the Society. Dr. Massey also spoke of the happy associations he had had with Dr. Snell, and of his high reputation both in Coventry and throughout the service. Those present showed their sympathy by standing in silence.

On the proposal of Dr. Massey, seconded by Dr. Clark, Dr. H. Gibbons Ward was appointed to the vacant position of Honorary Treasurer. Dr. Massey was appointed Honorary Auditor in succession to Dr. Gibbons Ward on the proposal of Dr. Walton, seconded by Dr. Clark.

London's A.R.P. Services.

Dr. W. S. Walton then gave an address on "London's A.R.P. Services in Action," recounting his experiences and observations obtained from a visit to five metropolitan boroughs under air raid conditions.

The delay in reporting casualties had been overcome

to some extent by Wardens utilising an Express Messenger Service direct to the A.R.P. Controller, who immediately sent out a "Spear-head Party," consisting of Rescue, First Aid and Ambulance Units. This party, comprising experienced personnel, review the incident with the Warden and send further detailed reports and requests for assistance. In this way the Warden obtained immediate help and at the same time the subsequent reports were more accurate and less likely to be wasteful by unnecessary demands of service.

The First Aid Parties or Stretcher Parties, as they are called in the London Area, had not done very much actual first aid work, and were principally employed in loading ambulance vehicles, assisting the homeless to Rest Centres and acting as stretcher bearers at hospitals after their duties at the incident had finished. Often Rescue Parties were able to give first aid and load ambulances without the assistance of the Stretcher Parties, and it had been suggested that Rescue and First Aid Parties might well be combined. As far as the Ambulance Service was concerned, it had been found that the ambulances converted from private vehicles were a constant source of trouble owing to the liability to break down and it had been suggested that it would have been more economical to have acquired a better class of vehicle in the first instance. The sitting cars were not used very much for casualties, as it was found that on the whole there were only two main categories, the seriously injured, requiring transfer to hospital, and the minor cases, which were usually ambulant. The sitting cars had proved very useful for sending reinforcements of personnel and supplies and for maintaining communications, as the telephone service was often out of commission for considerable periods. The First Aid Posts had not been used as much as had been provided for, and the Mobile Units had proved of limited value, except where a fixed Post had been damaged, when the Mobile Unit could be set up in the vicinity to replace it. It was, however, common practice and a most useful one to send out the doctor and trained nurses of the Unit to the incident in order to classify and supervise the clearing of casualties. Disposal of the dead was liable to present difficulties owing to the rapid decomposition where bodies had been trapped and crushed, and the frequent inadequate evidence for identification.

Dr. Walton concluded his address with reference to his personal experience in communal shelters and expressed his admiration of the marvellous morale shown by the Londoners.

In the subsequent discussion, Dr. Newsholme and Dr. Massey contributed their recent experiences, which largely were in agreement with the observations of Dr. Walton. Many questions of practical interest were put by the members to Dr. Walton, and the President closed the discussion by expressing the appreciation of the branch to Dr. Walton for his interesting and valuable address.

We regret that we erroneously gave the name of Dr. H. Paul (Past-President) as current President of the Midland Branch in the report published in our November issue.

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THE SOCIETY OF MEDICAL OFFICERS OF HEALTH

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"Public Health" is the Official Organ of the Society of Medical Officers of Health and a suitable medium for the advertisement of official appointments vacant in the health service. Space is also available for a certain number of approved commercial advertisements. Application should be made to the Executive Secretary of the Society, at Tavistock House South, Tavistock Square, W.C.1.

Telephone: Euston 3923. Telegrams: Epidauros, Westcent.

Editorial

The Public Health Service in 1941 and After

It would be in the nature of "wishful thinking" to extend the conventional greeting in our first issue of 1941, although we may believe that this will at least be a happier new year in its ultimate prospects than was its predecessor. But, for the public health service, it is likely to be a testing year which will call on all the resources of preventive medicine; indeed, enterprise and adaptability to meet foreseen and unforeseen health risks will be at a premium. The unnatural conditions which are now the lot of so many of our city populations are enough in themselves to produce the problems brought out by the reports of Lord Horder's committee, e.g., those of the prevention of the spread of droplet infections to epidemic proportions or of sanitation to guard against enteric and the contagions. The taking over by the Ministry of Health from that of Home Security of responsibility for conditions inside communal shelters is a step towards unified control which should help local authorities in their own areas. The protection by inoculation of children against diphtheria and of the populations of bombed cities against typhoid are also heavy tasks, although the response of the public will probably be readier in present circumstances than it has been in the past. Those who have long been urging a stronger lead from the central department in regard to diphtheria immunisation may well feel the irony of the fact that German bombing has succeeded in drawing forth the Minister's recent appeal to parents and his department's circulars to local authorities, whereas the overwhelming medical evidence in favour of this method of prevention had had no appreciable effect except in progressive areas. Professor Greenwood, in letters to the *British Medical Journal* of November 16th and to the *Medical Officer* of December 14th, has pointed out the real danger of a great epidemic, but "the public and their rulers will pay no attention to alarmist doctors." Whatever the outcome, the next few months will be full of responsibility and effort for the public health service.

But another more hopeful viewpoint should not be overlooked. The war is hastening the replanning of our whole social system and the B.M.A. has done well to set up now its Commission, on which the Society is represented, to consider the reconstruction of medicine after the war. In our own particular field, as Dr. Gebbie pointed out in his presidential address to the Yorkshire Branch (printed elsewhere in this issue) the war may enforce the elimination of non-essential services, to the ultimate benefit of public health administration.

The Society must aim at keeping up its strength and

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cohesion, despite the difficulty of carrying on its normal activities, so that it will be able to exert its proper influence after the war. This journal is trying to serve its function as the link between members, and we ask them to help us so far as they can by sending to the editor contributions on matters of common interest, whether administrative or clinical.

Medical Preparedness in the U.S.A.

On September 19th, 1940, the President of the United States approved an order establishing a Health and Medical Committee to advise the Council of National Defence and to co-ordinate health and medical activities affecting national defence. It consists of Dr. Irvin Abell, ex-President of the American Medical Association (chairman), the Surgeon-General of the Army, the Surgeon-General of the Navy, the Surgeon-General of the Public Health Service and the Chairman of the Division of Medical Science of the National Research Council.* The Committee will have funds allocated to it and may use the laboratories, equipment and services of the Medical Departments of the Army, Navy and Public Health Service and of other Government institutions, and also contract with and pay educational and scientific institutions or individuals for studies, experimental investigations and reports.

Just prior to the appointment of this important committee, a special conference between the U.S. Public Health Service and State and Territorial health officers from the whole country was held in Washington, D.C., on September 16th and 17th. It was also attended by members of the National Advisory Health Council and representatives of the Army, Navy, other branches of the Federal Government, voluntary agencies and several professional organisations. The subject under consideration may be stated succinctly by the phrase "maintenance of public health, safety, or interest" which is used repeatedly throughout the Selective Training and Service Act, 1940. Surgeon-General Parran, addressing the Conference, emphasised that the modern form of total war required total defence, including the conservation and utilisation of all the vital resources of the country. They needed now, as never before, an integrated effort on the part of all agencies which represented the purpose of their citizens to attain personal and national health. The Selective Training and Service Act contemplated the registration of 16,500,000 men, the immediate physical examination of 2 to 4 millions and the induction into military training of several hundred thousand. A balance must be maintained between the civil and industrial and military needs, including key personnel in the health and medical services and the teaching schools. As to the health problems which would have to be faced, acute syphilis might be expected in about 300,000 of the 16 million registrants, care and isolation would be required for many cases of tuberculosis and trachoma ascertained at medical examinations, many remediable defects would require rehabilitation, mobilization of large bodies of troops would create sanitary and health emergencies, industrial mobilization would call for the prevention of occupational disease, accidents and physical impairment and open up questions of local housing, medical and

* U.S. Public Health Service: Public Health Reports, 1940, 55, 1759.

health facilities. In addition, 500,000 young people in the employment of the National Youth Administration had not only to be kept fit for the industry in which they were employed but also to be prepared physically for their imminent recruitment for military service. They must plan ahead, for it seemed unlikely that the situation in which they found themselves would be resolved in six months or a year—perhaps not for many years. Their work, moreover, if it was well done would be even more productive for permanent peace.

The Conference then proceeded to consider the following subjects:

- (1) Health services for National Youth Administration personnel.
- (2) Physical rehabilitation of registrants disqualified for duty with the armed forces.
- (3) Serological tests of registrants for military service.
- (4) Pertinent needs in industrial hygiene.
- (5) Health aspects of civil defence.
- (6) Control of selected communicable diseases.
- (7) Health administration problems arising out of mobilisation.
- (8) Census of public health personnel and facilities.
- (9) Administration of the Selective Training and Service Act of 1940.

It was unanimously agreed that it was desirable, though it might be difficult, to organise blood tests for syphilis of all the 16 million registrants. The magnitude of the problem of rehabilitating those found in any respect defective was illustrated by the experience of the last war when 23.4 per cent. of recruits were rejected, 3.7 per cent. put in a limited-service category and altogether 54.9 per cent. had one or more defects. The question arose whether or not public health agencies had responsibilities for the rehabilitation of rejected men. Their submission to treatment must be voluntary, since the medical reasons for rejection were confidential. It was suggested that infectious diseases, such as tuberculosis and syphilis, should be exempt from this confidentiality. As regards tuberculosis any comprehensive scheme would be faced with a serious shortage of sanatorium accommodation.

The Conference was concerned with the insufficient number of trained personnel to provide an adequate professional service for expanding industry. This matter is receiving consideration by a Committee on Medical Preparedness of the American Medical Association. This Committee resolved on July 19th that the National Defence Commission provide the necessary funds for training physicians, chemists, mechanical engineers and other professional men to cope with the problem of industrial hygiene. Indeed, throughout the discussions it was made clear that there would be numerous demands on the money to be put at the disposal of the Health and Medical Committee subsequently established, and that a substantial extension of the policy of federal subsidy embodied in the National Security and other Acts was envisaged.

A Committee reporting to the Conference on the staffing of health departments emphasised the importance of ensuring that such staffs were not unduly depleted and weakened in the impending national mobilisation, although it was fully appreciated that national defence

was of primary importance and that its demands must receive complete compliance and support.

On October 4th tuberculosis and health authorities in New York State met in Albany to consider one of these issues, *viz.*, the ascertainment and care of the tuberculous.* The group unanimously approved a scheme propounded by their Chairman, Dr. R. E. Plunkett, General Superintendent of Tuberculosis Hospitals, for the discovery of hitherto undiagnosed cases, their exclusion from military service both for their own sake and that of others, and for their subsequent care, treatment and after-care. Stress was laid especially on X-ray examination of every man called for military training. If the scheme was officially approved the group pledged themselves to co-operate with and support it in every way. It may be noted that the chest of every recruit in Canada is examined by X-ray.

It is clear that, if circumstances which perhaps appeared more imminent in the autumn than they do now should drag the United States into war, their medical organisation will not be caught unprepared.

The State of the Air

At the moment practical smoke abatement work is not a feature of the Health Department, and this fact must be set among many war-produced disappointments felt by public health workers. Interest in the subject may be renewed by reading the recently published report† of observations on atmospheric pollution in the year ended March, 1939. In this report the Department of Scientific and Industrial Research co-ordinates the observations made in many localities and carries out research into the best methods of measurement and the nature of the pollution. There is an Atmospheric Pollution Research Committee appointed to give expert scientific advice to the Department. The co-operating bodies, chiefly local authorities but including also industrial undertakings and other institutions, provide money as well as services.

During the year in question 128 deposit gauges were at work, along with 16 automatic filters, as well as a number of sets of apparatus for measuring sulphur gases in the air by two different methods.

It is much easier to pick out of this report interesting fragments of information than it is to condense into a few lines the general trend of the findings and, indeed, the reporters themselves do not attempt to explain whether an improvement in deposit-gauge findings is due to casual changes in industrial activity or to intentioned smoke abatement efforts.

Why does Hull vie with Greenhithe in the matter of lime in its air; why have Coventry and Leicester consistently alkaline rain-water, while so many places seem to like it acid; what is the explanation of the variations in suspended impurities from hour to hour, from day to day, and from season to season? Such speculations arise from a study of the figures and charts.

The covers include an article on atmospheric pollution in its bearing on the weathering of stone, from which it

* New York State Department of Health: Health News, October 14th, 1940.

† The Investigation of Atmospheric Pollution. Department of Scientific and Industrial Research: Report on Observations in the year ended March 31st, 1939. 1940. H.M. Stationery Office. pp. x + 121. Price 2s. 6d. net.

is learned that smoke in the air cannot always be blamed for stone decay, though its ravages are of a very serious character. Pictorial evidence is provided of the different effects produced on sandstone buildings from those shown on limestone. Compare the general blackening of, shall we say, Bradford Town Hall with the unpleasant and even ludicrous effects of soot on architectural sculpture in limestone, where the rain-washed surfaces are clean and eroded whilst black deposits remain on surfaces which are protected by form and aspect.

There is material in this publication of which the smoke abatement campaigner must take note; perhaps not for immediate use, but for the time when circumstances once more will permit him to carry on his useful task of cleaning the air. That there is scope for such work is abundantly clear.

OBITUARY

ANDREW TRIMBLE, M.B., D.P.H., J.P.

We regret to record the death on December 15th of Dr. Andrew Trimble, who was chief tuberculosis officer for the city of Belfast for 25 years, until his retirement in February, 1939. After graduating from the Royal University of Ireland in 1895, he prepared himself for his subsequent career by periods at the Brompton Hospital and in Sir Robert Philips' dispensaries at Edinburgh. When the Belfast City Council adopted its anti-tuberculosis scheme in 1913, Dr. Trimble was appointed as the first chief officer and built up an organisation on the Edinburgh model for his own city. Although geography prevented him from frequent intercourse with colleagues in England, he kept in active touch with all advances in the prevention and treatment of tuberculosis throughout his period of office, during which the mortality from the disease in Belfast fell from 21 to 7.5 per 100,000. From 1930 until his retirement in 1939 Dr. Trimble was a Fellow of the Society.

SURG.-COMMDR. HENRY STANLEY, R.N.V.R.

Surg.-Commdr. Henry Stanley, R.N.V.R., whose loss at sea by enemy action in July last was reported recently, was before the war medical officer of health for Havant Urban District and assistant medical officer to the Hampshire County Council. He graduated M.B., B.S., from the University of Durham in 1902, and took the D.P.H. in 1918. He had served for many years in the R.N.V.R., including war service from 1914-18 in the Mediterranean.

TEMP. SURG.-LT. W. W. WILDMAN, R.N.V.R.

The death in action in November last on board his ship of Surg.-Lt. W. W. Wildman, R.N.V.R., has taken away a promising younger member of the public health service, as he had been released for war service from his appointments as medical officer of health for Downham Market Urban and Rural Districts and Marshland Rural District, and as assistant county medical officer, Norfolk. He graduated M.B., Ch.B., Edinburgh, in 1931 and took his D.P.H. in 1935. After holding hospital appointments, including one at the City of Leicester Isolation Hospital, he became assistant M.O.H. and S.M.O. of West Bromwich C.B., whence he proceeded to Norfolk. He was a Fellow of the Society of Medical Officers of Health—we believe the first to lose his life in action in the present war.

PLAGUES, PAST AND PRESENT*

By N. GEBBIE, M.D., D.P.M., D.P.H.,

Medical Officer of Health, City and Port of Hull.

From the earliest times epidemic diseases have ravaged civilisation. These epidemics, rising to the proportion of pestilences, have ranked with war and famine in keeping down the population. In times of peace and freedom from pestilence the population grew owing to the prodigious rate of reproduction. In times of war, pestilence and famine, the population decreased at such a rate that the extermination of whole nations was sometimes threatened. Throughout the ages great plagues or epidemics of disease have swept across large tracts of the globe. Sometimes, as in the pandemic of influenza in 1918, the outbreaks have coincided with the waging of war on an extensive scale. Whilst these outbursts of disease are primarily of epidemiological interest to us as health officers they must retain their interest to the historian because of the part they have played in the development of civilisation itself.

It is impossible for me this afternoon to do more than refer briefly to some of the main features of these epidemics with some observations in greater detail upon certain outbreaks which have been more closely associated with the City of Hull. It has been difficult to resist the temptation to extend the scope of this talk to include some of the other well recognised plagues of mankind.

Whilst on the subject of present plagues I may be permitted a passing reference to the two best known of the communal plagues of modern times—rabbits in Australia and Scotsmen out of Scotland. It would of course be very easy for me to prove that both have had a civilising influence, the one on a great continent and the other on a long-suffering world.

Scientists tell us that among the earliest forms of life there was no such thing as disease. It was probably not till the Neolithic Age (10,000 to 7,000 B.C.) that it first began to appear in man. At this time circumstances were arising which would favour the spread of disease, e.g., man was becoming less nomadic; village life was beginning; trade routes were being opened up and animals were being domesticated. Primitive man had no conception of infectivity and sought protection from disease by the wearing of amulets and charms and by incantations.

In the Mosaic Law held to be directly inspired by the Deity, we have the first sanitary rules in code form and enforced on a whole nation.

In the section dealing with infectious disease segregation is enjoined, "All the time that the plague is on him he shall be unclean. He is unclean, he shall dwell apart, without the camp shall his habitation be."

I need not remind you of the powerlessness of the Graeco-Roman world to deal with its epidemics in spite of the high standard of its knowledge and practice of hygiene. The ravages of malaria constituted one of the prime causes of the fall of the Roman Empire.

The story of the gradual evolution of modern methods in dealing with epidemic diseases is a very fascinating

one. We have travelled a long way from the primitive medical methods of the Dark and Middle Ages (A.D. 200 to A.D. 1500) when all diseases were ascribed to demons and incantations, exorcisms and charms were resorted to. Our knowledge of infectivity and our skill in applying preventive measures were to be gained by bitter experience of the ravages of plague itself. The isolation of sufferers as a preventive measure was first employed on a large scale in dealing with leprosy. Quarantine of contacts was later applied to plague, e.g., ships from infectious districts were held up in Venice for 30 days—later the period was extended to 40 days—quarantine.

Typhus was responsible for the commencement of the isolation hospital as we know it to-day. In 1796 the "House of Recovery" was opened in Manchester for fever cases. In 1801 a similar institution was brought into use in Liverpool, supported by parish rates. In 1802, a small house in Gray's Inn Road with 16 beds became the London Fever Hospital.

Typhus, alias putrid fever, ship fever, gaol fever, camp fever, hospital fever, malignant fever, is spread by lice and therefore by close personal contact. Lice, like rats, became subjects of interest in tracing the epidemiology not only of typhus but also of plague—these two calamities sharing with human ferocity the greatest responsibility for wholesale sorrow, suffering and death throughout the ages. Lice have even been of importance in the political sphere. In Hans Zinsser's book entitled "Rats, Lice and History," he quotes Corvan as his authority for the story of the custom prevailing in Hurdensburg, Sweden, in the Middle Ages "When a Mayor was to be elected the persons eligible sat around a table with their heads bowed forward, allowing their beards to rest on the table. A louse was then put in the middle of the table. The one into whose beard the louse first adventured was the Mayor for the ensuing year." Typhus gave rise to the various Black Assizes—at Cambridge, 1522; Oxford, 1577; Exeter, 1586, and it was prevalent in both fleets at the time of the Armada. It was not until 1849 that Wm. Jenner separated continued fever into typhus and typhoid. In 1869-70 we had the last big epidemic of typhus in this country.

Small-pox, introduced into Europe by the Saracens in the 6th century, was not prominent in England until the 17th century, and by the 18th century it had become a national scourge. Haygarth called it "The poor man's friend who happens to be burdened with a large family." In 1798 Edward Jenner introduced vaccination, thus laying the foundations of the immunological methods of prevention and treatment by means of which the individual and the community can be protected against many maladies.

CHOLERA.—The 19th century saw four extensive outbreaks of Asiatic cholera in England.

(1) A terrible epidemic in 1817 in Bengal spread in 1830 to German ports, in 1831 to Sunderland, to the Tyne and to Scotland, eventually becoming very severe in the Staffordshire Black Country—21,000 deaths.

(2) In 1848-49, from Asia to Europe it spread. Starting in this country in S.W. Scotland it reached London in 1849—was particularly severe in the newly erected mining villages in Glamorgan—53,000 deaths.

(3) 1853-54: from Continent to the Tyne—20,000 deaths.

(4) 1865-66: from Mecca via Southampton—affected whole of England and Wales—14,000 deaths.

In 1848 when the mortality from cholera was very high, the living conditions of the people were very bad. This was the period of the rapid rise of industrialism when houses were hastily thrown up with no regard to sanitation. There was no drainage; all slops and refuse were thrown into the gutters in the streets.

Cholera first visited Hull in 1832, there being 270 deaths. On August 10th, 1849, the great visitation of this disease to Hull commenced—deaths 1,860, or one in 43 of the total population of 81,000. In one week in September, 600 deaths from cholera. Of the 1,860 deaths, 1,738 belonged to the labouring classes and 122 to the wealthy. In 1892 there were eight cases, all sea-borne.

In 1893, 550 cases of cholera and diarrhoea were notified with 128 deaths between September 6th and October 12th. A special committee of the Hull Corporation had been set up in 1892 to deal with such epidemics and it is of particular interest to me to read in the reports of that committee of the special measures put in operation by my distinguished predecessor, Dr. J. Wright Mason, and known as the "Movable Sanitary Column."

The following briefly was the procedure adopted—telegram received by the medical officer of health who ordered his brougham and proceeded immediately to see the case; the ambulance for the case; the contacts were removed for observation; the emptying and disinfection of the midden and the flushing of the gullies and drains; two flushers, two whitewashers, two disinfectors. "For promptitude and thoroughness, I have never seen anything so well organised anywhere—the movable sanitary column acts like a fire brigade" (*The Lancet*, October 7th, 1893). The improvement in sanitation, especially the provision of a pure water supply and the abolition of the privy midden, has abolished cholera from our midst.

I would recommend for your perusal "Snow on Cholera"—a reprint of two papers by John Snow, M.D., published by the Commonwealth Fund, New York, 1936. He established two main principles for cholera: (i) the tremendous importance of water as a vehicle of specific infection, and (ii) the harmlessness (as regards infectious disease) of the "effluvia" from dead organic matter which were generally considered at the time to breed pestilence. For both these doctrines he was severely criticised. The book contains an admirable description of the outbreak of cholera in London in 1854, which was associated with the Broad Street Pump.

PLAGUE.—Two outbreaks of plague are prominent in European history.

(1) *The Plague of Justinian*.—"The Yellow Plague" reached our shores in A.D. 664 and lasted 20 years. The mortality was very great, e.g., in Ireland only one-third of the population survived.

(2) *The Black Death* appeared in this country in the middle of the 14th century and remained for 300 years. The origin of the Black Death is obscure, but possibly it was prevalent in China in 1344, and travelled along the caravan routes to Bagdad and thence to Venice, Genoa, Constantinople, and Eastern Europe. In 1348 in

Florence, within five months, 100,000 persons perished. Boccaccio quaintly comments "How many valiant and comely young men were seen to dine at morning with their friends and went to sup in another world with their predecessors."

From Italy to France and so across the Channel to Melcombe in Dorsetshire it came to England and spread rapidly all over the country. The country was left depleted of workers, its fields uncultivated, its trade ruined, its moral standards lowered and its whole social life dislocated.

London had three severe outbreaks in 1603, 1625 and the Great Plague of London in 1665. In 1665, London's population was about half a million and of these 98,000 are said to have died during the epidemic. The infectivity of plague was recognised and its relation to poverty and overcrowding became evident. Segregation of cases was tried. The heroic but tragic story of the village of Eyam is well known. Plague was introduced into the village from London in a box of old clothes. The servant who opened the box was the first victim in the village of 350 inhabitants. The Vicar, Thomas Mompesson, persuaded the villagers voluntarily to shut themselves off from all contact with the outer world. Thirteen months later the disease died out leaving the Vicar and 29 others as the sole survivors.

Recourse was had to the shutting up of infected houses for 40 days. This led to concealment of the disease and assisted its spread. By 1603, clothes, and bedding were recognised as sources of infection and were burned. Later, disinfection of articles by vinegar and of premises by sulphur and flashing of gunpowder were tried and fires were lighted at intervals in the streets "to correct the infectious air."

We know that bubonic plague is transmitted from rats and certain other rodents by the flea. Insanitary conditions, except in so far as they favour rat infestation, have little influence on the spread of plague.

What changes beyond human control occurred to rid England and Western Europe of plague? This question is a highly controversial one, but the disappearance of plague from these shores was most probably connected with alterations in the rat population. The black (or old English) rat had been introduced into Western Europe by the returning Crusaders. It lives in houses, is friendly to man, and until the early 18th century was the common European type. The brown rat which inhabits sewers and ditches and is unfriendly to man, left Central Asia, crossed the Volga into Europe and was first reported in this country in 1728. The brown rat is larger and fiercer than the black rat and soon exterminated it. This change in the rat population coincided with the opening up of regular sea routes for trade to the East and must have exercised a powerful influence upon the incidence of plague.

Careful precautions are still taken by Port Health Authorities to prevent the importation of rats from abroad.

Preventive measures include the rat-proofing of ships, warehouses, etc.

One of my colleagues in the Port Health Service has defined rat-proofing as "Creating for the rat population (1) a food and water shortage, (2) a housing problem, and (3) a high infant mortality rate." Measures designed

* Presidential Address to the Yorkshire Branch, Society of Medical Officers of Health, Leeds, October 25th, 1940.

to check the ravages of disease epidemics are nowadays promptly and efficiently applied, thanks to the work of the pioneers who in this and other countries were faced with these plagues in the past. The science of epidemiology must at all times be prepared to meet changing conditions. Preventive measures, as we know and practise them, will be seriously tested by the changing conditions consequent upon the war. As health officers we must be prepared (1) to meet variations in the virulence of diseases threatening to attack our people, (2) to counteract the serious risks of rapid spread of infection arising from the crowded conditions met with in billets, camps, barracks and shelters, and (3) to use every means in our power to preserve at a high level the resistance of the individual to infection.

(1) Variation in the Virulence of Diseases.

In this connection we call to mind the influenza epidemic of 1918 with its high rate of attack of influenzal pneumonia or the prevalence of malignant malaria amongst our troops on the Struma.

Diphtheria of *gravis* type is still all too common and our child population is inadequately protected against it.

Evacuation has meant the removal of thousands of children of susceptible age from the protection of the controlled water supplies of the cities and towns to the risks of diarrhoea and typhoid fever from such doubtful sources of water supply as the shallow well and the village pump in isolated hamlets in rural areas.

(2) Risks of Spread of Infection.

Under war conditions we find ourselves huddled together for longer or shorter periods under circumstances eminently suitable for the transmission of disease by close personal contact.

Cerebro-spinal fever invariably obtrudes itself under such conditions and infantile paralysis calls for vigilance on our part.

Hospital accommodation must be available for scarlet fever, measles, whooping cough, etc., occurring in families rendered homeless as the result of air raids. Then there is the risk of damage to water mains, sewers, etc., by bombs.

(8) Preserving Resistance to Infection.

Here nutrition is of great importance. Fortunately the protective foodstuffs are now receiving attention and in their measures for food control the Government has wisely sought the advice of the nutrition experts. Thanks to the Navy there is no shortage of essential foodstuffs.

Open air exercise is essential and will be difficult to secure during the winter months. Rest in adequate amount must be secured. The hygienic conditions in shelters require our attention. The question of adequate ventilation of shelters has been rendered difficult by the fact that they have been designed to be as gas-proof and light-proof as possible.

We must be prepared to make the fullest possible use of the knowledge we have gained of measures controlling infection by concentrating our energies upon those principles we know to be sound, *e.g.*, immunisation against diphtheria, milk pasteurisation, etc., and by

discarding many measures which we know to be useless, *e.g.*, small-pox hospitals, the large ward for scarlet fever cases and much of the so-called routine disinfection, etc. The war has brought to all health officers a multitude of complex problems quite apart from the spate of Government circulars and memoranda of infinite variety with which we have been deluged. It was during the last war that a printer's error resulted in the appearance of an official report with this charming admission: "We have to thank the Dept. of — for valuable assistance in the complication of statistics."

The resistance of our people to enemy attack is primarily a health matter and the measures we advocate to secure and maintain a high standard of physical and mental fitness must be designed to meet the abnormal and ever-changing conditions brought about by the war.

It is inevitable that during the war preventive medicine will show little or no advance. Let us hope that the curtailment will be limited to the elimination of non-essential services.

JOINT TUBERCULOSIS COUNCIL.

A meeting of the Joint Tuberculosis Council was held at the Tuberculosis Offices, Oxford Road, Manchester, on Saturday, November 16th, 1940. Despite difficulties in travelling, eleven members attended, with Dr. D. A. Powell in the chair.

Committees and their conveners were appointed for the ensuing year, and nominations for officers for 1941 were made, including those of Dr. D. A. Powell (Welsh National Memorial Association) as Chairman and of Dr. J. B. McDougall (Preston Hall) as Hon. Secretary.

It was resolved to send a letter of congratulation to Sir Wilson Jameson on his appointment to the post of Chief Medical Officer to the Ministry of Health.

The Honorary Secretary gave an account of the activities of the Standing Advisory Committee to the Minister of Health and it was decided that he should give further reports on this work from time to time.

The memorandum prepared by Dr. G. Lissant Cox on the Co-ordination of Tuberculosis Schemes of Local Authorities is to be considered at the next meeting of the Council, as would also be the question of Tuberculosis in War-Time.

Discussion took place on the education of medical students in tuberculosis. Dr. Heaf pointed out that many medical students in the London area especially were being deprived of teaching facilities in tuberculosis and he felt that an attempt should be made to enlist the services of the Tuberculosis Dispensaries and Sanatoria in the teaching of students during the emergency. It was resolved that a letter should be sent to the Deans of the Medical Schools in London, suggesting that students should be attached for teaching purposes to Tuberculosis Dispensaries and Sanatoria in the districts in which they are now resident.

Dr. G. Jessel raised the question of the value of mass radiography in tuberculosis and it was resolved that Dr. Jessel should report at the next meeting on the role of mass radiography in tuberculosis.

CO-OPERATION BETWEEN THE VOLUNTARY HOSPITALS AND CORNWALL COUNTY COUNCIL

By R. N. CURNOW, M.B., B.S. (LOND.), D.P.H.,
Medical Officer of Health, Cornwall.

Cornwall is a rural county with small towns widely separated and having a low rateable value. Here, therefore, it is essential that the strictest economy compatible with efficiency be exercised in all local authorities' services, as well as in voluntary hospitals' services. Cornwall cannot afford the duplication of hospital and clinic facilities based on mutual independence and self-sufficiency. Two major factors operate ensuring the success of the scheme of co-operation between the county council and voluntary hospitals, the willingness of the county council to pay a fair sum for services rendered and the willingness of the voluntary hospitals to fit themselves to perform the duties referred to them by the county council. In addition there is the essential atmosphere of mutual confidence which ensures the smooth running of a scheme involving the interlocking of voluntary and statutory functions.

Before embarking on any new hospital or clinic scheme the Cornwall County Council has always enquired whether these functions can be carried out for them by voluntary hospitals with or without some modification in the hospitals available. In this way, for example, non-tuberculous orthopaedic cases are treated at one large voluntary hospital, which has specialised in this branch of surgery, while another voluntary hospital specialising in maternity work admits complicated maternity cases from the greater part of the county. It has occurred to me that it may be of interest to set forth in some detail the way in which voluntary hospitals can be of assistance to county councils in providing their health services, provided the voluntary hospitals are available and fit to carry out these functions and provided the county council invariably approaches the voluntary hospitals with these problems before deciding to embark upon the provision of independent arrangements run entirely under the aegis of the county council.

A.—Maternity and Child Welfare

(i) Hospital Accommodation for Complicated Cases, and Cases from Unsuitable Home Surroundings.

Accommodation is provided in the County Maternity Ward, which forms a part of the Camborne-Redruth Ward, which forms a part of the Camborne-Redruth Miners' and General Hospital, Redruth. The actual cost of maintenance of this unit of 15 beds and a labour room is paid by the county council to the hospital committee. All admissions to the ward are made under the authority of the County Public Health Committee. The administration of the ward is carried on under the supervision of a joint committee consisting of three members of the County Public Health Committee and three members of the Hospital Committee. Appointments of staff of the ward are made by the county medical officer, usually through the agency of the matron. The medical staff consists of three county obstetricians whose fees are paid by the county council. The whole arrangement works very smoothly, and has not caused

the slightest difficulty. The exact financial arrangements are as follows:—

The County Council pays a retaining fee of £415 a year, as a kind of rent for the building itself, and in addition:—

- (a) The actual cost of
 - (i) The nursing and domestic staff of the ward;
 - (ii) provisions and laundry, and of
 - (iii) drugs, dressings, pathology and upkeep of equipment.
- (b) A proportion of one-fifth of the actual cost of
 - (i) Wages of the kitchen staff (cook, assistant and three maids).
 - (ii) Domestic renewals and repairs.
 - (iii) Fuel, light and power.
 - (iv) Employers' liability insurance.
 - (v) Administration salaries.
 - (vi) Printing, postages and telephone charges.
 - (vii) Salary and superannuation charges of home sister and matron.

The proportion of one-fifth is arrived at by taking the proportion of total hospital beds (80) which are contained in the County Maternity Ward (16).

(ii) Cases of Puerperal Pyrexia.

These are admitted to the Royal Cornwall Infirmary, Truro, the Prince of Wales' Hospital, Plymouth, and the City Hospital, Plymouth, at agreed charges.

(iii) Confinement of Women suffering from Venereal Disease.

Accommodation is provided by the Royal Cornwall Infirmary, Truro, at a charge to the County Council of £4 per patient per week.

B.—Orthopaedic

In addition to the accommodation provided at the council's own sanatorium, and at the Mount Gold Municipal Hospital, Plymouth, 42 beds are reserved at the Royal Cornwall Infirmary, Truro, for county council orthopaedic cases. These are principally short-stay cases; the long-stay tuberculosis cases being admitted whenever possible to the Council's Sanatorium. The cases at the Royal Cornwall Infirmary are of all types, including infants, school-children, and tuberculous adults. Accommodation there is recognised by the Board of Education as a Special School. The cost to the county council is at a rate of £2 15s. 0d. per patient per week.

C.—Chest Surgery

At the suggestion of the county council a department of chest surgery has been established at the Royal Cornwall Infirmary, Truro, where thoracoplasties and other chest operations on cases of pulmonary tuberculosis are carried out by a surgeon who comes down from London when necessary. The surgeon's fees are paid by the county council, and the maintenance charge for the patients is at the rate of £3 3s. 0d. per patient per week.

D.—Tuberculosis of Kidneys

These cases are admitted to St. Michael's Hospital, Hayle, at a charge of £2 10s. 0d. per patient per week.

E.—Venereal Disease—In-Patients

Three beds are set aside at the Royal Cornwall Infirmary, Truro, for venereal diseased in-patients at a retaining fee of £50, and a maintenance charge of £2 15s. 0d. per patient per week, plus the cost of all drugs.

F.—Venereal Disease—Out-Patients

A clinic is maintained by the Royal Cornwall Infirmary, the county council paying a retaining fee of £300 a year, plus the cost of all drugs.

G.—Education Services

(i) Tonsils and Adenoids Operations.

These operations are carried out by the Ear, Nose and Throat Surgeon of the Royal Cornwall Infirmary, who has been appointed the County Education Committee's Ear, Nose and Throat Surgeon. The scheme is at present being developed, but arrangements have already been made for the operations to be carried out at the Royal Cornwall Infirmary, Truro, Camborne-Redruth Miners' and General Hospital, Redruth, and the West Cornwall Hospital, Penzance. The usual fees are paid to the surgeon and anaesthetists, and payment is made to the Hospital Committee at the rate of 8s. per night for a minimum period of one night before and two nights after the operation. These operations are also carried out at the Prince of Wales's Hospital, Plymouth, and at the Tavistock Cottage Hospital by ear, nose and throat surgeons from Plymouth.

(ii) Ear, Nose and Throat Clinics.

An Ear, Nose and Throat Clinic has been established for some time at the Royal Cornwall Infirmary, Truro, where payment is made by means of out-patient tickets. Clinics have also been set up at the Redruth Voluntary Hospital, and the West Cornwall Hospital, Penzance, where payment is made at the rate of 10s. 6d. per session.

(iii) Eye Clinics.

Eye Clinics are held by the County Ophthalmic Surgeon in the Royal Cornwall Infirmary, Redruth Voluntary Hospital, Falmouth and District Hospital, and the West Cornwall Hospital, Penzance, payment being made at the rate of 10s. 6d. per session.

(iv) X-Ray Treatment of Ring-worm.

This is carried out at the Royal Cornwall Infirmary at a charge of £3 3s. 0d. per case.

(v) Psychiatric Clinics.

These are held by the Medical Superintendent of the County Mental Hospital in the out-patient department of the Royal Cornwall Infirmary, Truro, and in the East Cornwall Hospital, Bodmin.

(vi) Orthopaedic Clinics.

One of the County Orthopaedic Clinics is held in the out-patient department of the Royal Cornwall Infirmary, where a yearly rent of £15 is paid.

H.—Tuberculosis Dispensaries

Two of the County Tuberculosis Dispensaries are held at voluntary hospitals, one at the Royal Cornwall

Infirmary, Truro, and the other at the West Cornwall Hospital, Penzance. Payment for each of these is made at the rate of £35 per annum.

I.—Public Assistance Cases

Public Assistance cases are admitted to voluntary hospitals when necessary, payment in the past having been made by a system of fixed grants. Representation from the Cornwall Divisional Hospitals' Council have recently been sympathetically considered by representatives of the Public Assistance Committee and it is likely that in the near future the whole basis of payment will be changed. I can say no more at the present stage of negotiations.

J. Pathological Department

Extensive use is made of the pathological department of the Royal Cornwall Infirmary for public health work, payment being made of a fee per specimen depending upon the type of specimen examined.

From this detailed catalogue it will be seen that there is a very close relationship between the Cornwall County Council and the voluntary hospitals. The schemes propounded under the regionalisation proposals of the Nuffield Provincial Hospitals Trust came, therefore, as no great shock to the County Council in Cornwall, nor will it in any way alter the procedure which has been firmly followed in this county for many years.

RECENT APPOINTMENTS IN THE PUBLIC HEALTH SERVICE

The following are some recent appointments to the health departments of various local authorities.

The Editor will be grateful if members of the Society will notify him at once of any new appointments.

BECKS C.C.: A.C.M.O.H., Dr. W. Dodd. Salary £600 p.a., rising to £700.

GLASGOW & CLYDE PORT HEALTH AUTHORITY: Port M.O., Dr. Alexander Hutchison (A.M.O.H., Glasgow).

HYTHE & ELTHAM & EAST & WEST ASHFORD R.D.s: M.O.H., Dr. John Comyn.

LONDON COUNTY COUNCIL: Dep. M.O.H. & Dep. S.M.O., Dr. Andrew Topping (Sen. M.O., Medical Central Administrative Staff). Salary £1,800 p.a., rising to £2,200.

MIDDLETON M.B.: The superannuation of Dr. S. T. Beggs, M.O.H., has been postponed for one year.

SUNDERLAND R.D. & BOLDON U.D.: M.O.H., Dr. R. C. F. Smith (M.O.H. Barnard Castle U.D.).

WANDSWORTH MET. B.: A.M.O.H. (temp.), Dr. C. R. Stevenson (A.M.O., Colindale Hosp., L.C.C.).

WEST SUFFOLK C.C.: A.C.M.O.H., Dr. H. C. Price.

DR. E. W. REES-JONES has received a presentation silver tea-service from the Blackpool Town Council on the occasion of his retirement after 32 years' service as M.O.H. of that borough.

AN ANALYSIS OF THE REACTIONS FOUND IN THE FIRST TEN THOUSAND PERSONS INOCULATED WITH T.A.B.C. VACCINE IN SOUTHAMPTON

By H. C. MAURICE WILLIAMS, M.R.C.S., L.R.C.P., D.P.H. Medical Officer of Health, Southampton C.B. and Port.

In September, 1940, we initiated in Southampton a campaign to protect the civilian population against the typhoid group of fevers.

The response of the public has been encouraging, particularly amongst the employees of some of the larger commercial firms, where we have achieved as high an acceptance rate as 80 per cent.

It is interesting to note that, although on occasions the local and constitutional reactions have caused discomfort, the number of persons who have not returned for a second injection has been under 1 per cent.

(1) Slight local reaction—stiffness of the arm with local redness for a period lasting up to 48 hours.

(2) Severe local reactions—pain and stiffness exceeding 48 hours, with redness and swelling extending more than two inches from the site of injection.

(3) General reaction. This took several forms, the most common being a feeling of malaise, nausea, giddiness, shivers, 'flu, and included, in a few cases, abdominal pain, with diarrhoea, vomiting, and occasional erythematous or urticarial rashes, the latter being more marked in allergic subjects.

(4) Combined reactions—one of the local reactions with a general reaction.

(5) No reaction.

Many of the larger firms desired to have their employees split into groups, owing to the possible dislocation of work by incapacity, but it is shown that of the 10,032 persons investigated, the total loss

ANALYSIS OF REACTIONS FOLLOWING THE FIRST INJECTION.

	Females. Sedentary Workers.	Females. Manual Workers.	Males. Sedentary Workers.	Males. Manual Workers.	Total.
Number inoculated ...	2,776	2,602	2,782	1,872	10,032
Reactions :—					
Slight local ...	1,707 (61.45 per cent.)	1,766 (67.8 per cent.)	1,592 (57.2 per cent.)	1,188 (63.4 per cent.)	6,253
Severe local ...	50 (1.85 ")	70 (2.6 ")	38 (1.3 ")	50 (2.7 ")	208
Combined reaction ...	766 (27.6 ")	594 (23.0 ")	992 (35.7 ")	508 (27.2 ")	2,860
No reaction ...	253 (9.1 ")	172 (6.6 ")	160 (5.8 ")	126 (6.7 ")	711
Totals ...	2,776	2,602	2,782	1,872	10,032
Number of working days lost ...	8	7	15	—	30

Some Local Authorities have refrained from carrying out mass inoculations owing to the possible loss of working time amongst the manual workers in essential war production. An editorial in the *Medical Officer* discredited such a scheme, on the assumption that every person receiving inoculation would be incapacitated for 48 hours, and considered the resultant loss of working days would far outweigh the time lost through the disease. This was based on the incidence of the disease in peace-time.

For this reason I have noted with care the reactions and loss of working time amongst those who have received the inoculations. Unfortunately, it has not been possible to ascertain to the same degree the reactions following the second injection, but, from a large number of people who have been interrogated, we find that the reactions show little difference.

The Lister T.A.B.C. vaccine was used in the following doses, with a 14 days' interval between the first and second injections.

Men: 0.5 c.c. 1 c.c.
Women: 0.3 c.c. 0.6 c.c.

In analysing the reactions, males and females have been divided into manual and sedentary workers, and the reactions classified as follows:—

amounted to only 30 days, and out of a total of 1,872 male manual workers, no working time was lost.

Children over three years of age, given the appropriate dose, did not show any severe reactions, and in many cases protection against diphtheria was given at the same time without any bad result.

It is also noted that those who have severe general reactions usually have mild local reactions.

Prior to the heavy raids on Southampton, between 3,000 and 4,000 persons attended for inoculation each week, but the interruption of the Clinic Services occasioned by these raids upset the routine, and we are now making use of the Mobile First Aid Units. These are stationed in different parts of the town every afternoon, and the number of persons attending shows a daily increase.

It is of great importance that if large numbers of persons are to be protected in a town, a medical officer should be sent to the places of employment, as workers find it difficult to attend public clinics before the early black-out.

DR. R. A. O'BRIEN, Director of the Wellcome Physiological Research Laboratories at Beckenham since 1914, has retired and has been succeeded by Dr. J. W. Trevan, head of the pharmacological section.

HYGIENE OF AIR-RAID SHELTERS

A discussion on "Hygiene in Air-raid Shelters" was held by the Section of Epidemiology and State Medicine of the Royal Society of Medicine on December 20th, with Dr. J. Alison Glover (President) in the chair.

DR. P. G. STOCK (Ministry of Health) said that the onset of the air offensive had led to the desertion of the domestic or surface shelter for the communal or underground one; many of these latter had never been intended as shelters. Shelter questions had previously come under the Ministry of Home Security and it had not been thought that M.O.s H. would be concerned with them. However, when a serious public health situation arose the two Ministries appointed Lord Horder's Committee, and London M.O.s H. were asked to supervise shelters. By mid-October there had been little improvement, partly owing to shortage of materials and labour. The worst problems were overcrowding, uncleanness, ventilation and sanitation, and dampness. Apart from the Tubes, lighting and heating were inadequate. Many shelters had no piped water supply and were below sewer level, involving bucket sanitation. The Government had tried to relieve overcrowding by voluntary evacuation, by the ticket system and by a resurvey to discover further shelter accommodation; but overcrowding was still disquieting. Efforts were made to improve ventilation by installing fans and opening up closed shafts. Coal stoves had been put in public surface shelters holding more than 50 persons, but the supply difficulty prevented electric heating.

Dr. Stock described the medical aid posts established in large shelters to detect early infectious cases and to look after accidents or sudden illness. Epidemic illness would best be met by preventive measures; for instance, immunisation against diphtheria. Air-borne infection might be combated by spraying the air; after researches at the National Institute, trials of antiseptic mist introduced through the plenum ventilating system or by compressed air had been made in Tube stations. The wearing of masks against droplet infection was also being tried. There was no evidence yet of spread of lice in shelters but delousing stations and a new bactericidal powder were being provided. Mosquitoes (*Culex molestus*) had caused trouble in the Tubes. Regarding latrines, he mentioned hopped cylinders into which pails were emptied and the cylinders then discharged up a pipe into a sewer.

THE PRESIDENT (Dr. Glover) said that in most shelters darkness combined with the two cardinal environmental sins—overcrowding and damp, the latter often due to the respiratory miasma which overhangs any crowded assembly. Luckily the *Blitz* began long enough before the epidemic season to give time for acclimatisation and the mutual exchange of nasopharyngeal organisms, which might bring some non-specific immunity. The infections this winter were so far not high.

DR. C. F. WHITE (M.O.H., City of London) said that it was easy enough to talk about dispersal but that the difficulty of persuading people to leave an overcrowded deep shelter for a roomier and more airy basement had to be experienced. Regarding children, if a shelter doctor certified that a child's removal was necessary for the sake of its health, removal might be enforced. It was

difficult to believe that aerosols could disinfect the enormous air spaces which had to be dealt with. The disposal of excreta was an enormous task. Chemical closets had been abused and he thought that the only thing was to install pails containing a deodorant coal-tar solution. Pneumatic eject systems would reduce the labour of cleaning the closets. He concluded by asking the critics of the M.O.H. to remember what difficulties he had had to face.

DR. J. R. DAVIDSON thought it optimistic to expect that a major epidemic could be escaped in present conditions. If overcrowding was to be avoided, people must be given shelters which they considered safe. Local authorities ought to have responsibility for the Tubes.

DR. K. W. SINCLAIR-LOUITT (A.R.P.M.O., Finsbury) said that bad lighting was one reason for fouling of closets; also young children could not manage them. Regarding cases of notifiable disease who were ill but not in hospital, some used public shelters, including the tuberculous. Some plan for keeping shelter space to these cases should be made.

DR. E. ASHWORTH UNDERWOOD (M.O.H., West Ham C.B.) did not believe that the tuberculous would declare themselves as such by going to special shelters. If influenza and other respiratory cases were segregated, it would be a serious problem if the patients had to be shifted. There did not seem to be any infestation yet in his shelters but he did not expect this to continue.

DR. W. H. BRADLEY (Minister of Health) described work on the production of masks to prevent droplet infection. The difficulties were the shyness of users, the general indifference in the absence of any heavy infection and the fact that the masks soon became moist and uncomfortable.

LORD HORDER said that the shelter problem was an emergency one and must be dealt with in an opportunist way, by a simultaneous long-term policy of dispersal and a short-term one of making the best of things. There were compensations in so far as the research that had been stimulated would lead to permanent contributions to preventive medicine. Also, in regard to health education, the people in shelters would listen to the advice given them by medical officers and would carry out instructions.

DR. STOCK, replying to the discussion, said that cleansing of bedding and clothing might be carried out by mobile units. He referred to the further recommendations of the Horder Committee (now issued as a White Paper) and to the provision that there must be at least 2 feet between bunks, or partitions must be installed. He thought that one hopeful point in the situation was that the constitution of the "herd" in the public shelter might help to divert the disasters of old epidemics. The "herd" was now the ordinary population of London, with the more susceptible members, i.e., children, removed.

SIR ALEXANDER J. H. RUSSELL, C.B.E., formerly chief public health adviser to the Indian Government, has been appointed by the Scottish Department of Health to lead the current diphtheria immunisation campaign in that country. In Edinburgh alone more than 14,000 attendances are reported in the first fortnight of the campaign.

PENGE URBAN DISTRICT COUNCIL has accepted with regret the resignation of Dr. Robert Wilkinson as M.O.H., after 31 years' service, on grounds of ill-health.

BOOK REVIEWS

Biological Aspects of Infectious Disease. By F. M. BURNET, M.D., Asst. Director, Walter and Eliza Hall Institute, Melbourne. London: Cambridge University Press. 1940. Pp. iii + 308. Price 15s. net.

In 1883 the Island of Krakatoa in the East Indies was apparently completely sterilised of living organisms by intense volcanic activity. Within 60 years it has again become covered with dense tropical forest. First of all the lifeless volcanic ash was colonised by air-borne spores of bacteria, primitive plants, mosses and ferns; then in succession appeared grasses and shrubs from sea-borne seeds. Twenty-three years after the eruption a forest of coconuts, palms, fig-trees and others had developed along the shore and was gradually spreading inland. In another half-century, excluding further catastrophe, Krakatoa will be completely covered with tropical rain-forest. This succession of different types of vegetation is seen in all such denuded areas left to uncontrolled natural processes. In every case the succession goes on to a final state characteristic of the region, the "climax," determined mainly by the climate and nature of the soil. Whatever the nature of the climax, once reached it remains essentially constant and is likely to change only as a result of long period climatic conditions. A related series of changes in the animal population will occur and with the establishment of the climax state of vegetation, animal species will adjust themselves to an uneasy equilibrium. In a constant environment a reasonable approach to a stable balance will be maintained.

Assuming that a biological approach gives a better starting point for the professional study of human infectious disease than a purely medical one, Dr. F. M. Burnett, in his "Biological Aspects of Infectious Disease" enlarges on his leading theme of infectious disease as a manifestation of the interaction of living things. While the development of an approximately balanced condition between contending species is a characteristic of the relation between host and parasites, most parasites are restricted to one host species, or at most, to a small number of related species; and the main problem that a parasitic species has to solve if it is to survive is to manage the transfer of its offspring from one individual host to another. By whatever method a parasite passes from host to host an increased density of susceptible population will facilitate its spread from infected to uninfected individuals. Beyond a limiting point the density of susceptibles will result in constant reinfection, more severe symptoms and a higher mortality. This leads to a restoration of balance to that density of population optimum for the survival of the species. In the case of man, city life appears essential to civilisation. While efficient sewerage and water supply, together with ordinary decent cleanliness, have rid us in temperate climes of typhoid, dysentery, cholera, plague, typhus and malaria, we have not been able—and perhaps never will be able—to block the spread of those diseases which are spread by droplet infection. If anything, the greater size and mobility of modern city populations has probably increased the opportunities

for the spread of these infections. Further than this, the extent and speed of modern travel between all civilised countries has more or less converted them into a single closed environment in the biological sense. The infectious diseases of Europe, North America, Australia and New Zealand are almost identical. There is now a real opportunity for those parasitic microbes, whose attack we cannot prevent, to reach the state of relative equilibrium postulated as the normal climax of interaction between organisms. For many diseases that seems to have been accomplished. The commoner diseases of childhood—measles, chickenpox, diphtheria, whooping-cough, and infantile paralysis, have their epidemic prevalence and kill their proportion of children; but the proportion of deaths is small, and remains relatively constant for each disease from decade to decade. The organisms responsible continue to survive, yet their activity rarely causes any perceptible interference with the general life of the community, however tragic the result in individual experiences. All these childhood diseases are followed by relative or complete immunity—they affect childhood precisely because they are followed by immunity. Measles is cited as an example of one manner in which man and an agent of infectious disease have become adapted to one another without serious damage to the host species and with steady survival of the virus species concerned. On introduction to a city or country the epidemic spreads progressively, 12 or 14 days between successive crops of infections, and, under ordinary city conditions, will not diminish greatly until a high proportion of susceptible children are infected. As each passes through his infection he becomes immune and the germ finds progressively greater difficulty in spreading. Eventually measles disappears from the community—but in the meantime the virus is spreading through other communities. In about two years' time another crop of susceptible children has appeared and sooner or later the measles virus re-enters the community and the cycle is repeated.

Dr. Burnett's view of infectious disease is that of a conflict between man and his parasites, which, in a constant environment, would tend to result in a virtual equilibrium, a climax state in which both species would survive indefinitely. Man, however, lives in an environment constantly being changed by his own activities, and few of his diseases have attained such an equilibrium. The evolution of many of the commoner disease-producing bacteria has probably, in many cases, been by the over-stepping of their bounds, and by the effort to gain a living at the expense of the adjacent living cells of bacteria not actually growing in living tissues but in immediate contact with them. Among the commoner human diseases caused by bacteria, a great many are due to organisms identical with, or at least very closely related to, those found normally in these situations, e.g., the normal inhabitants of the throat are closely similar to the pathogenic bacteria which produce infections of the throat and adjacent tissues, while the organisms of typhoid fever and dysentery are of the *B. coli* stock. These are examples of bacteria which normally, being mere scavengers, have developed a capacity to attack living tissues adjacent to their normal habitat. Once

having developed such powers they may extend their harmful activity to other parts of the body, but most commonly there is a marked predilection for one site of attack. Some bacteria specialise on a parasitic existence, and, in general, the more a bacterium becomes specialised for a parasitic existence, the more infectious is the disease which results from its activity. As a rule it is found that the bacteria responsible for the infectious diseases are more difficult to grow on artificial media than the less specialised ones like the staphylococcus or the colon bacillus. Certain specialised bacilli have so concentrated on a parasitic existence that they can be found only in diseased tissues. Of the four causing human disease, namely, the tubercle bacillus, *Bacillus leprae*, *Gonococcus*, and *Sp. pallida*, two cannot be made to grow on any artificial medium.

Where two organisms have developed a host-parasite relationship the survival of the parasite species is best served not by the destruction of the host but by the developments of a balanced condition in which sufficient of the substance of the host is consumed to allow the parasite's growth and multiplication, but not sufficient to kill the host. Long established endemic diseases are, in normal circumstances, mild diseases of low death rate. If any undue advantage is given to the parasite, such as under-nutrition or over-crowding of the host species, severe and fatal outbreaks may occur which, by diminishing the numbers of the host will tend to rectify the circumstances which gave rise to them. If both host and parasite are to survive, a mild, rather long-lasting infection which does no serious damage to the host and provides adequate opportunity for the parasite to be transferred to other hosts is the most advantageous relationship for both. Such a relationship is established by mutual adaptation of the two species concerned. Highly fatal diseases in nature nearly always represent the effect of first contact with a micro-organism which has developed its parasitic habit in some different host.

On introduction into a community a new disease will avoid some, though many escape with a trivial illness or no apparent sickness at all. While infants may be highly susceptible, children are less affected than adults, and young adults of from 15 to 35 years provide the greatest number of cases, and usually the highest fatality rate. Having passed through the epidemic stage it will smoulder through the country. A new susceptible population of young children gradually accumulates amongst whom the next outbreak of the disease occurs. As the years go on, the new virus, unless it completely dies out, takes its place amongst the epidemic diseases of the country, producing a crop of infections amongst young children every year or two, and producing a definite illness in an occasional adult. The greater the ease with which the infection spreads the younger will be the age of maximal incidence. The converse is probably true, namely, that any infection with a maximal incidence in infants or young children is widely endemic in the community.

Space does not permit of reference to any more of these generalisations made by Dr. Burnet and his application of them to determine whether any outbreak is that of a new or old infection. His hypothesis

regarding the influenza epidemic of 1918, which must be the last extract from this most fascinating book, is that of the development of an antigenically new strain of organism which therefore resulted in what was, in effect, a new disease. During the years before 1918 the influenza virus was prevalent in various parts of the world. Most individuals were being infected from time to time and as a result developed a considerable degree of immunity against strains whose antigenic structure resembled those which had infected them. As a result of the war, men from every country of the globe were crowded into Europe under conditions highly favourable to the spread of respiratory infections. There was every opportunity for any type of new variation in the influenza virus, which might have appeared in Europe or elsewhere, to make itself felt. Somewhere a strain appeared which was almost entirely different antigenically from any which had been current previously, and to which, therefore, the whole human race was susceptible, so that influenza became a new disease. Simply as a result of the exuberance of its multiplication it gave rise to further antigenic types differing more or less from the first new form, with the result that influenza appeared in successive waves, each of which failed to immunise against the succeeding ones.

Practical Child Psychotherapy. By Dr. CURT BOENHEIM with a foreword by Prof. H. FINKELSTEIN. London: John Bale Medical Publications, Ltd. 1939. pp. 177. Price 10s. 6d. net.

In this short work the author has sought to embody the results of his ten years' experience as a psychotherapist at the Clinic for Nervous and Difficult Children at the Kaiser and Kaiserin Friedrich Kinderkrankenhaus at Berlin. Though not entirely a personal commentary, the book is to a certain extent an exposition of the author's views regarding treatment, and it is therefore not very remarkable that, just as he admits that in the earlier days of psychotherapy enthusiasm for the young science outran discretion in its use, in his exposition he is perhaps somewhat optimistic regarding the number of conditions for which this treatment may be used beneficially. It is obvious that the work is intended largely for the general practitioner. Dr. Boenheim divides psychotherapy broadly into "major" and "minor" degrees, and he contends that "minor" psychotherapy can generally be applied by the patient's practitioner, while the "major" degree is in the province of the practising psychotherapist. This being the case, it might be thought that the author would make a clear differentiation between treatment which may be classified as of "major" or "minor" degrees respectively, but this he seldom does, and the inference is that most cases should be dealt with by the practitioner in the first instance.

The book is divided into a general part, which deals historically with the present position of psychotherapy and with the indications for its use, and a special part, which discusses disorders of the alimentary, urinary, and sexual organs, nervous habits, motor disorders, and other syndromes in which psychotherapy has been found helpful. The general part is rather concise, but the author does manage to convey a good idea of the

development of the subject. In his short section on the methods of treatment employed he gives a good description of *what* is done, but *how* he does it is left rather much to the experience of the reader.

The special part of the book is more practical, and in general the author gives an excellent description of the conditions dealt with, illustrated by a generous selection of his own cases. His section on enuresis is especially worthy of attention. It is interesting to note that he prefers to have children suffering from this condition treated at home. In view of the prevalence of bed-wetting in evacuated children, this section should prove valuable to medical officers in the public services. A minor criticism of this special part is that the treatment is rather too "descriptive," on the lines of general inquiry into the environment, parental anxiety, and morbid state in the parents.

This book is a valuable contribution to a difficult subject. There is an extensive bibliography, and although this is largely German, prominent British workers are also quoted. The book is a good translation from the German, but the translator's name is not disclosed.

Hutchison's Food and the Principles of Dietetics. Revised by V. H. MOTTRAM, M.A., and GEORGE GRAHAM, M.D. Ninth Edition. 1940. London: Edward Arnold & Co. pp. xv + 648 + 27 figs. Price 21s. net.

It is of interest to compare the ninth edition of this standard work with the first edition which was published in 1901. The two volumes are actually about the same size, although the 548 pages of the original are now 648, the lessened bulk being due to thinner paper, while incidentally there is more print per page. The science of dietetics has altered enormously since 1901 and even these considerable extensions of space would be inadequate without rather drastic revision. Less space is devoted to individual foods and very much more to a general discussion of the functions of food. The charm of the book, which made it such a joy to read in 1901, however, is largely preserved.

Some 204 pages are devoted to Part I, nearly all to an up-to-date, concise and accurate account of the functions of food, with chapters on cooking, digestion and normal dietetics. Part II deals in 258 pages with individual foods; Part III with the principles of feeding in infancy and childhood; while Part IV discusses diet in the treatment of disease. The treatise is a very fine achievement and gives a full account of dietetic principles and a sufficiency of information upon the composition and food value of individual foods. While there are good U.S.A. books, a volume which covers in sufficient detail the whole of the problems arising out of modern dietetics and uses English standards will be widely appreciated. Students could not have a better guide. Dietetic experts often hold extreme views but the book is noteworthy for the level and reasonable attitude adopted, while the authors are not afraid to admit our considerable limitations of knowledge in a number of directions. Vitamins are adequately discussed but are not stressed as if they represented the whole of dietetics and nutrition. The sections on individual foods follow much more closely than the first part the pattern of earlier editions. This

part is also very clear and sufficiently comprehensive for all ordinary purposes.

The authors claim indulgence for faults and lacunae but very few are apparent. Apart from some references to vitamin content little or no reference is made to canned foods and their position as an economic source of food supply. Indeed all special food preservation processes, including refrigeration, are ignored. A long table sets out the chemical composition of proprietary and other infant foods but the critical discussion on their usage is very slight and rather disappointing. The few references to bacteria in food are incomplete and usually not up to date. There is no discussion on a possible scientific basis for the dislike many children have for milk. These, however, are all very small matters.

The volume can be warmly recommended as a worthy successor in the long line of Hutchison's and of practical utility to every medical officer of health and student of dietetics. The first part will be of exceptional value to the student who wishes to obtain a clear grasp of the principles of dietetics, while the other parts are invaluable for reference when information is required on particular foods or special diets.

To gain an adequate understanding of food problems really three books are required. One on dietetics and chemical composition; one on the bacteriology and parasites of food; and the third on the administrative control over food. This volume fulfils admirably the first need and of course does not pretend to deal with the other two aspects.

Who's Who, 1941, published by Adam & Charles Black at 65s., is the 93rd issue of this indispensable reference book. The number of short biographies contained therein has now risen to about 40,000 and the details of the entries have been as thoroughly revised as ever.

Murder in the Mobile Unit, by Sutherland Scott (published by Stanley Paul, price 7s. 6d.) is another addition to the series of "thrillers" by an M.O.H. member of the Society. As with **Murder is Infectious** and **The A.R.P. Mystery**, he has again skilfully embellished part of the M.O.H.'s present-day sphere of activity with some criminological complications.

The Times recently reported that sufficient material to immunise 1,000,000 children is being sent to this country by the American Red Cross. One-fifth of this is being sent by air.

PROFESSOR ROBERT D. DEFRIES has been appointed Director of the School of Hygiene and of the Connaught Laboratories in the University of Toronto, in succession to the late Dr. J. G. Fitzgerald. Dr. Defries has himself been actively engaged in the work of the School and Laboratories since 1915 and is well-known to many members of the public health service here.

THE SOCIETY OF MEDICAL OFFICERS OF HEALTH

NOTICE.

DENTAL OFFICERS' GROUP.

The difficulties of travel having made it impractical for meetings during the winter months, it is proposed that papers and discussions be circulated among members by post in the form of a "folio".

A folio contains a paper written on some subject of current interest. At the back of the paper are a number of blank sheets for comment. The folio is circulated in turn to a circle of members who add their comments on the paper and discuss the previous comments. In short, it is the equivalent of an ordinary meeting held by post.

A brisk circulation of the folio is essential for the success of the scheme as one dilatory member can spoil its smooth running, and a really forgetful person can break the chain altogether.

I should be glad to hear from all those members of the Group who would like to take part. Mr. Frank Jones has already written the paper for the first folio on "The First Permanent Molar," and others are in preparation. It is proposed to issue a fresh folio each month and the circles of recipients will be limited, fresh circles being formed as others come up to strength.

With the coming of the longer days of summer it should be possible to hold ordinary meetings of the Group in London once again, but till then the Group must rely upon this new venture.

A. GORDON TAYLOR, L.D.S., R.C.S.,
28, Battlefield Road,
St. Albans, Herts.
December 22nd, 1940.
Hon. Secretary.

MIDLAND BRANCH.

President: Dr. C. W. Sharpley (M.O.H., Oldbury U.D.).

Hon. Secretary: Dr. R. H. H. Jolly (M.O.H., Wolverhampton C.B.).

The third meeting of the session was held at St. Chad's Hospital, Birmingham, on Saturday, December 7th, 1940, at 2 p.m. The President was in the chair and was supported by 33 other members.

The minutes of the previous meeting were read, approved and signed. It was unanimously agreed to recommend for fully paid life membership of the Society Dr. J. H. Mason, formerly Assistant S.M.O., Northampton. Dr. Mason had been a member of the Society since 1915.

Health Problems of Air Raid Shelters.

Dr. A. Massey then opened a discussion on "The Health Problems of Air Raid Shelters," and put forward the following suggestions for minimising the risks of the spreading of infectious diseases in these places:

(1) Shelters should be adequately ventilated, free from dampness and provided with satisfactory sanitary accommodation. He considered that engineering science should be able to deal with dampness, and ex-

pressed the view that mechanical methods were necessary to ensure the requisite amount of ventilation, particularly in large shelters.

(2) Owing to the limited standard intelligence of some of the people now frequenting public shelters, Dr. Massey was convinced that both education and supervision of the users were necessary. The attainment of satisfactory conditions should be promoted by the provision of posters, by personal talks by a public health nurse, and by increasing the sense of personal responsibility. The formation of shelter committees should be fostered and encouraged and a whole-time lay shelter supervisor might be appointed. He thought that a nurse should be allocated to each large public shelter, that she should be on duty in the shelter during raids and that she should endeavour to make personal contacts with the regular users of the shelter. A medical man should also be on call for groups of shelters in his vicinity.

Dr. Cox appealed for more and better evacuation schemes for the children of large towns and cities in vulnerable areas and thought that shelter nurses must have the backing of authority to perform their duties effectively.

Dr. Newsholme quoted figures to show that there had been a steep rise in cases of pneumonia, diphtheria and scarlet fever in his area since it had been subjected to repeated air raids. In his view dispersal was a wiser course than the construction of a further big basement and deep shelters. Bacteria was even more deadly than bombs and it was important that families should not be encouraged to herd together in large basement shelters. He advocated the construction of more small communal surface shelters where fewer persons would mix and, therefore, the risks of the spread of infection would be much less.

Dr. Maitland reminded the meeting that the original shelter policy had been designed to meet day raids of short duration but shelters were now being used as dormitories for long periods at a time, a purpose for which they had never been intended. He agreed with the policy of dispersal and suggested that baths should be provided in connection with the larger shelters.

Several other members also spoke.

In his reply, Dr. Massey answered points raised by various speakers and pointed out that the shelter problem was in part due to the failure of evacuation schemes.

The President proposed a hearty vote of thanks to Dr. Massey for his address and this was carried by acclamation.

NORTHERN BRANCH.

President: Dr. A. E. Raine (Dep. M.O.H., Durham C.C.).

Hon. Secretary: Dr. J. A. Charles (M.O.H., Newcastle-on-Tyne C.B.).

The annual meeting of the Branch was held at the Newcastle General Hospital on Saturday, October 19th, 1940. The President was in the chair and was supported by ten other members.

The minutes of the meeting held on July 27th, 1940, having been printed in PUBLIC HEALTH, were taken as read, confirmed and signed.

North of England Branch Council of the British Medical Association.—The members were informed that the above Council had re-elected its present representative—Dr. James Hudson—to serve on the Northern Branch Council of the Society of Medical Officers of Health for the Session, 1940-41.

Annual Report of Council, 1939-40.—The above report was read by the Honorary Secretary and it was unanimously adopted.

Recruitment.—As the membership of the Branch was now only 97, the lowest figure since 1919, the Honorary Secretary was instructed to circulate a complete list of these names to the present members, with a request that they endeavour to persuade non-members of the public health service in the Branch Area to join the Society.

Branch Council, 1940-41.—The following were elected as the Council of the Branch for the Session, 1940-41: G. A. Dawson, E. F. Dawson-Walker, W. H. Dickinson, Madge Hopper, Ian McCracken, A. I. Messer, J. W. H. Morrison, A. E. Raine, J. B. Tilley, John Walker, Edith Williamson, George Wilson; together with the President (Dr. James Grant), the Vice-President (Dr. George Hurrell), the Honorary Secretary (Dr. J. A. Charles), ex-officio; and Dr. James Hudson (British Medical Association Representative).

Date of Next Meeting.—It was agreed to accept the President's kind invitation to hold the next meeting at Gateshead on Saturday, November 16th, 1940.

Installation of Dr. James Grant as President of the Branch for the Session, 1940-41.—Dr. Raine, the retiring President, before asking Dr. Grant to take over the Presidency of the Branch, warmly thanked the Honorary Secretary (Dr. Charles) for his valuable services during the past session. Dr. Raine also, on behalf of the members, thanked the Newcastle Health Committee for providing tea when the meetings had been held at the Newcastle General Hospital.

In asking Dr. Grant to take over the Presidency for the coming session, Dr. Raine stated they all felt certain that he would fill the Chair with distinction, and he hoped that Dr. Grant's term of office would prove to be as happy as his own.

Dr. Grant, in taking over the Chair, moved a hearty vote of thanks to Dr. Raine for his services during the past session, which, in spite of difficulties, had been carried out in a most efficient manner. Dr. Raine, he said, will go down as one of the most successful Presidents of the Branch. Dr. Grant, in thanking the members for electing him as President, said he was looking forward to his year of office.

Dr. Dawson, in seconding the vote of thanks to the retiring President, stated that it gave him great pleasure to do so, as Dr. Raine's year of office had been outstanding, and all the members fully appreciated his good work in the Chair.

Dr. James Grant delivered his Presidential address, "Health and the State," which was printed in the December issue of PUBLIC HEALTH. On the motion of Dr. Raine, the President was accorded a hearty vote of thanks for his interesting address.

YORKSHIRE BRANCH.

President: (1939-40) Dr. James Sharpe (formerly Dep. M.O.H., City of Leeds); (1940-41) Dr. Nicolas Gebbie (M.O.H., Hull C.B.).

Hon. Secretary: Dr. R. Sutherland (M.O.H., Brighouse M.B., Hipperholme U.D.C., Halifax R.D.C.).

The Branch held the inaugural meeting of the 1940-41 Session in the Hotel Metropole, Leeds, on Friday, October 25th, 1940. The retiring President was in the chair and was supported by 20 other members.

Apologies for absence were submitted from Dr. F. T. H. Wood, President of the Society, and 25 members.

The minutes of the last meeting were taken as read, approved, and signed. Dr. James Sharpe, the retiring President, then invested Dr. N. Gebbie, Medical Officer of Health, City of Hull, with the President's Badge of Office, and installed him in the presidential chair, expressing the hope that he would have a very happy year of office.

The Secretary submitted a letter from Dr. Irvine, of Shipley, in which he suggested that the Branch should take some steps with a view to expediting action by the Government to deal with problems of hygiene which have been raised by air raid protection measures, and the Secretary was instructed to write to the Secretary of the Society asking that the Council should press for such action and for the adequate representation of the Society upon any committee or committees appointed by the Government to deal with these problems. The Secretary was instructed to write to Dr. Wood conveying the regret of the Branch that he was unavoidably prevented from being present at the luncheon and to assure him that the Branch are delighted that he has undertaken the duties of President for a second term and that he has their good wishes.

It was agreed that the next meeting of the Branch should be held at Leeds on November 29th and that a discussion should take place upon the "Public Health and Social Aspects of Air Raid Protection," to be opened by Dr. J. J. Buchan, Medical Officer of Health of the City of Bradford and Dr. T. N. V. Potts, Medical Officer of Health of the County of the West Riding of Yorkshire.

The President then gave his Presidential Address on the subject of "Plagues, Past and Present" (published in this number of PUBLIC HEALTH). At the conclusion of his address the President invited those present to have tea with him, which was greatly enjoyed. The meeting was preceded by the Annual Luncheon of the Branch at the Hotel Metropole, Leeds, at which the retiring President, Dr. James Sharpe, presided, supported by 40 members and guests. After the Health of the King had been proposed by the President, the toast of "The Society of Medical Officers of Health" was proposed by Councillor Thomas Harwood, Chairman of the City of York Health Committee.

Councillor Harwood began by informing the company that Dr. McNaught had celebrated his 21st anniversary as Medical Officer of Health of the City of York the previous week. He said that we are living in difficult times and that the members of the Society are faced with new problems, but he was convinced that these would be met and that we should come out on top.

At the request of the President the Secretary then read a letter from the President of the Society stating that he greatly regretted that circumstances beyond his control would prevent him from carrying out his original intention of being present at the luncheon and replying to this toast.

The President then called upon Dr. Pearce, past President of the Society, to reply in his stead.

Dr. Pearce began by expressing his personal regret that the President of the Society had been unable to attend and he reminded the members how fortunate they were in having such an able Medical Officer of Health and President as Dr. Wood at the head of the Society during these troublous times. The Society owed Dr. Wood a deep debt of gratitude for having agreed to carry on as President for another year under strenuous war conditions. The Society of Medical Officers of Health, he said, is by no means a junior society. It was founded in 1856 and is therefore getting on for its 100th birthday. It has twelve groups and seven groups. It is the representative society of the British Public Health Service. Dr. Pearce went on to say that the members of the Yorkshire Branch are very proud of it; the Branch was founded in 1875 and is junior only to the North-Western Branch, which was founded several months previously. The members of the Yorkshire Branch are proud that so many of the great names in public health have been connected with the Branch. He said that, although the Society had played an important part in improving the remuneration of medical officers, its chief object is the advancement of public health in the interests of the community as a whole. Dr. Pearce then thanked Mr. Councillor Harwood for the kind terms in which he had proposed the toast, and the guests present for the generous way in which they had responded.

In proposing the toast of "Our Guests" Dr. W. J. Frain, Medical Officer of Health, Borough of Batley, said that the Yorkshire Branch was a happy and contented body, meeting in a homely and friendly atmosphere and that he looked forward at our Annual Luncheons to the privilege of offering hospitality to charming ladies and other distinguished guests. We are very pleased to have several Chairmen, Aldermen and Councillors with us, and to have also present representatives of the Ministry of Health.

In reply, Councillor David Beevers, Deputy Chairman, City of Leeds Health Committee, said that he felt that the work carried out by the members of the Society is enormously important. If it were not for the work of the public health services the work of the other services would be of little avail. He was glad to note that recent statistics given in the House of Commons by the Ministry of Health showed that we were at least holding our own in the battle against disease. He was very pleased to have been present at the Annual Luncheon of so important a society and he had great pleasure in responding to the toast and wishing the Society every success in its work.

In proposing the toast of the retiring President, Dr. McNaught said that to the members of the Branch Dr. Sharpe's work was well known. It was largely due to Dr. Sharpe's efforts and enthusiasm that the Yorkshire

Branch had carried on so strongly during a year of difficulties. The Branch had had many worthy presidents and Dr. Sharpe will rank amongst these who have made a real contribution to the Branch. He was sure that all would agree that Dr. Sharpe had carried out his duties as President exceptionally well under war conditions and it was a great pleasure to him to propose the toast of his health.

In reply, after expressing his thanks to Dr. McNaught and to the members, Dr. Sharpe stated that it had been a great privilege to have been the President of the Branch. He appreciated the honour which the Branch had paid him by appointing him President and he wished to express to Dr. J. J. Jervis, the Medical Officer of Health of Leeds, his appreciation of the way in which he had made it possible for his deputy to take such an active part in the work of the Society.

The toast of the incoming President was proposed by Dr. J. J. Buchan, Medical Officer of Health of Bradford. He said that it gave him the utmost pleasure to submit the toast of his old friend and colleague, Dr. Gebbie. Dr. Gebbie had been selected for this office because the members of the Branch knew what excellent work he was doing for public health in Hull. His election to the office of President was a mark of the appreciation of his work and also of his genial presence and of the cordiality with which he meets us.

In reply, Dr. Gebbie said that he was very grateful to Dr. Buchan for his kind words. It was difficult for him to attend meetings of the branch as they coincided with his meetings in Hull. However, he would do his very best to carry on the traditions of the office. It was up to all of us to do what we can to maintain the strength of democratic institutions and he looked upon the Society as one which endeavours to do so. He thanked the company present for the generous way in which they had responded to the toast.

The meeting was preceded by a meeting of the Council at which the President was supported by nine members, namely, Drs. J. J. Buchan, H. M. Gall, J. F. Galloway, N. Gebbie, J. M. Gibson, P. R. McNaught, G. H. Pearce, J. C. Pickup and R. Sutherland.

Health in the Shelter and Shelter Bulletins, 1-4. The Central Council for Health Education, Tavistock House, Tavistock Square, London, W.C.1, has made a timely issue of a 15-page illustrated booklet entitled "Health in the Shelter" and of four folders headed "Shelter Bulletin." The booklet gives excellent general advice, in a simple and readable style, about the preservation of health in shelter conditions and precautions against infections and contagions. The "Shelter Bulletins" deal with particular points. No. 1's title is "Save Your Child from Diphtheria" and briefly but forcefully puts the case for immunisation. No. 2 is "Watch Out for Measles," No. 3, "D-i-r-t Spells Disease," and No. 4, "Coughing and Sneezing." We advise every M.O.H. who is faced with a local shelter problem to obtain a supply of these publications at once, together with the new C.C.H.E. posters on Diphtheria, Measles and Dirt designed for display in shelters.

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Editorial

Communal Health Problems After Heavy Bombing

The early days of the war found the time of most Medical Officers of Health almost fully occupied with the activities necessary to shape the casualty services portion of the Civil Defence Organisation, and to try hurriedly to create a service on which it seemed that at practically no notice immense demands would be made. Concurrently, Medical Officers of Health of many districts, whether they were evacuation or reception areas, were burdened with duties arising from the transfer in a short time of large masses of population. In a few months these immediate problems diminished—the intensive bombing on the scale anticipated did not occur, with one result that there was a very extensive return of the evacuated persons to their own homes. A state of relative normality was reached and, apart from admissions to certain towns of foreign populations in the Spring and the transfer of populations from certain portions of this country in the succeeding months, this state persisted until August and September. Then large numbers of the population herded into the shelters—structures originally designed to provide temporary protection for short periods in daylight hours, but now occupied and overcrowded by their occupants for long stretches of time, including the hours of night—in conditions which favoured not only all those ailments spread by droplet but also alimentary affections. These conditions caused great concern to all responsible in any way for the health of the districts. To the risks of the spread of infections through the dispersal of populations, with the exposure of masses to the strains of organisms to which they were not acclimatised, to the chances of spread of air-borne or of alimentary infections arising from the herding of the populations in insanitary shelters, to the hazards attendant on the engagement of unskilled persons replacing those in large-scale food production—to these risks are to be added those which arise in localities which have been subjected to heavy bombing.

Of these, one of the most serious is that consequent on damage to water mains. In October the Ministry of Health issued a Circular (No. 2171) which sought to allay apprehension regarding the dangers inherent in damage to water mains. It was pointed out that the occurrence at the same time of a fracture in a water main and, say, a sewer, in close proximity or in the same crater did not of itself constitute an immediate and direct danger to the water supply, firstly because the sewer is usually below the level of the water main, and

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secondly, a factor of more importance, because so long as the water in the main is under pressure the sewage or any other form of liquid pollution which may exist in the vicinity of the water main cannot obtain access to it, whereas when the pressure had fallen off, whether naturally, by reason of the fracture, or, more commonly, from the closing of the valves, the water had already ceased to be delivered to the consumers. In a further circular issued in January, 1941 (No. 2172A), it was pointed out that, exceptionally, these technical considerations might not operate as a safeguard. In such cases as that of a hilly district of steep gradients, where there is a large fall in the water main, the crater may be at a sufficient elevation to allow sewage or other polluting matter which may be present in the crater and which may enter the water main to pass down the main at a sufficient pressure to enter domestic premises. This risk would be greatest shortly after the damage had occurred and before the damaged water main had been shut off and it and the surface mains and pipes had been emptied. The original circular, however, stresses the fact that there was a very real risk of pollution occurring at a later stage when the repaired section is brought again into use, because the damaged section of the mains might have become polluted in the period intervening between the time the water had ceased to be delivered to the consumers and that at which the supply was restored. To obviate this risk it was advised that the repaired section should be thoroughly washed out to waste and sterilised before the repair is connected up again, and that similarly any new lengths of pipe used in the repair should also be sterilised.

Colonel E. F. W. Mackenzie, Director of Water Examination to the Metropolitan Water Board, in an article in a recent issue of *The Medical Officer*, expresses disagreement with the commonly accepted belief that when a main was fractured the pressure would cause the water to flow out from both ends, thereby preventing the access of pollution of the main itself, and still more with the opinion held by some that there would be visual evidence of dangerous pollution in the shape of leaking or broken sewers or drains, and that an inspection of the site would enable a judgment to be given as to whether or not there was risk of dangerous contamination of the mains. Colonel Mackenzie points out that, even though the sewers may be at a considerable depth, the branch stoneware drains running from the premises are, at least at their commencement, usually at the level of the water main and that many leaks may be started in these connections, and seepages take place. There is to be taken into consideration, too, the extensive fissuring in the neighbourhood of a crater which will facilitate the passage of leakage. Being of the opinion, then, that it is impossible to determine by visual examination of a fractured main in a built-up area whether or not dangerous contamination has taken place or to what extent it may have driven along the main, Colonel Mackenzie maintains that the only safe policy is to assume pollution throughout the whole of the isolated portion of the main, which therefore must

*"The Sterilisation of Bombed Water Mains." *Med. Off.* (1940.) 54. 183.

be effectually sterilised. In the case of mains of small dimensions this is done by introducing stabilised bleach in sufficient amounts to give a concentration of ten parts per million in the estimated capacity of the main. Large mains are sterilised by means of chlorine gas, which is introduced at the point at which the main is to be recharged after repair. When the main is being chlorinated charging continues and the water runs to waste through an outlet situated nearest the opposite end from that at which it is being charged until such time as the presence of chlorine can be demonstrated in the water discharging at that point, thus indicating that any dead water in the main has been discharged. From this time the main is allowed to stand fully charged for not less than 15 minutes. If possible the main should then be emptied and re-charged before it goes into supply. On the question of the efficacy of the residual chlorine present in the water as it passes into supply from the works to counteract the type of pollution which may result from the disruptive effects of a bomb, Colonel Mackenzie expresses the view that this is totally inadequate to be of any effect.

In an article on "Some Public Health Considerations Consequent Upon a Large-scale Air Raid,"* Dr. Arthur Massey, Medical Officer of Health for the City of Coventry, deals more particularly with those in the spheres of epidemiology, hospital policy, mental health and housing. Damage to water mains and to drainage constituted a typhoid hazard, to reduce which active measures were taken, including the earliest possible restoration of water pipes, sewers and drains and the chlorination of water supplies. Local propaganda by press, posters and the Ministry of Information loud speaker vans urged the boiling of drinking water and milk, and special instructions in regard to cleanliness were given to and supervision exercised over the makers and purveyors of foodstuffs. In addition, arrangements were made for anti-typhoid inoculation to be carried out on a large scale. Special clinics were held at two hospitals, a large central first-aid post and at one of the Mobile First Aid Units, these clinics being conducted by the medical and nursing staff of the Public Health Department. Immunising material was supplied free for the inoculation of the employees of the large factories, the firms making their own arrangements with private medical practitioners for the injections. The number of persons immunised in these ways within the first three weeks were 2,364 at the clinics and 13,417 at the factories, while a further 505 were treated privately. The raid seriously interfered with the supplies of water to the public baths, and, of course, the bathrooms in a large number of houses were unusable at a time when bathing facilities were the more necessary to help to counteract possible infections and parasitic conditions. With the early return of supplies to the first-aid posts the shower baths in the cleansing sections were made available to the public, while factories possessing similar facilities threw them open also. The damage sustained by the centrally sited general hospitals necessitated recourse to advantage being taken of the facilities offered by the scheme of

**Brit. Med. J.* (1941.) 1. 82.

affiliated outer base hospitals. Dr. Massey feels that air-raid conditions have added further evidence in favour of peripheral as opposed to central sites for hospitals for large towns, and suggests that in such circumstances the administrative and clinical resources of the central hospitals might well be used to full capacity if associated with a separate block of buildings in an outside area staffed and equipped as a branch of the central parent hospital.

During and shortly after the raid many cases of mental distress found their way to the first-aid posts, coming there in their stunned condition for rest and sympathy. In the main their condition soon became normal and actually there has been a diminution in the numbers of patients attending the psychological out-patient clinics held in the City, a decrease which is possibly partly due to the diminution in size of the City population owing to evacuation and possibly, too, to the fact that the clinic patients, actual and potential, would be the first to evacuate. There is no evidence, then, that air raids have resulted in any notable increase in the incidence of neurosis in Coventry. Damage to houses resulted in many being rendered homeless, but these were immediately provided for through the City's Emergency Rest and Feeding Centres pending more permanent arrangements. Food brought into the town under Government arrangements was distributed through the many feeding centres, so that even at the height of their difficulties the City experienced no serious shortage of food. Mobile canteens assisted in distribution, while the local stocks of dried milk were of great value during the few days that normal milk supplies were held up. Food was salvaged from damaged shops, stores and hotels, being collected and then divided into those portions fit for human food, those fit only for animal food and that which mostly because of contamination with small particles of broken glass, was unfit for use as food.

Writing a month after the date of the heavy raid, Dr. Massey records that the services had been largely restored and that up to then there had been no outbreaks of infectious diseases.

Trichiniasis

At a time when strict rationing of food is in force, outbreaks of trichiniasis in more than one area of this country are of more than usual interest. Such an event stresses the urgent need for taking as much care in the inspection and treatment of food in time of war as in peace. The article by Dr. R. H. H. Jolly in our current issue on trichiniasis in Wolverhampton draws attention to a number of important facts in the epidemiology of the disease and to the public health measures taken to control it. Before referring to these, it may be of interest to summarise briefly some facts about the Nematode parasite which, fortunately, only rarely infests the people of this country.

The cysts of the *Trichinella spiralis* were observed in Germany in 1821 and in England in 1828, and Paget, while a student at St. Bartholomew's Hospital, made dissections of the cyst and sketches of the parasite. He showed these to Owen, who in 1835 described the worm under the term *Trichina spiralis*. Recog-

nition of the fact that it was harmful to man did not apparently come until 1860, when Zenker found the adult worm in the intestines of a young girl who died in Dresden of what had been diagnosed as typhoid fever.* It was then found that she had fallen ill shortly after eating pork and that others who had eaten the same pork had also sickened. Series of epidemics occurred from 1881 to 1898, especially in Germany, and American pork was excluded from the German markets.

Although the distribution of *Trichinella spiralis* is world wide, it is characteristically a helminth infestation of the Northern Hemisphere, and is the penalty paid by those who like their pork raw, the disease being therefore more common in Germany, Italy, and Austria than elsewhere. During recent years *post-mortem* examinations in the U.S.A. showed an incidence of trichiniasis in human beings varying from 3.5 per cent. in New Orleans to 27.6 per cent. in Boston, and the worst epidemics in the U.S.A. have been traced to home-grown hogs fed on raw garbage.

Trichinella spiralis spreads from host to host as a result of the consumption by the one of the infested flesh of the other. The larvae encysted in the eaten flesh escape from their cysts in the stomach of the new host. Passing to the intestines they reach sexual maturity within forty-eight hours and mate. After fertilisation the adult female, measuring some 3 to 4 mm. in length, works her way into the intestinal mucosa and there deposits her larvae, which enter the lymph spaces and finally the blood stream, being most numerous in the latter between the eighth and twenty-fifth day after infestation. After entering the muscle, the larva, about 0.1 mm. long and growing to about 1 mm. within ten to fourteen days, finally assumes a spiral form and a cyst wall of collagen fibrils appears round it. Calcification may occur as early as six months, but is not fully developed until after one to two years. Larvae deposited in organs such as brain, heart, and liver, give rise to an acute focal inflammation and are destroyed.

As the larvae may settle down in any part of the body, it is evident that the clinical picture will show infinite variation. And, in fact, trichiniasis has been wrongly diagnosed as such widely different conditions as typhoid fever, malaria, mumps, tetanus, pneumonia, rheumatic fever, scarlet fever, meningitis, encephalitis, and poliomyelitis. It is this extreme variability in the clinical picture that makes diagnosis difficult in districts or countries where the disease is rare and so not likely to be suspected. In the Wolverhampton outbreak,†† for example, the gastro-intestinal symptoms said to be characteristic of the early stage were almost entirely absent. Most of the patients, in fact, complained of constipation. In one case haemoptysis and in another bronchopneumonia were the first manifestations of illness. Some cases showed the typical picture of meningitis; others, mental depression, tem-

**Parasitology*, by Robert Henger, PH.D., Francis M. Root, PH.D., Donald L. Augustine, SC.D., and Clay C. Hutt, SC.D.

†*Lancet*. (1941.) 1. 203.

††*Brit. med. J.* (1941.) 1. 237.

porary delusions, monoplegia, cerebellar syndrome. An unusual finding was haemorrhage under the nails. But the principal signs and symptoms were intense swelling of the eyelids, usually bilateral, severe frontal headache, and fever. After about three days muscular pains were complained of. The temperature in most cases rose to 101-102° F. for a few days and then fell by rapid lysis. In a few patients a temperature of 102° F. persisted for three weeks, and one patient had rose spots. Apart from detection of larvae in the blood stream or in an excised piece of muscle, the most important diagnostic finding is eosinophilia. During and after the second week the skin becomes sensitive to an antigen prepared from larvae, and the antigen can also be used in a serum precipitin test during the fourth week. These reactions may be observed for a year or more after infestation, and so can be employed to ascertain the extent of an epidemic.

Once the existence of trichiniasis in a district has been discovered, the matter becomes an urgent problem for the Public Health Department. The number of people affected in the Wolverhampton area was estimated to be about 500. An interesting and, to the observer, unexpected observation was that the working-class population (upon whom the incidence was heaviest) had a liking for raw sausage, especially the women. Out of 76 cases of trichiniasis seen by Dr. J. H. Sheldon,† 62 were in women. As Dr. Jolly points out, the other known facts were that human trichiniasis is caused by eating raw or imperfectly cooked pork products; that the outbreak was not limited to Wolverhampton but had also occurred in outlying districts; that the initial symptoms in the earliest known cases had appeared on or about December 10th, that the peak period was from December 23rd to January 8th, and that further cases were being reported after this date. Immediate steps were taken to warn the public of the risk by means of notices in the local press, to inform the Ministry of Health and Medical Officers of Health in adjoining districts, and to remind general practitioners of their obligation to notify cases of food poisoning under Section 17 of the Food and Drugs Act, 1938. That this is in fact an obligation is not quite clear, as in the Act referred to there is no definition of the term "food poisoning". Until a decision has been reached on this, it is hoped that practitioners will inform Medical Officers of Health of any cases or suspicious cases of trichiniasis that come to their notice.

Attempts to trace the source of the infestation have so far been unsuccessful. Inquiry showed that the manufactured products—especially sausages—of several pork butchers came under suspicion. Of the four firms concerned, three came under the Ministry of Food Classification of Class 1 manufacturing pork butchers, and one under Class 2. Class 1 manufacturers usually slaughter their own pigs, and Class 2 receive dead pigs from a central dépôt. Dr. Jolly points out that a Class 1 manufacturer who kills 300 pigs a week may receive these from as many as sixty or seventy different farms in three or four different counties. A relevant point here is that some of the pigs for pork manufactured in Wolverhampton come

from Wales, where there were three separate outbreaks of trichiniasis in November 1939, April 1940, and November 1940? Cases have also recently been observed in Hertfordshire.*

Professor R. T. Leiper has set up a laboratory at the Wolverhampton abattoir in order to examine every pig slaughtered there and those slaughtered on the premises of the local Class 1 manufacturer. It is also proposed to investigate the rat population of all pig farms in South Staffordshire and to arrange for the pigs from this area to be slaughtered at Wolverhampton so that they can come under the investigation that is on foot. Rats are known hosts of the *Trichinella spiralis*, which has recently been found in two rats at the Wolverhampton sewage intake works. American workers believe that trichiniasis is maintained in pigs chiefly by their eating raw garbage, and in this country the Ministry of Agriculture and Fisheries require all swill to be boiled before being fed to pigs.

The results of the investigation being conducted will be awaited with great interest, and it is to be hoped that this will lead to the eradication of a troublesome disease from which this country has long been immune.

The Incidence of Pediculosis

At the inception of the school medical service much stress was laid on the eradication of pediculosis. Cleanliness surveys were inaugurated and have continued to be regarded as an important function of the school nurse. The records of successive years showed a satisfactory improvement in the care which parents bestowed on the heads of their children. In 1915, for instance, 28 per cent. of London schoolchildren examined were verminous, but the percentage had fallen in 1923 to 18.1, as shown by a table in the Report of the Chief Medical Officer of the Board of Education for the latter year. In 1922 he had quoted similar or even better results in Manchester, Liverpool and other large towns. Since 1924 statistics for schools throughout the whole country have been given in that Report which show that the average incidence of 7.4 per cent. of all children surveyed, whether for the first time or subsequently during the year, in 1924 fell steadily to 3 per cent. in 1934 and has remained almost exactly at this level till 1938. The Chief Medical Officer has commented on the topic from time to time. In 1928, for instance, he emphasised its importance in these words: "The most exacting, thankless, but none the less important duty of the school nurse is that in connection with the production and maintenance of *personal cleanliness* in schoolchildren. There is hardly any issue so primary and fundamental to the health of the child as that of cleanliness." By this time the clinical and investigatory activities of school medical departments were rapidly expanding, and in 1930 new responsibilities were thrown by the Local Government Act, 1929, on the health departments to which they were usually attached. It would therefore be reasonable to suppose that school medical officers had less personal time than in their early days to devote to the scrutiny of the cleanliness procedure of their departments, and records such as those we have quoted would justify the assumption on their part that progress was

*Brit. med. J. (1941.) 1. 240.

satisfactory. When a special interest was taken in this problem, as Dr. Glass, M.O.H. of Farnworth, showed in 1931, quite a high incidence could still be demonstrated, but in 1933 it was stated that the percentage of London children "found free from even traces of nits or pediculi in the hair was 96.2."

The outcry in receiving areas at the outbreak of war therefore came as a shock both to the public and the service, and various reasons were adduced for believing that the state of affairs in September, 1939, was abnormal. That it was probably not so is demonstrated by an investigation carried out for the Ministry of Health and the Board of Education by Dr. Kenneth Mellanby.* He rightly refuses to consider the presence of nits as being any less ominous than of lice themselves, although his records separate the two conditions. His observations, numbering about 60,000, are taken from the records of fever hospitals, where the nurses are drilled to search heads with a thoroughness impracticable in mass surveys and where continuous observation over days and weeks is possible. The patients admitted to fever hospitals may be regarded as only a slightly biased sample of the population using elementary schools. In ten industrial towns he found that infestation among males rose from 11 per cent. at ages under 1 to 44 per cent. at 2 years of age, and then gradually fell to 21 per cent. at 13 years; in females it rose from 12.8 per cent. to 51 per cent. at 3 years and fell only slightly to 45 per cent. at 13. Throughout school life, then, as well as before it, pediculosis is much more rife than we believed. In rural areas a relatively low rate is in striking contrast, and Dr. Mellanby is justified in thinking that the town dweller with care should be able to reach at least the rural standard, although it must be remembered that exposure to infestation must be much more frequent in towns, and that one or two careless families are a much greater menace in congested urban surroundings. He urges that school teachers should be induced to take a keener interest in the matter and points out the obstacle to cleanliness presented by the modern fashion of permanent waving, which extends even to quite young girls. He believes that the district nurse is more influential with parents than the specialised school nurse—a view which is reminiscent of that held by many American workers that mothers pay little attention to nurses unless they are accustomed to "turn up their sleeves" and do a job of nursing in the home. Dr. Mellanby also emphasises the need for constant harping on the subject with the public, and for extended legal power to deal especially with the children under school age. Lastly, he makes scathing reference to our present-day fondness for euphemisms and protests against a lousy child being called merely unclean. This report is not one which throws bouquets at the public health service, but all the more for that reason it should be studied by every member of the service. We have perhaps been too ready to believe that pediculosis is easily detected, even in its minor but still transmissible forms, and too easily satisfied that the prescribed remedies were effectively applied.

*The Incidence of Head Lice in England. Med. Officer, 1941, 65, 39.

Registration of Overseas Practitioners

In the present shortage of medical personnel the temporary extension of medical registration to practitioners without British qualifications may afford a welcome relief. Before the war some measure of reciprocity existed as between this country and the Dominions (exclusive of certain provinces in Canada) and Italy and Japan. Obviously it has ceased in a general sense so far as Italy is concerned. On July 24th, 1940, Defence Regulation 32B* was made, enabling the Secretaries of State for the Home Department and for Scotland and the Minister of Health jointly to make Orders for the registration during the present emergency of colonial or foreign practitioners under prescribed conditions. Accordingly on September 14th, 1940, the Medical Register (Temporary Registration) Order, 1940,† was made extending the right of medical practice of any kind in this country to citizens of good character belonging to any province of Canada and to the United States, if they are entitled to practise there and hold qualifications approved by the General Medical Council obtained in either of these countries. The more difficult question of other practitioners from the British Commonwealth and from allied or enemy countries was dealt with by the Medical Register (Temporary Registration) Order, of January 1st, 1941.‡ In their case, besides the above conditions, registration is dependent upon the individual having been selected for service in His Majesty's forces, or in the forces of a foreign power stationed in this country or associated with His Majesty's forces; or having been selected for employment as a medical officer in an approved hospital or other institutional service which does not involve domiciliary visitation. The territories covered by the Order include the British Dominions and Colonies; India and Burma; Belgium, Czecho-Slovakia, France, Greece, Holland, Norway, Poland; and Germany and Italy. In Circular 2264, dated January 15th, 1941, the Minister of Health has given a general approval under the Order to all council hospitals for the employment of such practitioners, and it appears that first-aid posts are similarly recognised.§

It will be observed that a practitioner must have been accepted for employment by a hospital authority before the General Medical Council can register him, but it will obviously be convenient if he has some assurance that his application for registration will be favourably considered when he obtains employment, and that an authority proposing to make such an appointment should have a reasonable expectation that it will not break down at the stage of registration. The Central Medical War Committee, B.M.A. House, Tavistock Square, W.C.1, has undertaken to act as a clearing-house, supplying names of suitable practitioners if asked by hospital authorities and arranging for their registration if they are provisionally appointed to hospital posts. As the Order does not eliminate the ordinary procedure for Aliens' control through the Home Office, with which

* S.R.O., 1940, No. 1328.

† S.R.O., 1940, No. 1661.

‡ S.R.O., 1941, No. 24.

§ Brit. Med. Journ., Suppl., 1941, 1, 9.

the Central Medical War Committee is in close touch, it is desirable that any foreign practitioner who directly applies for a hospital post should be referred first of all to that Committee.

Provided that a foreign practitioner's proficiency in the English language is satisfactory, this new source of supply of medical men for hospitals should not only ease the staffing problem but also afford an opportunity for the introduction of fresh ideas into our clinical treatment. Many of the men of Czech, Austrian and German origin who have had to leave their countries for conscientious, political or racial reasons are exceedingly able and highly qualified. Their help may well be an acquisition to our service, and those hospitals which apply first to the Central Medical War Committee are likely to get the best of them.

Tuberculosis in Cattle

The United States Department of Agriculture announces that tuberculosis in cattle has now been practically eradicated throughout all the states of America.* After 23 years effort, involving 232,000,000 tuberculin tests and retests and the detection and slaughter of about 4,000,000 beasts, no county in any state has as much as one-half of one per cent. of its cattle infected. In spite of this great achievement, which we ought to emulate, veterinary officials emphasise that testing and retesting should be continued, especially of those herds from which tuberculous animals have recently been removed. It should also be noted that those states which have been most active in this campaign have also been in the forefront in promoting pasteurisation, and that a very large proportion of the populous areas of the U.S.A. insist on pasteurisation of all milk whether it is tubercle-free or not.

COST OF LIVING BONUS

The Council of the Society last year had its attention drawn to the cases of several medical officers of health whose authorities had been unable to obtain the sanction of the Ministry of Health for the payment of a cost-of-living bonus to the M.O.H., in common with other officials. Sanitary inspectors whose salaries were subject to the Ministry's control, found themselves in a similar position.

This anomaly was eventually the subject of strong representations made to the Ministry by the National Association of Local Government Officers. We are informed that, as a result, the Ministry are now prepared to lift their former embargo and will notify those local authorities whose applications to pay the cost-of-living bonus to medical officers of health and sanitary inspectors were previously refused that such payment will now be sanctioned. The Ministry will at the same time point out that their decision has been made only in order to remove unfair anomalies and that it does not reflect any approval in principle of the particular bonus scales which the authorities may have adopted.

* Bull. Nat. Tuberc. Ass., U.S.A. 1941, 27, 2.

TRICHINIASIS IN THE WEST MIDLANDS

By R. H. H. JOLLY, M.D., B.S.(LOND.), D.P.H.,
Medical Officer of Health, Wolverhampton C.B.

Early in January of this year I was informed by the Medical Superintendent of New Cross Hospital that certain patients in that institution might possibly be suffering from trichiniasis. Inquiries the following day elicited the fact that there were in the town a number of people who had recently suffered from mild attacks of a febrile illness accompanied by oedema of the eyes. Dr. J. H. Sheldon, Consulting Physician to New Cross Hospital and the Royal Hospital, Wolverhampton, who had made a tentative diagnosis of the New Cross cases, was intensely interested in this epidemic, which did not conform to the textbook description of trichiniasis. Through the general practitioners of the area he steadily hunted up fresh cases of this disease, kept me in touch with his investigations, and supplied me with the names and addresses of persons whose symptoms suggested a possible diagnosis of trichiniasis. Out of the first seventy-eight cases, fourteen were in males, sixty-two were in females, and there were only two in children. From a spot map it was observed that the incidence of the disease was mainly among working-class families and did not affect the better-class residential areas. This curious distribution of the cases and the very marked preponderance of adult females at first appeared to contraindicate an outbreak of food-poisoning, and it was not until Dr. Sheldon's chance discovery of the partiality of many Black-country folk, particularly women, for raw sausage, that a pork infection was suspected. The Ministry of Health had been informed of this mysterious outbreak in the town, and on January 23rd they invited Dr. Paul B. Beeson, of Harvard University, at present in this country with an American Red Cross Unit, to come to Wolverhampton and give us the benefit of his expert knowledge of trichiniasis. On the day he arrived the duration of illness of the earlier hospital cases gave reason for believing that the *Trichinellae* would have had sufficient time to reach their ultimate resting place in the striated muscle tissue, where they might be identified. Accordingly, Dr. Stanley Lee removed a small piece of muscle from one of his cases and found what he considered to be the parasite. This finding was subsequently confirmed by Dr. Beeson and also by Professor R. T. Leiper. Three other cases were subsequently subjected to a muscle biopsy with similar results. (For clinical description of the local cases see articles by Dr. Sheldon¹ and Dr. Lee².)

The diagnosis having been confirmed, it became the responsibility of the Public Health Department to take all necessary steps to check the further spread of the outbreak and if possible to discover its causation. The known facts were: (1) That human trichiniasis is due to the consumption of raw or imperfectly cooked pork products. (2) That many people in Wolverhampton and district were in the habit of eating uncooked sausage. (3) That the outbreak was not limited to Wolverhampton itself but had also occurred in the surrounding districts. (4) That the initial symptoms (oedema) in

the earliest known cases had occurred on or about December 10th; that the peak period was from December 23rd to January 8th, but that further cases were still being reported. (5) A history of eating raw sausage had been obtained in approximately 50 per cent. of the patients.

Action to Limit Spread of Outbreak

[a] A heavy type notice was at once inserted in the local evening paper stating that it was suspected that illness was being caused in Wolverhampton and adjoining districts through the consumption of raw or partly cooked pork sausages, and continuing as follows:—"The public are strongly advised to cook all pork sausages thoroughly before eating."

[b] The Medical Officers of Health of the districts immediately adjoining Wolverhampton were notified of the existence of an outbreak of trichiniasis in the area.

[c] The facts were reported to the Ministry of Health, who thereupon broadcast a general warning of the dangers of eating raw or imperfectly cooked pork sausages.

[d] Six days later a further article was inserted in the local Press confirming the existence of human trichiniasis in the town, repeating the warning about sausages and pork products, and reminding pig-keepers of the requirements of the Ministry of Agriculture as to the boiling of all swill intended for pigs.

[e] Local practitioners were reminded of their obligation to notify cases of Food Poisoning under Section 17 of the Food and Drugs Act, 1938, and a short synopsis of the clinical features of the present epidemic was circulated to them.

Discovery of Cause of Outbreak

It immediately became apparent that the investigations necessary would be very laborious and complicated unless some lucky chance should reveal a direct clue. Pork pies, bacon, brawn, fresh pork, and sausages were all possible sources of infection. Home-produced pork as well as imported pork might be the cause. It was also possible that the *Trichinellae* might be conveyed through the medium of sausage skins or casings, many of which are now obtained from hogs. Other questions to be decided included: (a) Were the temperatures attained in the preparation of brawn, pork pies, and similar products, sufficient to kill the parasite? (b) Was the encysted form of the *Trichinella* killed by the prolonged freezing to which imported pork was subjected on its voyage over here? (c) Was the salting of pork in the preparation of bacon sufficient to destroy the parasite if subsequent cooking was inadequate?

Aetiology

At this stage it might be useful to give a brief account³ of the life history of the parasite, as this determines the date of the onset of symptoms and also the possible periods of infection. When flesh containing the living encapsulated *Trichinellae* is eaten the larvae, freed from their capsules, reach the small intestines in twenty-four to thirty hours and become sexually mature in two days. Five days after invasion the female embeds herself in Lieberkühn's glands and produces many embryos.

From these glands the embryos get into the lymphatics of the host about the seventh or eighth day after the infected food has been swallowed. The so-called wandering *Trichinellae* invade the lymph glands and some pass by way of the blood stream to various organs of the body, where they rapidly perish. It is only those which reach striated muscle tissue which assume an arrested or encysted stage. This invasion of muscle begins in the second week of the illness and may continue to give rise to symptoms for two to three weeks while encapsulation takes place. The initial intestinal symptoms (which were not common in the present epidemic) are due to the irritant effect of the parasite on the intestines; the subsequent muscular weakness and tenderness mark the invasion of the muscle fibres by the *Trichinellae*, while the local oedema and haemorrhage are probably caused by blockage of small lymph vessels and capillaries by the parasites. The early febrile disturbance is ascribed to toxins given off by the parasites.

Effect of Physical Agents on Parasite

With regard to the effects of heating, cooling, and curing of pork on the encysted form of the *Trichinella* parasite, the most modern researches are those of Officers of the Bureau of Animal Industry of the United States Department of Agriculture. Ransom⁴ proved that infected pork exposed to a temperature of 10° F. for fourteen days produces no infestation or only very slight infestation, and that exposure to a temperature of 5° F. for five days or longer might be considered lethal for the parasite. Ransom and Schwartz⁵ found that the vitality of *Trichinellae* was quickly destroyed by exposure to a temperature of 55° C. gradually obtained. The Federal Meat Inspection Regulations in the U.S.A. now require that a minimum of 137° F. (58.33° C.) shall be reached in all parts of the meat cooked, and that as regards refrigeration pork must be kept frozen at a temperature no higher than 5° F. for not less than twenty days to give a margin of safety. The same officials have also conducted experiments on the curing of hams, sausages, etc., and find that salting undermines the vitality of the *Trichinellae* and lessens their resistance to heat. Drying increases the salt concentration and its effects. Hams were rendered innocuous by curing by dry salt for forty days followed by smoking or pale-drying for ten days at a temperature of not lower than 95° F., or by curing for thirty-eight to eighty days (depending on size of ham), followed by forty-eight hours smoking and twenty days drying. No experiments have been recorded on the length of time taken for dry heat to penetrate a sausage or similar article, as when it is grilled. There does appear to be considerable risk in the modern rapid method of curing bacon by pickling for only ten to fourteen days. In view of the above-mentioned experiments there must be a considerable risk of such bacon conveying trichiniasis unless it is properly cooked afterwards.

Progress of Inquiry

As a first step inquiry forms were completed for all known or suspected cases of the disease, showing: (a) The date of onset. (b) The name and address of the retailer from whom sausages, pork pies, bacon, fresh

pork, etc., had been purchased during the fourteen days previous to the onset. (c) If not the actual manufacturer, the name of the wholesale dealer from whom the retailer had obtained his supplies of pork products. (d) Direct information as to whether any raw sausages had been eaten during the previous fourteen days.

Under the Ministry of Food Scheme manufacturing pork butchers are divided into Class 1, Class 2, and Class 3, and in 1940 each class obtained a weekly allocation of (a) pigs for manufacturing purposes—namely, sausages, brawn, pork pies; (b) bacon pigs; (c) pigs for sale as fresh pork. Class 1 manufacturers were allocated supplies by the Regional Food Officer direct from collecting centres, whereas Class 2 manufacturers, who are retailers, obtained their quota through the local branch of the Wholesale Meat Salesmen's Association (that is, through the Wolverhampton abattoir and cold stores). Should a manufacturer have invoiced to him pigs for bacon purposes which are not up to proper size on delivery, he had to report these to the local W.M.S.A., and they were either re-allocated to someone else for sale as fresh pork or they might in some cases be retained by the original consignee for manufacturing purposes. Class 1 manufacturers usually slaughter their own pigs, but Class 2 and Class 3 receive dead pigs from the centralised slaughtering depot. Should supplies of home-produced pork be insufficient the Ministry of Food issues a certain amount of frozen pork to make good the deficiency. The Class 1 manufacturer who kills 800 pigs a week may have drawn those pigs from sixty or seventy different farms in three or four different counties: so many bacon pigs, so many sows for manufacturing purposes, etc. As the entire distribution of pork is made through the Ministry of Food, detailed invoices are kept and all the necessary information can be extracted, but the procedure is complicated by the fact that so many individual pig farms are involved. An additional complication was the fact that the residue—that is, the odd bits of the pigs issued for bacon purposes—would be added by the manufacturer to the pork he was going to convert into sausage meat, so that it was impossible to concentrate one's inquiries on the manufacturing pork and ignore the bacon pork supplied simultaneously.

When the initial inquiry forms had been completed it was found that the manufactured products of several pork butchers were implicated to a greater or lesser degree, especially sausages. Four firms were chiefly concerned with these latter articles, of which three were Class 1 manufacturers and one was a Class 2 manufacturer. If these firms are represented by the letters G, H, J, K, it was found that the number of cases of trichiniasis in which there was a *prima facie* case for suspecting their products was G—10, H—33, J—8, K—19. The pig farms from which the home-fed pigs had been purchased for these firms at times relevant to the inquiry were carefully scrutinised, as were their several supplies of frozen pork. Although correlation was obtained between G and J and between H and J, there was no common source of supply to them all. Their premises were visited and a careful investigation made into the methods of manufacture of all their pork products without any fresh clues being obtained. But

these researches did indicate that hog casings could be ruled out owing to the absence of muscle fibre in them and the prolonged salting to which they were subjected, and that pork pies, brawn, and other pork products which were boiled at the factory would be rendered innocuous by the prolonged heating. A point of some possible importance was the rapid method now adopted for manufacturing bacon. Under present-day conditions the sides of pork are injected with salt solution and pickled for as short a period as ten days before being placed on the market, whereas the American investigators quoted above found that curing for forty days, followed by a prolonged period of smoking or drying, was necessary to destroy the vitality of the parasites.

At this stage the Ministry of Health requested Professor R. T. Leiper to come to Wolverhampton and advise. After the position had been explained to him he decided to set up a small laboratory at the Wolverhampton abattoir and to examine every pig slaughtered there, as well as those slaughtered at the local Class 1 manufacturing pork butchers' premises, for *Trichinellae*. Samples of all the frozen pigs remaining in the local cold stores and one store at Birmingham were defrosted for similar specimens to be obtained from them. The official rat catcher was instructed to get as many rats as possible from hotels, institutions, sewage farms, markets, food stores, and similar premises throughout the town for these to be examined also. On January 31st, Dr. T. W. Wade, of the Welsh Board of Health, rang up and told me that there had been three separate outbreaks of trichiniasis in South Wales in November, 1939, April, 1940, and November, 1940, a total of twenty-six human cases being reported in these outbreaks. It is known that pigs from the area of supply to the affected Welsh district were sent to Wolverhampton. On February 2nd Professor Leiper became aware of a small outbreak of trichiniasis at Harpenden, which he was asked by the Ministry of Health to investigate. (These cases were reported in the *British Medical Journal*.)⁷ At the present time all these clues are being followed up in the hope that they may possibly establish a common source for the three outbreaks. It is also proposed to investigate the rat population of all the pig farms in South Staffordshire which are under suspicion, and to arrange with the Ministry of Food for all the pigs from this area to be slaughtered in Wolverhampton in order that they may be subjected to microscopical tests. The only positive evidence at the present time has been that two out of eight rats caught on February 5th at the Wolverhampton sewage intake works, where the coarse screening takes place, were found by Professor Leiper to contain *Trichinellae*.

At the time of writing the number of cases reported to the Wolverhampton Public Health Department has been men 14, women 78, children 13—total 105, of which females constitute 75 per cent. Two of the female workers employed by pork manufacturer H were alleged to have suffered from "influenza" in the first and second weeks of January. A differential blood count of each made on February 2 showed eosinophilia of 52 per cent. and 8 per cent. respectively.

As a check on the fondness of the local population for raw sausage the health visitors were asked to make

certain inquiries during the course of their visits. The following table shows the number of cases of trichiniasis reported from each district and the percentage of families visited who admitted that raw sausage was consumed in their homes.

District.	Percentage Eating Sausage Raw.	Cases Reported
1	13	0
2	44	6
3	8	3
4	52	1
5	34	9
6	69	32
7	31	4
8	63	13

Eradication of Trichiniasis

Animals known to suffer from trichiniasis include human beings, pigs, dogs, rats, bears, and certain other warm-blooded mammals. It is believed that the only way in which infection can be transmitted is by eating flesh containing the cystic stage of the parasite, but it has not yet been definitely proved that the young larvae from the alimentary canal of the host may not also transmit the disease. The commonest way in which swine are infested is by feeding them on swill containing trichinous pork. Rats are simultaneously infested, but as rats are cannibals the infestation once acquired by them is likely to persist from generation to generation, whereas pig infestation has to be maintained by fresh doses of contaminated pig food unless the pigs from time to time make a meal off rats on the farm. One method of eradication would therefore be the complete elimination of rats on a farm together with the boiling of all pig swill before delivery to the farm. Many American observers consider that the feeding of swine on raw garbage is the chief way in which trichiniasis is kept up, and would prohibit feeding pigs on garbage at all. In this country the Ministry of Agriculture and Fisheries require all swill to be boiled before being fed to pigs, but this does not remove the possibility of the rodents gaining access to the swill before it is cooked and thus setting up and maintaining a focus of infection on the pig farm. Another suggested method for the elimination of the disease is rigid post-mortem inspection of all carcasses of swine together with ante-mortem skin testing, using ground-up larvae as antigen. (When the disease was originally suspected in Wolverhampton there was a proposal that a small supply of antigen should be flown here from America in order to clear up the diagnosis, but the muscle biopsy was positive before any antigen arrived.) Inspection and testing on these lines reminds one of the attempt at the elimination of tuberculous cattle by somewhat similar means and is unlikely to produce dramatic results.

Observations

Up to the time of writing the local investigations have not succeeded in establishing the source of infection. At the beginning it was anticipated that the outbreak might be traced to one imported cargo of pork or to a single pig farm in this area, but the occurrence of fresh and apparently disconnected outbreaks suggests

that the field of survey may require to be extended even more widely. It is also probable that fresh cases will be found as a result of the present publicity.

Are a considerable number of pig farms in different parts of this country infected with trichiniasis, and, if so, is this infestation of recent occurrence or has it been present for some considerable time?

Are the present outbreaks attributable to war conditions, to the more rapid methods of bacon curing, or to fresh channels for the distribution of pig swill?

It must not be overlooked that there are now camps and barracks throughout the length and breadth of the land and that these may draw their supplies of pork from remote collecting centres. The swill from these camps is most acceptable to pig farmers in the adjoining districts and may favour the spread of pig trichiniasis from one area to another.

It came as a considerable surprise to learn of the fondness of the people in the West Midlands for raw sausage. There may be similar customs in other parts of England and Wales to account for these localised outbreaks. It is quite certain that laboratory investigation and experiment is very necessary (a) to determine if the parasite in *Trichinellae*-infected pork is killed during the rapid curing of bacon now carried out in this country; (b) to ascertain the length of time requisite to fry or grill a sausage, or to cook a sausage roll, in order to destroy any *Trichinellae*; and (c) to establish the adequacy or otherwise of the refrigeration of the pork imported into Great Britain.

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CORRESPONDENCE

PLAGUES, PAST AND PRESENT.

To the Editor of PUBLIC HEALTH.

SIR,—In submitting to you the manuscript of my presidential address to the Yorkshire Branch of the Society of Medical Officers of Health, which appeared in your January issue, I omitted to supply a list of the books, journals, and other papers which were consulted in the preparation of my address. Had such a list been furnished it would have contained several references to Dr. Delmege's book *Towards National Health*, which I found most helpful and used freely.

I regret that the reference to this valuable source of information, which I made verbally when the address was delivered, should have been omitted by me from the printed report.

Yours faithfully,

N. GEBBIE,

President, Yorkshire Branch of the
Society of Medical Officers of Health.

The Guildhall,
Hull.

February 11th, 1941.

BOOK REVIEWS

Practical Public Health Problems. By Sir WILLIAM SAVAGE, B.Sc., M.D. Late County Medical Officer of Health, Somerset. 1941. London: J. & A. Churchill, Ltd. Pp. vii + 198 (with three illustrations). Price: 10s. 6d.

Sir William Savage has taken the opportunity afforded by his recent retirement—or partial retirement—to put on record the fruits of his ripe experience. He was a medical officer of health with a difference. While very actively engaged in all the work of an administrative official he found time to carry on laboratory work, especially in bacteriology, and is indeed recognised throughout the world as an authority on the bacteriology of food and water. He has therefore been in a unique position to bring a mind constantly sharpened on the whetstone of science to bear on the practical problems of public health. His latest book reflects this profound scientific knowledge combined with practical field experience and sound common sense. With consummate skill he illuminates the field of environmental hygiene with the light of science and yet with the least possible reference to the laboratory technique of which he is a master. Savage, moreover, always knows what he is after and goes direct for it. We are left in no doubt as to his meaning.

Of the fourteen chapters of which this book consists, eight are devoted to different aspects of the problem of food in relation to nutrition and disease. The other six deal with water supplies, sewage disposal, river pollution, housing inspection, and disinfection. If we refer to most textbooks in public health we shall find that much of their matter in this category is based on scientific or pseudo-scientific work dating well back in the nineteenth century, or is mainly an account of legal requirements. Yet a great deal of work has been done in the field of environmental hygiene which has to be brought into relation to present-day problems and which throws the whole subject into a perspective not observable in the law. It has been difficult for medical officers, increasingly absorbed in clinical extensions of their work since 1907, to keep touch with this work. Here they, and the sanitary inspectors whose day-to-day preoccupations it affects, will find it examined with precision and set out concisely and altogether admirably. Above all, they will find clear guidance as to how the laboratory can be economically and effectively used as an adjuvant to field work and *what public health inquiries cannot profitably be foisted on to the laboratory worker*. Savage's dictum as to sampling river water—"Never take a sample without a specific object"—applies, with modification, to other public health pursuits. There is hardly anything in the book which calls for criticism. The bottling of milk might have received a little more attention since this is one of the stages at which the benefits of pasteurisation may be undone. The description of botulism does not make it perfectly clear to those whose knowledge of bacteriology may be elementary that *Cl. botulinum* does not invade the human body but acts by intoxication. Section 53 of the Public Health Acts Amendment Act, 1907, as a means of obtaining

information as to sources of milk supply, is now repealed by the Food and Drugs Act, 1938, and has not been re-enacted. A little elaboration of the grounds on which a seriously damp house is regarded as "a definite menace to health" would have been welcome. This book, as we have indicated, fills a gap in public health literature which has been obvious for some time. It clears up many doubts and difficulties which beset the public health worker in his daily round, and it is written in untechnical language that will present no obstacle to the sanitary inspector, to whom, as well as the medical officer of health, it will afford authoritative guidance on topics with which he is constantly concerned.

Statistical Methods for Medical and Biological Students. By GUNNAR DAHLBERG, M.D., LL.D. 1940. London: George Allen Unwin, Ltd. Pp. vii + Ind. v + 220. Price 10s. 6d. net.

Professor Dahlberg states that this book represents a compromise between the demands of the mathematical statistician and the mathematical limitations of the medical and biological student, and a reviewer is naturally tempted to examine primarily how far he has achieved the goal he had in view. The book differs from several others which are designed on similar lines in that it starts right away with the theory of probability, and then proceeds to discuss compound probability and the binomial theorem. This may be a perfectly logical opening of a treatise on statistics—essentially the science of probability—written for those who are already acquainted with the elements of the subject, but it is hardly a tasty hors d'oeuvre for those who have to find some artificial stimulus to induce an appetite for the subject. The following chapters deal, *inter alia*, with measures of dispersion, the standard errors of statistical characteristics, variability, errors of estimation, goodness of fit, measures of asymmetry, and correlation.

The reviewer feels that generally the book is too advanced for medical students who may know nothing of the elements of statistics and who may desire to know less. For example, on page 108 the formula for the calculation of a correct standard error is perhaps beyond the scope of the book, and the chapter on the addition of materials is probably too theoretical to be appreciated by the beginner. The chapter on skewness is also rather advanced, and the section on goodness of fit hardly does justice to one of the basic concepts of the statistics of biology. The beginner might have some difficulty in understanding the method of calculating the expected frequencies in Table 16—despite the note at the head of the table. Though the conception of degrees of freedom is obviously difficult to explain, the few lines on page 162 are perhaps inadequate. The beginner would not attempt to employ the method of tetrachoric correlation or Wahlund's modification, and he would probably not have access to Pearson's tables. Throughout the book a notation is used which differs somewhat from that now adopted in this country, and although the departure is trivial, it makes rapid reference less easy. The problem of association is not adequately

dealt with, and many will be disappointed that Fisher's methods do not receive more attention.

On the other hand there are many excellent features in this work. The "student" who has left the classroom behind him will find in it a pithy treatment of many difficult subjects. From the practical point of view, Tables 12 to 14—dealing with the size of material required to establish significant differences—will be found very useful, and the chapter on complication statistics treats concisely of certain methods which are not often found in books of this type. The chapter on correlation is one of the best in the work. If a student has mastered an elementary text-book he will find here a most useful discussion on a somewhat more advanced and theoretical plane. The translation seems to be excellent, but the names of the translators are not given. One might ask if the author—or translators—really meant the word "malignant" on page 217. The appendix contains several useful tables, and the publishers are to be congratulated on a very clearly-printed and well-produced volume.

Food Control: Its Public Health Aspects. By J. H. SCHRADER, PH.D. 1939. New York: John Wiley & Sons; London: Chapman & Hall. Pp. App. viii + Index xvii + 488. Price 24s. net.

The sub-title calls it a manual for regulatory officers, food technologists, and students of the food industry. It has no exact counterpart in this country for it deals essentially with U.S.A. procedure. It is packed with information which in general covers the essential facts on the subject. By far the most work in this field has been carried out in America, but work of considerable importance elsewhere, particularly in England by the Food Investigation Board, has been done; and nearly all work done in Europe is ignored. This is a common and regrettable feature of so many books written in U.S.A., the internationalism of scientific knowledge being ignored.

The general plan of each chapter is to discuss each subject under three heads—technology, relation to public health, and control measures. Technology includes the nature of the food, its preparation, varieties and methods of treatment. Relation to public health deals with its nutritive value, epidemiology and spoilage. Control measures include standards, field inspection, laboratory control and legal enactments. There are 20 chapters, the first four being general, while the others deal with individual foods such as butter, cheese, eggs, meat products, and certain food procedures such as bulk pasteurisation and preservation of foods. The arrangement is clear and the information given extensive, much of it not being readily accessible except in the original publications. Every Medical Officer of Health will find it a valuable store of information, but since the laboratory tests and legal standards are all from U.S.A. it will be less useful than to those working in America. A book dealing with the same subject matter but written from the English standpoint would be still more valuable, but all of us can learn much from U.S.A. experience, where food control on scientific lines occupies a much more pronounced place than it does in this country.

Infant Feeding. By ALAN MONCRIEFF, M.D., F.R.C.P. 1940. London: Edward Arnold & Co. Pp. ii + 30. Price 1s. 6d. net.

Dr. Alan Moncrieff's handbook is a model of the simplicity with which profound knowledge can clothe itself when confining its declarations to essential truths. Our natural tendency in this country is rather perhaps towards compromise and approximations than towards the pursuit of minutiae and chemical juggleries, and in the realm of infant feeding we have not perhaps been distinguished by our inventiveness, as compared with certain laboratory-conditioned minds on the Continent. But in England we have led in our desire to conserve child health and in the success with which our efforts in general have so far been attended.

It is with relief, therefore, that we now find Dr. Moncrieff telling us with all his authority, and out of all his erudition, that the methods we have been using (perforce) in the Welfare Centres are conceived on the right lines, and that infant feeding, "which is an art, has wrongly been called a science."

Dr. Moncrieff, of course, does not put it quite like that about the Welfare Centres, but what he does acknowledge very frankly is that in his study of his own children at home, and in his contact with other normal children in maternity units and welfare clinics, he has learnt the approach to the *real* difficulties of infant feeding. From this he proceeds to set forth in the most simple and succinct terms the necessary skeleton of information on which the practitioner can build and with which, if he be an artist, he can achieve triumphs in the realm of infant management not less spectacular than those based on laboratory ingenuities, and so much more satisfactory since wrought with the most elementary tools.

It is the practical realism manifested in Dr. Moncrieff's little book that is most appealing to the infant welfare doctor, who for decades has seen and had to treat babies in their thousands, where tens only were available to the practitioner in hospital. We know so well that the kind of methods that are practicable in the home and the materials accessible to simple and poor mothers are those which are ultimately most worthy of study, since they will not let you down when the circumstances are most difficult, but can be learnt and studied and manipulated in the individual case with just as much effect as the most intricate and elaborate methods, according as the practitioner has insight and genius.

We cannot say more except to recommend highly Dr. Moncrieff's very forthright and practical little book to all those who are anxious to start their practice of infant feeding on the best possible basis, *i.e.*, that of knowing the essentials without the frills.

We regret that Major Morris Markowe's name was by mistake printed in the February issue, under Appointments in the Defence Services, as Major Morris Markhouse.

OBITUARY

HAROLD SCURFIELD, M.D., C.M., D.P.H.

The death of Dr. Harold Scurfield, formerly Medical Officer of Health for Sheffield, removes a well-known figure in the public health world. Harold Scurfield was born at Sunderland in 1863, and was educated at Birkenhead School and the University of Edinburgh. He qualified M.B., C.M. in 1885, and took the M.D. of Edinburgh in 1889 and the D.P.H. in 1893. When he was 27 he became medical officer to the Post Office at Sunderland, and surgeon and agent to the Admiralty. In 1896 he was appointed Medical Officer of Health for Sunderland County Borough and Port, and in 1904 Medical Officer of Health for the City of Sheffield, in which post he remained until his retirement in 1921. He was also Professor of Public Health at the University of Sheffield, and examiner in preventive medicine and public health at Oxford.

Dr. Scurfield was responsible for many important developments in the public health of Sheffield. He was an outspoken critic of a system which allowed a woman to work in a factory for 5s. a week; he was also much interested in the welfare of children and a strong advocate of children's meals in school. The problem which attracted him more than anything else was probably tuberculosis, particularly from the administrative standpoint. In 1910 he published an article in this journal under the title of "Preventive Measures and Administrative Control of Tuberculosis." In 1912 he was rapporteur for Great Britain at the International Tuberculosis Congress which was held in Rome, and he translated Professor E. Nocard's *Les tubercules animales*. Whilst holding the Chair of Public Health in Sheffield University he gave a number of lectures on the report of the Poor Law Commission, and these were subsequently published.

Dr. Scurfield was a regular attendant at public health congresses, and when the British Medical Association met at Sheffield in 1908 he was Vice-president of the Section of Public Health and Forensic Medicine.

KERIDWEN ST. VALENTINE ARMSTRONG, M.D., D.P.H.

We regret to record the death through enemy action of Dr. K. St. V. Armstrong, wife of Dr. J. J. Armstrong, medical superintendent of the Brook Hospital, London County Council. Keridwen Edwards was educated at Cardiff University and University College Hospital, where she gained the Liston gold medal in surgery. She qualified M.R.C.S., L.R.C.P., in 1921, and M.B., B.S., in 1922. She took the D.P.H. in 1929 and the M.D. of London University in 1933. After qualifying, she held resident appointments at the King Edward VII Hospital, Windsor, the Evelina Hospital for Children, the Glan Ely Tuberculosis Hospital, Cardiff, and the ear, nose and throat department of University College Hospital. Subsequently, she joined the L.C.C. Fever Hospital Service as an assistant medical officer to the Grove Hospital, Tooting. Later, she was attached to the Queen Mary's Hospital for Children, Carshalton. Mrs. Armstrong joined the Emergency Medical Service, and before her death was doing excellent work in an orthopaedic unit.

RICHARD GEORGE MARKHAM, M.B., D.P.H.

Dr. R. G. Markham died suddenly on February 16th whilst taking a walk in the country. He was the first whole-time Medical Officer of Health to be appointed to Nelson (Lancs.), and held that position, as well as that of school medical officer, for twenty years. He was previously Deputy Medical Officer of Health at Burnley. Dr. Markham, who was educated at Cambridge University and the London Hospital, qualified M.B., B.Ch. in 1907, and took the D.P.H. in 1910. He was research student in the pharmacological department at Cambridge, senior house-physician to the Prince of Wales General Hospital, Tottenham, and honorary pathologist to the Victoria Hospital, Burnley; he joined the Society of Medical Officers of Health in 1913. Dr. Markham is survived by his widow, one son, and two daughters.

AWARDS FOR GALLANTRY IN CIVIL DEFENCE

Members of the Society will have noted with much satisfaction the inclusion in recent issues of *The London Gazette* the names of men in the public health service who have received commendations for brave conduct in civil defence. The George Medal has been awarded to Dr. Malcolm Manson (Medical Officer of Health for the Borough of Wood Green) and to Dr. William Stanley Walton (Medical Officer of Health for West Bromwich. Dr. John Fenton (Medical Officer of Health for Eastbourne) and Dr. T. Phillips Cole (Medical Officer of Health, Beckenham M.B.) received commendation. Miss Evelyn G. Thomas (Matron of the West Bromwich and District General Hospital) was also awarded the George Medal.

The Official descriptions of the gallant conduct of the George Medallists is as follows:—

Dr. MALCOLM MANSON: "A heavy H.E. bomb fell, causing a tunnel to collapse. A number of people were trapped under the debris and the clay which had fallen through the cavity. Dr. Manson arrived on the scene within a few minutes of the occurrence, and immediately assumed the direction and leadership of the rescue work. For nearly three hours he worked without intermission, actively participating in the release of persons trapped in the debris heap, giving medical air where it was needed and all the time keeping effective control. Throughout this period he was in grave personal danger from frequent falls of clay. It seemed likely that a further portion of the tunnel would collapse. At one period he was lying full length on the heap endeavouring to release a man partially buried when there was a shout from the look-out man of 'Run for it.' The doctor ignored the warning and continued his efforts for the trapped man. There was a large fall of clay and the doctor was struck by a large piece full in the back. He was partially buried and had to be dragged out feet foremost. He rested for a few minutes, and then, in spite of severe pain, carried on with the work. Dr. Manson's pertinacity, courage, and disregard of personal safety set a wonderful example to the men and was no doubt responsible for the saving of a number of lives which

otherwise would have been lost. He sustained serious injuries during the rescue operations."

Dr. WILLIAM STANLEY WALTON and Miss EVELYN GERTRUDE THOMAS: "Enemy bombing started large fires in two buildings near the West Bromwich and District General Hospital. Dr. Walton, who was in the control room, left to carry out a further survey of the work of the casualty services. He assisted in extinguishing incendiary bombs and then saw the glare of a fire which appeared to him to be proceeding from the District Hospital. He went there immediately and ascertained that the hospital laundry, immediately opposite to the District Hospital, was in flames, together with other buildings near by. He went to the hospital, and while he was discussing with Miss Thomas, the matron, the advisability of evacuating it, a high-explosive bomb fell which demolished the hospital laundry, and he and the matron were blown in different directions. He then decided that the hospital should be evacuated. Dr. Walton and Miss Thomas undoubtedly provided the leadership and the initiative which was a very great factor in the successful carrying out of this difficult and dangerous task. The doctor made many journeys to the first-aid post and to the transport department to put in train the arrangements for the provision of ambulances, and showed a complete disregard for his personal safety. Miss Thomas herself very coolly supervised the nursing arrangements and the removal of the patients ready for evacuation, and set a splendid example to her nursing staff. During all this time the hospital was subjected to constant attack."

NUFFIELD PROVINCIAL HOSPITALS TRUST

The following statement has been issued by Mr. W. M. Goodenough, Chairman of the Nuffield Provincial Hospitals Trust:—

This Trust was founded by Lord Nuffield in December, 1939, with the object of promoting a proper co-ordination of hospital services throughout the provinces in England, Scotland and Northern Ireland, by means of full co-operation between the voluntary hospitals and public health authorities, in close consultation with the Minister of Health and the Secretary of State for Scotland. It was hoped that arrangements to this end would be agreed upon a regional basis connected with appropriate hospital and medical teaching centres. It was understood that close contact would be maintained between the Trust and King Edward's Hospital Fund for London.

At the end of twelve months the Chairman of the Trustees has reported to the Minister of Health. The Central Regionalisation Council of the Trust has been formed, on which the Provisional Central Council of the British Hospitals Association is represented. A Medical Advisory Council has also been established under the chairmanship of Sir Farquhar Buzzard. An Advisory Committee of the Trust has been established in Scotland under Mr. Tom Johnston as Chairman,

with a Medical Advisory Committee under Sir John Fraser.

Discussions on arrangements for regionalisation of hospital services have taken place in many important provincial centres with representatives of the public health authorities and of voluntary hospitals. In some of these centres plans for the formation of regional councils are already completed or are well advanced, and it is hoped to set them in motion in many others at an early date. The Trustees expect to be able to consider the question of financial grants to regional councils from the income of the Trust very shortly.

Having been informed of the progress made the Minister of Health has addressed the following letter to the Chairman of the Trustees:—

MINISTRY OF HEALTH,
WHITEHALL, S.W.1.
January 6th, 1941.

DEAR GOODENOUGH,

I have been keenly interested in my various discussions with you and your colleagues of the Nuffield Provincial Hospitals Trust to learn details of the Trust's present and prospective work, and should like to assure you of my warm sympathy and continuing support in the valuable work that you are doing. The question of post-war hospital policy is one of major importance, and I am sure that the Trust is right in attempting, even during the heat and labour of the present struggle, to focus discussion by bringing together in its Regional Councils representatives of the various interests concerned with a view to clearing the ground for future action. I can assure you that in the Ministry of Health much careful preparatory thought is being given to this problem, as well as to the wider questions concerning the medical and health services of the nation.

Let me add that I think you are right in concentrating on two points. Whatever may be the proper ultimate hospital service, we should build up from existing organisations, and the first is, therefore, to find the right relation between the local authorities on the one hand and the voluntary hospitals on the other. Both have played a great part in our hospital system in the past and will, I am convinced, make essential contributions to the future. There is, as you know, a variety of ways in which under the existing law a fruitful co-operation between local authorities and voluntary hospitals can be achieved, and I do not doubt that further methods of mutual assistance and co-operation can and should be devised.

Secondly, I am convinced that the problem is one that must be examined on a basis wider than that of existing local government areas and that some form of regional unit will be necessary in designing a system which will make the best use of our existing hospital accommodation and will avoid duplication and waste in making good any deficiencies. The precise manner in which a regional conception of this kind should be fitted into the existing system of local government is in itself a problem calling for most careful, constructive consideration, and I am very glad to know that the local authorities, through their representatives on your Regional Councils, are taking an active part in the discussions which the Trust has set on foot.

I remember Lord Nuffield telling me on one occasion that it was his early ambition to be a doctor. I am exceedingly glad that he did not realise his ambition. It is not that patients would not have benefited greatly by his

skilful attention, but that by turning his great abilities in another direction he has incidentally been able to perform services to Medicine which are unique in their generosity and wisdom, and which place him for ever amongst the unselfish benefactors of mankind.

Yours sincerely

(Signed) MALCOLM MACDONALD.

The Society : Branch Meetings

YORKSHIRE BRANCH.

President : Dr. N. Gebbie (M.O.H., Hull C.B.).

Hon. Secretary : Dr. R. Sutherland (M.O.H., Brighouse M.B.).

An ordinary meeting of the Branch was held in the Civic Hall, Leeds, on Friday, December 20th, at 2.30 p.m. In the absence of the President, it was resolved that Dr. Roe should take the chair. He was supported by 17 members and one guest.

The minutes of the last meeting were taken as read, approved and signed.

The Secretary submitted a letter from the Chief Medical Officer of the Ministry of Health, in reply to a letter sent to him by the Branch, stating that although it was, of course, desirable that a deputy medical officer of health should have a Diploma of Public Health it was not a statutory requirement. It was decided to defer consideration of this matter.

The Secretary then submitted a letter from Sir Wilson Jameson, thanking the members of the Branch for their message of congratulation on his appointment to the Ministry of Health, and stating that he had the happiest recollections of the kindness of the Branch in the past.

A letter was submitted from the Secretary of the Dental Sub-Group suggesting that a joint meeting should be held on the last Friday of April at the County Hall, Wakefield, or the Civic Hall, Leeds; to be addressed by B. R. Townsend, Esq., on the subject of "Uniformity of Organisation of Public Dental Schemes": and suggesting that Directors of Education should also be invited. It was decided to agree to the suggested joint meeting, but to ask that the meeting should be held at the Civic Hall, Leeds, and that Directors of Education should not be invited as the members felt that a much freer and more valuable discussion would result in their absence.

A discussion then took place on the papers which had been read at the previous meeting by Drs. Buchan and Potts upon "The Public Health and Social Aspects of Air Raid Protection" (see PUBLIC HEALTH, February, p. 81).

At the request of the chairman, Dr. J. J. Jarvis began by thanking the openers for their stimulating remarks. He thought it was essential that all preparations should be made to ensure that adequate action could be taken immediately a fracture of the sewer and water main occurred. These services must be re-established with the minimum delay. This would take time, however,

and an alternative supply of pure water would have to be arranged in advance. Every local authority should have a mobile chlorinating plant which could be used in any part of the area at a moment's notice. Such mobile plants should be provided on a regional basis for use in any district in the area. In addition, following a serious raid, sewage disposal would require great care; therefore, notices should be posted now giving the instructions which must be carried out if a town were bombed, and impressing the necessity of boiling of water and advising regarding the disposal of sewage.

Typhoid immunisation should be offered to the public generally. Inoculation should be done in two or three injections to avoid reactions. Methods similar to those used in diphtheria immunisation should be adopted, and in addition first aid posts could be used. Whether general practitioners or public health staff should be used for this purpose was a matter of local arrangement.

The chairman then said that in Halifax they already had mobile chlorinating plants which were kept on the periphery of the borough. Notices regarding boiling of water and the burial of excreta were all ready in Halifax. It would be impossible to run a scheme of typhoid immunisation with the existing staff, and it would, therefore, be necessary to call upon general practitioners.

In the absence of a representative from the Sheffield Health Department, Dr. Sharpe described the effect of the recent raids on Sheffield. He stated that everyone had been warned by loud-speakers of the necessity of boiling water and of burying sewage. Water had been sent round in tanks, on the back of which there was a big notice instructing users to boil the water for 15 minutes. Dr. Sharpe stressed the fact that nothing less than half a grain of morphia would send to sleep people who had been buried or otherwise badly shocked. It was interesting to note that such people could speak of nothing but what had happened to them immediately before the incident. Speaking on the subject of typhoid immunisation, Dr. Sharpe thought that a local authority should use its own staff if possible, because by this means better records would be kept and the work could be carried out with greater speed.

Dr. J. M. Gibson stated that Huddersfield had had no experience of raids and that people were not yet using the shelters. The introduction of coal fires in shelters would help ventilation, because a flue would be required. The problem of the provision of doctors and trained nurses for shelters was a very difficult one. In Huddersfield they had arranged a central reserve of doctors who would go where required when required. Dr. Gibson drew attention to the fact that the ruling that shelters with a capacity of 450 or more should have a medical post, and those with a capacity of 300 to 450 should have a first aid box, was another instance of double control, because the Ministry of Health supplied the equipment for a medical post, while the Ministry of Home Security supplied the first aid box.

Dr. R. Watson stated that in Doncaster typhoid immunisation was to be carried out by general practitioners, the payment to be 2s. 6d. per injection as in the diphtheria immunisation scheme. No payment

would be made until the records had been received, and a single card had been prepared to contain the parents' consent, the particulars of injections and the doctor's claim for payment. He asked whether general practitioners should be paid for the treatment of insured patients. He said that the problem of disposal of excreta would be most marked where there was only a flagged yard. The question of the provision of additional pails was, therefore, very important. Difficulties would arise in boiling water because the gas and electricity would often be cut off and because the absence of water would prevent the use of the kitchen range. He suggested that the provision of temporary latrines with sumps should be considered in towns. He understood that the sewage would drain about 150 feet in the direction of the flow of the sub-soil.

Dr. R. M. Galloway said that he had had some practical experience of the effect of air raids in Dewsbury. There, in a town with a population of 50,000, it was proposed to get 400 chemical closets, 200 of which were to be placed in old lavatories throughout the town and the other 200 to be divided into batteries of five and to be put up with screening in the various parts of the town, when and where required. It would be impossible for the public health staff to carry out all typhoid inoculations following a blitz; general practitioners must be called in, but he thought it ridiculous to give 2s. 6d. for each of hundreds of injections. It would be better to employ by the hour.

Dr. R. A. Good, of the Ministry of Health, said that no action need be taken now in regard to the provision of medical posts, except in large shelters where a large number of people (500) habitually sleep. Of course it was still necessary to prepare schemes where it was possible that this might happen. It was of the greatest importance that the problem of shelter sanitation should be dealt with, and he recommended that the Town Clerks should be approached and asked to write to the Senior Regional Officer stating the proposals and asking for authority to incur the necessary expense.

In Sheffield loud-speakers had given instructions that milk, as well as water, should be boiled and that faeces should be buried 2 feet down. Of course the closets in shelters could also be used following a raid. Diphtheria immunisation should be pressed. The question as to whether a campaign of typhoid immunisation should be introduced or not was left to the discretion of the Medical Officer of Health concerned. The question of payment to general practitioners was not dealt with in the Minister's scheme.

Dr. P. R. McNaught stated that in York he had made provisional arrangements with employers of labour for large-scale typhoid immunisation on their premises.

Dr. E. D. Irvine, of Shipley, raised the question of the bunking of domestic shelters.

Dr. R. Sutherland, of Brighouse, considered that in fairly scattered areas, where the service was staffed almost entirely on a part-time basis, it was essential that the personnel should have rallying points in the neighbourhood of their homes, and that in the event of an incident occurring requiring their services near such a rallying post, they should proceed to deal with it without awaiting instructions from Control but after arranging,

of course, that Control be notified immediately of their action.

Dr. Irvine asked what dosage should be used in the inoculation against typhoid of children under one year of age, and between the ages of one and ten; and he raised the question of combined injections against diphtheria and typhoid fever.

Dr. E. C. Benn (Medical Superintendent of Seacroft Hospital, Leeds) remarked that there had been reports of severe reactions from combined injections of T.A.B. and tetanus antitoxin, probably due to the T.A.B. It was noteworthy, however, that the resulting immunity to tetanus was greater when combined injections were given.

Dr. Gibson suggested that stock should be taken of the deep wells in the area, and the water should be tested now so that it would be available if required.

Dr. Jervis said that Dr. Galloway's suggestion regarding chemical closets was excellent, but the available supply could not possibly meet the universal need.

Speaking of typhoid immunisation, Dr. Sutherland said that in our consideration of the problem of contamination of water mains we must practise the best precepts of preventive medicine by tackling the question at its source. He felt that there was a real danger that too much trust might be placed in a pre-blitz scheme of typhoid immunisation, which was unlikely to cover the whole population, and that as a result insufficient attention might be paid to the paramount importance of dealing immediately and adequately with the actual contamination as soon as it occurred and to educating the public in the methods which they must adopt to reduce to the minimum the risk of their drinking contaminated water following a raid. He suggested that concrete pits should be prepared, filled with water and used by the A.F.S. if required during a raid. After a raid they could be emptied of water, fitted with some form of seating arrangements, screened and used as latrines. A supply of earth could be placed alongside the pits, in advance, and excreta could be covered with the earth after use. The cleaning of them would, of course, be a matter for the sanitary staff.

Dr. Settle, of Pudsey, raised the question of a negative phase following typhoid immunisation, and suggested that if such a phase existed it might be a danger in post-blitz large-scale inoculations.

Dr. Benn stated that he considered it essential for diphtheria immunisation to be done immediately because it takes three months to acquire immunity while a typhoid immunisation takes only three weeks. While typhoid immunisation should, by all means, be offered pre-blitz, it was essential it should be carried out post-blitz. The usual dosage in typhoid immunisation was 0.5 c.c., followed ten days later by 1 c.c. But with this dosage reactions were very frequent with the vaccine recently used; indeed, 20 per cent. of persons treated in this way had considerable reactions. It was, therefore, an advantage to graduate in three doses of 0.25 c.c., 0.5 c.c. and 1 c.c. at ten-day intervals.

Dr. Payne, of Harrogate referred to the Croydon epidemic, in which there were two cases where typhoid had developed during the course of inoculation, and

both patients had died. But he still did not think a negative phase existed.

In replying to the discussion, Dr. T. N. V. Potts said that Medical Officers of Health must take any action in their own areas they considered best. The fee of 2s. 6d. to general practitioners for every immunisation injection would produce a fabulous cost; nevertheless, general practitioners must come into the scheme, especially in rural areas. Clinics must be arranged at maternity and child welfare centres or at schools, possibly staffed by general practitioners on a regional basis, and be supplemented by a scheme of domestic immunisation to be carried out also by G.P.'s.

Dr. J. J. Buchan, replying to the points raised during the discussion, said that he agreed with Dr. Jervis that everything possible must be done to deal at once with fractures of sewers and mains. He thought that the question of post-blitz typhoid immunisation might tend to cloak the enormous importance of the immediate repair and cleaning of water mains and arrangements for sewage disposal. These were the first things to be done. They were fortunate in Bradford because they had several different sources of water and an excellent system of anastomosis. They also had 500 water carts, and although these might not go very far it was essential to have some. They also had mobile chlorinators in Bradford. The Medical Officers of Health should co-operate with the Water Engineer now in working out schemes to deal with all emergencies. Diphtheria and typhoid immunisation were really pre-blitz questions which must be tackled now and put into effect before mains were fractured. He questioned if it were best to use the public health staff. In a considerable proportion of cases inoculation gives 24 to 48 hours' illness, and a doctor would be called out in any case. In his view, therefore, it was best if possible to link up the scheme with domiciliary practice. Nevertheless, the fee of 2s. 6d. per injection could not be paid, but some mutually agreeable terms should be arranged. In Bradford they proposed to set up hessian-screened ditch latrines as if in a camp. The City Engineer was prepared to do this and to fill up and move on as required. Nuisances would be created by people who did not know where to go to urinate and defaecate. It was essential, therefore, that every possible means should be used to instruct people where to go. He thanked all contributors to the discussion for their helpful remarks.

The Chairman concluded the meeting by thanking all for their attendance and for their contributions to the discussion upon a very important question.

The meeting of the Branch was preceded by a meeting of the Council at which Dr. Roe occupied the chair and was supported by five members.

In the last issue of PUBLIC HEALTH we described Dr. Robert Sutherland as Medical Officer of Health of the Halifax Rural District Council and the Hipperholme Urban District Council, in addition to the Municipal Borough of Brighouse. The Hipperholme Urban District and the Halifax Rural District were amalgamated within the Borough of Brighouse in April, 1937. Consequently the correct designation of Dr. Sutherland is Medical Officer of Health for the Borough of Brighouse.

SOCIETY OF MEDICAL OFFICERS OF HEALTH

LUNCHEON TO SURGEON-GENERAL THOMAS PARRAN

Members of the Society of Medical Officers of Health had the opportunity of meeting Surgeon-General Thomas Parran, head of the United States public health service, at a luncheon which the Society gave in his honour on Friday, February 21st, with the President, Dr. F. T. H. Wood, in the chair. The guests included the Lord Mayor of the City of London, the Chairman of the London County Council, members of Local Authorities and representatives of the Ministry of Health. Dr. J. E. Gordon, who holds the Charles Wilder Chair of Preventive Medicine and Epidemiology at Harvard, and is acting as United States liaison officer with the Ministry of Health, was also present.

In a short and gracious speech of welcome Dr. George F. Buchan, Hon. Treasurer and Past President of the Society, proposed the health of the Surgeon-General of the United States Public Health Service.

In a charming speech of reply Dr. Parran commended the progress that had been made by the public health profession in this country, and paid tribute to the vision shown by the public health services in connection with civil defence. He expressed his appreciation of the compliment paid him by the sister service of Great Britain and hoped he would be able to renew in more peaceful times acquaintance with the Society of which he was an Honorary Fellow.

RECENT APPOINTMENTS IN THE PUBLIC HEALTH SERVICE

The following are some recent appointments to the health departments of various local authorities and to other bodies.

The Editor will be grateful if members of the Society will notify him at once of any new appointments.

DEPARTMENT OF HEALTH FOR SCOTLAND: Chief Medical Officer, Dr. Andrew Davidson (C.M.O.H., North Riding (Yorks) C.C.).

DUDLEY C.B.: A.M.O.H., Dr. Minnie Atkin.

FRIERN BARNET U.D.: Acting M.O.H., Dr. G. Pennant Evans.

GREAT YARMOUTH C.B.: Deputy M.O.H., Dr. C. G. K. Thompson.

HEREFORD M.B.: Deputy M.O.H. (for duration of war), Dr. E. Dunbar Townroe.

ISLINGTON MET. B.: Deputy M.O.H., Dr. Katherine M. Hirst (A.M.O.H., Islington). Salary £840, rising to £950.

NORTH RIDING (YORKS) C.C.: (M.O.H., Dr. J. A. Fraser (Deputy C.M.O.H., West Riding (Yorks) C.C.).

PENGE U.D.: M.O.H., Dr. B. E. Hawkins.

ROWLEY REGIS M.B.: Deputy M.O.H. & S.M.O., Dr. Irene Hastilow (A.C.M.O.H., Wores C.C.).

SUTTON COLDFIELD AREA: Medical Commandant A.R.P., Dr. W. M. MacFarlane.

WESTON-SUPER-MARE U.D.: A.M.O.H., Dr. Stanley Rodgers (A.S.M.O., L.C.C.).

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Editorial

Food Poisoning from *B. Proteus* and Allied Organisms

Our views as to the causation of bacterial food poisoning have passed through several stages. Up to some forty years ago the view which was most accepted associated the causation of outbreaks with the ingestion of the products of the decomposition of proteins, particularly from meat. This view seemed to receive its scientific confirmation when various chemists isolated from decomposing protein foods various amines called ptomaines such as putrescine and cadaverine, which were highly toxic when injected into animals. This conception was crystallized in the expression "ptomaine poisoning," which came to be widely used as synonymous with food poisoning.

With the isolation by Gaertner in 1888 of his bacillus (now known as *Salmonella enteritidis*) from a food-poisoning outbreak and later of *Clostridium botulinum* by van Ermengen in 1896, it became obvious that other factors might be concerned. When further studies showed that in most outbreaks the food responsible was not in any way decomposed, that ptomaines only appeared as late degradation products in the decomposition of proteins when any food would be far too nasty to eat, and that their toxicity by mouth was very slight or absent, it became obvious that protein decomposition was not responsible for outbreaks of food poisoning. This conception is now therefore completely discredited and only of historic interest.

Its abandonment brought to the fore the view that food poisoning of bacterial origin was entirely the work of specific bacteria capable by the action or absorption of their products of setting up the characteristic symptoms which we associate with food poisoning. The specific organisms found to be implicated were mostly members of the *Salmonella* group and the much rarer *Clostridium botulinum*. At the same time every experienced investigator was confronted with outbreaks which could not be tabulated in either group, and it was realized that other bacteria might be and probably were concerned. In particular, outbreaks of the toxin type were difficult to explain, as no causal organism could be detected. Undestroyed toxins of the *Salmonella* group might be responsible for some of these as they are heat resistant, while the vehicle was so frequently canned foods which had undergone treatment adequate to destroy bacilli but possibly not toxins. Such a view, however, failed to explain all these outbreaks.

A marked stimulus was obtained when various American investigators, particularly Jordan and his

Chicago school, showed that certain strains of staphylococci were responsible for some outbreaks, the proof being clinched by feeding sterile filtrates to human volunteers. The number of these outbreaks is now considerable and many have been proved in Great Britain. The interesting point, which also explains their comparative infrequency, is that only certain staphylococci can produce this particular toxin, called enterotoxin, and only then can they cause food poisoning. There is little or no reliable information as to why some strains produce enterotoxin or, perhaps stated better, of the conditions which induce a strain to develop the peculiar property. All these outbreaks are of the toxin type—that is, there is a very short incubation period (usually two to four hours), the onset is usually fairly abrupt, and the illness is of short duration and without fatality except in those already debilitated from age or disease. In all of them it is possible to demonstrate the toxin, which acts in a sterile filtrate, no living bacilli being necessary. Under the stimulus of these outbreaks the U.S.A. investigators have gone further and shown that an enterotoxin may be produced by organisms other than staphylococci. For example, E. O. Jordan and W. Burrows,* testing various freshly isolated strains, have shown that occasionally streptococci, *B. coli*, and *B. proteus* strains may produce enterotoxins. They found, for example, at least four strains of *B. proteus* with this property. In at least one outbreak a streptococcus producing enterotoxin has been responsible for an outbreak of food poisoning.

It is obvious that work of this kind widens considerably the bacterial possibilities responsible for outbreaks. At the same time, with organisms so widely distributed in nature—and indeed present on quite innocent foods—as streptococci, *B. coli*, and *B. proteus*, we have to have very clear ideas as to the exact significance of these facts. The *Proteus* family is an excellent illustration of this need for caution. Its members are extremely widely distributed and can often be isolated from meat if it is left in a warm place for only a few hours. Many outbreaks in the non-critical period dominated by non-specific ideas as to the causation of food poisoning were ascribed to *B. proteus*. Bengtson (1919), Savage (1920) and Tanner (1933) critically studied the recorded details of many of these outbreaks, and they all reported that for none of them was it established that *Proteus* was aetiologically concerned. Indeed, for most of them the only connection was the presence of numerous *Proteus* organisms on the food, a fact in itself of no significance. Jordan and Burrows, in the paper already quoted, mention that over a period of two years they repeatedly prepared broth filtrates of *Proteus* strains, many reported as the cause of outbreaks, and fed them to human volunteers without evoking any symptoms of gastrointestinal derangement.

The key to the discrepancy is given by the laboratory studies referred to, which show that only rare and special strains of *B. proteus* (or *B. coli*) have acquired the property of producing an enterotoxin. Given such a strain it may be accepted that *B. proteus*, like the special staphylococci, may be responsible for an attack of food

poisoning. Our present knowledge, however, is to the effect that this property is much rarer with *Proteus* strains than with staphylococci. This infrequency makes any outbreak proved to be due to *B. proteus* of special interest. Such a one has recently been reported by Cooper, Davies, and Wiseman* at Bristol. The outbreak was from brawn, the pigs' heads from which it was made being stored for three days in a brine bath, then sold to a canteen and only two days later made into brawn. The material was said to have been boiled for three hours. The actual number of cases is not stated, but nine persons were definitely affected, while there was an additional number of mild cases. The incubation period was three to five hours and the usual food poisoning symptoms of vomiting, diarrhoea, and abdominal pain were present, but in five cases there were marked collapse and cyanosis; all patients recovered. *Proteus* strains were isolated from the brawn and from a number of samples of faeces. Several strains from both brawn and faeces were positive when tested for enterotoxin by the intraperitoneal kitten test. The brine pickle also yields similar strains of *Proteus vulgaris*. This outbreak can be accepted as due to a *Proteus vulgaris* which produced enterotoxin and which was allowed to grow for a number of days in the pigs' heads before being made into brawn. Either the boiling was not boiling or there was reinfection of the made brawn, for this organism has no high resistance to heat. It may be recalled that Gray† described an outbreak of gastroenteritis associated with cockles in 1936, also near Bristol (actually at Avonmouth).

While the newer knowledge extends the number of bacterial types which may be held responsible for food poisoning, it must still be recognised that all these outbreaks result from the activities of specific bacteria. It is important, however, to be clear on the point that, because under special conditions organisms like *B. proteus*, staphylococci, or even *B. coli* may be responsible for some individual outbreak of food poisoning, their presence as such on food in general may have no more significance to-day than has been usually attached to it in the past. We cannot so readily completely ignore a possible pathogenic property in food, but equally we cannot attach any special significance to the presence of these organisms unless it can be demonstrated that they belong to the rare types which produce enterotoxin. Usually, also, they have to be present in very considerable numbers before they gave rise to sufficient toxin to be effective on ingestion. No one investigating an outbreak with these strains isolated from the food eaten should accept them as of any significance unless they can also be shown to be producers of enterotoxin and also aetiologically concerned in the outbreak. Much more will be known about these outbreaks when the problem of the factors which induce certain strains to develop an enterotoxin has been solved. Apart from the facts that this productive capacity is lost in long isolated strains and that it can be restored or induced to be exhibited by growth in media containing starch, we know nothing as to the production of this toxin.

*J. Path. & Bact., 1941, 52, 91.

†Brit. med. J., 1937, 1, 916.

Cross-Infection

Cross-infection in fever hospitals, children's hospitals or wards, and maternity hospitals has been a constant source of worry to the administrator ever since such hospitals were established. It was at one time so serious a problem in maternity wards as to be regarded as negating all the other manifest advantages of institutional confinement, and the continuing danger both to the patient and to the reputation of a hospital was evident not very long ago when the Marshall v. Lindsey County Council case raised grave concern in hospital circles.* The spread of sepsis from patient to patient in surgical wards has long been obvious, but it is only in recent times that it has become fully realized that a large proportion of accidents, including war wounds, do not acquire their pyogenic infections at the time of injury but have them imposed during treatment in hospital or elsewhere. Grouping and typing of micro-organisms are the instruments which have enabled us to trace the paths of transmission, a development in bacteriological and epidemiological investigation whose results have been conveniently summarized by Allison† and Cruickshank‡. The evidence continues to accumulate. Dr. Joyce Wright, for instance, has made an intensive study of streptococcal spread in the children's wards of University College Hospital.§ She found that seventy-two infections with haemolytic streptococci occurred in one year. Of the children in residence 13·1 per cent. became infected by a haemolytic streptococcus during their stay, most of the cases being due to outbreaks which seemed to spread from patient to patient. Sore throat, wound infection, pyrexia, otitis media, and so on were the clinical manifestations, although many infections were latent. Altogether 104 of 551 patients, or 18·9 per cent., developed some intercurrent infections, manifest or latent, including diphtheria, dysentery, catarrhal jaundice, gastroenteritis, and measles, as well as the streptococcal infections already mentioned. An enquiry into re-infection by different types of *C. diphtheriae* among diphtheria cases in a Liverpool City Hospital has been carried out by Prof. H. D. Wright and his colleagues.¶ They found 8·2 per cent. of cross-infection in 380 cases of diphtheria as measured by a change of type from that of the bacillus originally detected on admission. In ordinary wards it affected nearly 11 per cent., in bed isolation wards about 5 per cent. It occurred both in patients confined to bed and in convalescents, and it might arise from a source either in close proximity or at some distance. Fourteen per cent. of the staff became infected without clinical symptoms over a period of seven months. Further, among 763 scarlet fever patients in the same hospital 20, or 2·6 per cent., harboured virulent strains of *C. diphtheriae* without symptoms. In another hospital twenty-nine changes of type were seen among 137 cases of diphtheria over

*Brit. med. J., 1936, 2, 200.

†Lancet, 1938, 1, 1067.

‡Publ. Hlth., 1940, 53, 254.

§J. Hyg., 1940, 40, 647.

¶J. Path. Bact., 1941, 52, 111.

four months, but in the following four months, after the introduction of minor changes in ward management, only eight changes occurred in 131 cases.

In the hospital where most of the work of H. D. Wright and his colleagues was done, 17 of the new infections of diphtheria cases were first detected in the nose, 10 in the throat, and 4 in the nose and throat simultaneously. The corresponding sites had frequencies of 8, 2, and 1 among the staff, and 10, 15, and 7 in scarlet fever cases cross-infected with *C. diphtheriae*. Nasal cross-infections therefore preponderated. An analogous predilection for the nasal passages is evident in Drs. Boissard and Fry's very interesting record of diphtheria cases crossed with haemolytic streptococci, appearing on another page of this issue (p. 105). In the investigation of a village epidemic 231 children previously undiagnosed as suffering from diphtheria were swabbed both for *C. diphtheriae* and haemolytic streptococci. Twenty-four were diphtheria positive, and were considered mild convalescent cases rather than carriers, because of conditions observed at the time of swabbing. Nineteen of these were infected in the nose, alone or in combination with the throat, and twelve of them had simultaneous nasal infection with haemolytic streptococci. On the other hand, nasal infection with streptococci was rare among 207 diphtheria-negative children, although these organisms were present in the throats of 106. It will be noted that the streptococcal carrier rate, either nasal or faucial, was high even among the normal children and that an unusually large proportion of the micro-organisms belonged to Lancefield's Group A. When Boissard and Fry turned their attention to the routine swabs from hospital cases of verified diphtheria, they found sixty-four with streptococci in the nasal passages among eighty-five cases having nasal diphtheria infection. To these laboratory workers the mere presence of haemolytic streptococci in a nasal swab has become a reason for closer examination for *C. diphtheriae*. When diphtheria cases who had completed residence in hospital were sub-divided into those with nasal streptococci and those without, it became evident that the former group had to be retained in hospital for an average of four and a half weeks longer than those in the second category, although they did not suffer from any purely diphtheritic complications. The observations are therefore of more than academic interest. They provide further evidence, if any were needed, of the practical importance of protecting hospital patients from superadded infection, whether by different strains of the pathogen which has already invaded them or by micro-organisms capable of setting up an entirely different pathogenic process. The bacteriological demonstration of this symbiosis of *C. diphtheriae* and the streptococcus will come as no surprise to epidemiologists who have long been aware of the tendency of scarlet fever and diphtheria to hunt in couples, both in season and at longer intervals. Incidentally, it may be observed that the outbreak in a Wemblesham village seems to have been introduced by evacuees from town and yet its character was most curious. Of the recognized clinical, and therefore presumably the most serious, cases, thirty were over

*J. infect. Dis., 1935, 57, 121.

school age, only five of school age, and apparently none were less than 5 years old. On the other hand, twenty-four schoolchildren were sub-clinically affected. Diphtheria, it is true, has become relatively less fatal to the younger than to the older children in certain great towns.* It is also to be expected that a higher proportion of older persons in a rural area should suffer than in towns, and that they should suffer more severely. But the apparently high immunity of these rural children is a rather puzzling phenomenon. There is still much that is inexplicable in the behaviour even of such a familiar disease as diphtheria.

Re-organization of L.C.C. Hospital Control

It is now over eleven years since the London County Council's ready fulfilment of the letter and spirit of the Local Government Act, 1929, made its Public Health Department responsible for the control of some seventy-six hospitals previously administered by the Metropolitan Asylums Board and the Boards of Guardians. With the exception of the M.A.B. hospitals—for fevers, children, and tuberculosis—which were organized as a service, these hospitals differed widely as regards type, structure, efficiency, and tradition. That they have been so quickly welded into a homogeneous entity which justly ranks as the largest and best hospital service in the world is testimony to the enlightened enthusiasm with which Sir Frederick Menzies and his colleagues inspired the committees concerned, and is a sure answer to those who contend that municipal control of professional activity is incompatible with vision and efficiency. There is abundant evidence that Dr. W. Allen Daley, with the full support of Mr. Somerville Hastings, Chairman of the Hospitals Committee, is aiming at further improvements in the Service, and that he will not be satisfied until every hospital reaches the standard of structure, equipment, and staff already attained by the majority. To achieve this is not easy, particularly when careful scrutiny of expenditure must in the national interest be the rule, but we are convinced that the Council's committees are at one with Dr. Daley in his desire to do everything possible. A "penny wise pound foolish" hospital policy will prove fatal to the future of the service and might react unfavourably on the development of those hospitals in other areas where local authorities have been slow to take advantage of the powers given them by the Local Government Act of 1929.

In 1930 two hospital divisions were established by the London County Council: the General Division, controlling hospitals taken over from Boards of Guardians; and the Special Division, which took charge of the hospitals of the Metropolitan Asylums Board. In the intervening years so many of the problems affecting in various degree the different types of hospital have been reduced to a common denominator that it has now been found possible to amalgamate the hospital divisions, and at the last meeting of the Council proposals for re-organization were ratified. The change is a wise one. So many hospital problems—staffing, equipment,

structural alterations, dietary, etc.—are largely independent of the exact function which the individual hospital subserves that unification of control is obviously desirable; the danger inherent in remote control of such a huge service must not be forgotten. So long as the new head of the combined divisions has adequate professional help expert in the problems peculiar to the various types of hospital, so long as he and his seniors are freed from the trammels of routine administrative detail and have time and encouragement to think and take the part that their experience and status warrants in helping to solve the major problems facing "medicine in a changing world," the amalgamation should be productive of much good. A step in the right direction is the decision that the Chief Clerk of the Department should have administrative responsibility in non-medical matters.

At the same meeting of the Council another important step towards unification of hospital services was taken when it was agreed that the Mental Hospitals Department should come under the aegis of the Medical Officer of Health. It is a step which was seriously considered in 1930 and reluctantly postponed as likely to throw an altogether excessive burden on the new hospital service. It is long since "Bedlam" gave place to "Asylum," and the latest change is practical evidence that the more recent alteration of title from "asylum" to "mental hospital" is much more than verbal. The L.C.C. Mental Hospitals Service, holds a justifiably high place in the opinion of alienists and of the public. It has a long record of efficient working and enlightened progress, for which much of the credit must go to the Committee and the successive Chief Officers. It is a tribute to their outlook that the medical staffs of the hospitals have been given exceptionally good conditions of service, and that research and specialization have been encouraged. The decision that control is now to be vested in the Medical Officer of Health was not actuated by any feeling that the old management was inefficient; on the contrary, it could be taken as being in many respects a model for other governing bodies. The change is the outcome of the growing realization that sickness, whether manifested by maladjustment of the body or of the mind, whether organic or functional, whether infectious or non-infectious, whether affecting children or adults, is in essence one problem which should not be dealt with in water-tight compartments. Dr. Daley will have as his administrative officer Mr. W. S. Leeming, for many years senior assistant to Mr. R. H. Curtis, who recently retired from the post of Chief Officer of the Mental Hospitals Department.

Amalgamation with consequent subordinations has been known to lead to friction and resentment. Knowing Dr. Daley and Mr. Leeming we anticipate no such difficulties, and are confident that the new arrangement will work smoothly and with benefit to the mentally sick of London and to the new combined hospital services of the Council.

Food Survey in Newcastle-upon-Tyne

In these days of rationing medical men, generally, should keep a close watch for evidence of malnutrition in the working classes, especially at welfare centres and

among industrial workers. Medical officers of health are in a key position for obtaining such evidence, and will be performing a useful service by notifying the Ministry of Health of any indication of malnutrition that they may observe in the course of their work. A well-tryed and useful method of furthering knowledge of dietetics and of gauging the extent of malnutrition is by food surveys conducted on random samples of the population. Such surveys have proved themselves to be a most valuable means of measuring the national dietary. It is, of course, conceded that the measurement would be impossible in the absence of the yardsticks which, since 1933, dietetic standards such as the B.M.A., Stiebeling, and others have placed at our disposal. No less do these food surveys depend upon those painstaking chemical and biological analyses of all the known food-stuffs, as well as the many varied dishes composed from them, which, for example, McCance and Widdowson* have given us. Food surveys have, in fact, opened a window through which we can see into the body of the nation very much in the same way as the X-ray has permitted us to see into that of the individual. From both these standpoints we are enabled to determine to some extent what dietary deficiencies exist—for example, by the one how much calcium there is in the diet of the people, and by the other how much is in their bones. In the course of a decade a succession of such surveys has made it possible to form a picture in which many of the minutest details have been sketched with a sure hand. And now with the onset of war the knowledge is already being put to good purpose, and the Minister of Food is enabled to take steps to remedy many of the worst defects which have been revealed. In this connection we welcome the detailed analysis of the diet and social conditions of 104 families attending the Dispensary under the care of Dr. Najib U. Khan, of Newcastle-upon-Tyne.† This survey is remarkably complete in all except the biological aspect. With Professor Bigwood,‡ we consider that the value of such surveys is enhanced if the analysis is extended to the realms of health, disease, and growth. In this way it becomes possible to use the new weapons which mathematics has placed in our hands, whereby cause and effect can be correlated. Dr. Khan has, however, made careful estimations of the haemoglobin content of the blood, and comes to the somewhat astonishing conclusion that "there was no correlation between dietetic intake of iron and the haemoglobin level of the blood." It is not clear what mathematical method was used to obtain the figures on which this statement was based, and if, as would appear from the published figures, mathematical averages alone were used, then the published graph still leaves open to question whether the correlation coefficient might not have been significant; in any event, in a work of this calibre a figure of such importance should

**The Chemical Composition of Foods*. 1940. H.M. Stationery Office.

†*A study of the Diet and Social Conditions of the Working-Class Families in Newcastle-upon-Tyne*. By NAJIB U. KHAN, M.B., B.S.(DURHAM). 1940. Newcastle-upon-Tyne: I. Crane Mann & Son. pp. 35 + 5 graphs. Price 1s. net.

‡*Guiding Principles for Studies on the Nutrition of Populations*. League of Nations Publications. 1939.

have been shown. Many of Dr. Khan's findings confirm those of similar surveys, and once again, for example, we learn that the increasing size of the family causes a decline in the purchase of protective foods, and that higher rents of new building estates may affect the quality and quantity of food bought. Among the many interesting tables is one showing the amounts of the principal foodstuffs consumed by various families. From this it is learnt, for instance, that oatmeal was entirely absent from the "unemployed" families' diet and that the amount of brown bread consumed was negligible. (Incidentally the term "brown" bread is somewhat unfortunate as it gives no indication whether or not this means wholemeal.) Again, in the "unemployed" families only six out of eleven families had fresh milk, and in these, the average amount was 0.4 pint per man value per week. Animal foods so essential to growth in children were very deficient, and less than half of the families reached even the B.M.A. standard.

Infestation by Lice

The Ministry of Health and Board of Education have issued to the Local Education Authorities a circular and memorandum on infestation by lice (Circular No. 2306, Ministry of Health; Circular No. 1544, Board of Education). It states that an active campaign against infestation of lice is important to the public health because of the part played by lice in the transmission of infectious diseases. Although wartime conditions increase the risks of spread of the parasite, they nevertheless provide favourable opportunities for attacking it. Dr. Kenneth Mellanby (whose recent report was commented on in PUBLIC HEALTH, March, 1941, p. 86), has shown that lousiness is commoner in the big cities than in the country. The general experience is that a large number of children who were infested at the time of evacuation in September, 1939, have since become and have remained clean in the healthy conditions under which they now live; and the attack on lousiness that has been made in the big towns since the war has resulted in a considerable reduction in the rate of infestation. A memorandum issued by the Ministry of Health a year ago (Memo. 230/D) drew attention to methods of prevention and cure and to the powers available to local authorities. The present circular emphasises the importance of continuing and extending the campaign, and the Ministry and the Board concur with Dr. Mellanby that education of the public is the only method likely to produce permanent success. In this connection we may refer to the useful propaganda activities of the Central Council for Health Education.

The circular goes on to state that what is needed is not a single resolution or a single executive act of the local authority, but the ascertainment by it of the existence of lousiness in its district and unremitting observation of sanitary and social conditions favourable to the pest. Ample facilities should be provided for the cleansing of the individual and for the disinfection of clothes and bedding. In order to cover the ground completely, request for full information about lousiness in any area should be made to the medical

**Lancet*, 1937, 1, 1445.

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officer or officers responsible for the welfare services, the school medical services, and the general public health services of the area. The memorandum summarises the points made by Dr. Kenneth Mellanby in the investigation undertaken for the Minister of Health and President of the Board of Education and published in a recent issue of the *Medical Officer* (1941, 65, 39). After referring to the incidence of lousiness and the educative measures necessary to counteract it, the memorandum draws attention to the powers available to local authorities as follows:

"The Local Education Authority has the following powers: (a) to direct their medical officer of health or person authorised by him to examine for the presence of vermin any child at a public elementary school; (b) to require his parent to cleanse him, in accordance with written instructions supplied, within 24 hours: or, on failure of his parent to do so, to remove the child and themselves have him cleansed. The Local Education Authority may use the cleansing station and appliances of a sanitary authority (Section 87, Education Act, 1921).

"The Local Authority has the following powers: * (a) to provide cleaning stations; (b) to cleanse of vermin the person or clothing of anyone applying to them for this to be done (London, Section 125, Outside London, Section 85). Compulsion can be exercised only by a court of summary jurisdiction (Section 85 (2)); in London, by order of a petty sessional court (Section 127). No charge may be made in or out of London. Section 85 gives power outside London to cleanse of vermin the person or clothing of anyone, with his consent, reported to them by the medical officer of health or the sanitary inspector to be verminous; the consent in the case of a person under 16 to be given by the parent or guardian; (c) Provinces only: to cleanse verminous articles and clothing (Section 84). (d) London only: County or district medical officers of health may compulsorily examine inmates of common lodging houses and require cleansing (Section 126). The power to deal with school children as under the Education Act, 1921, above, is given to county medical officers of health in London (Section 126). County Councils have similar powers, but in London the County Council can agree with any sanitary authority for the cleansing of persons and clothing and for the use of any cleansing station." The Society of Medical Officers of Health has conveyed to the Ministry of Health the opinion that these powers are insufficient and should be extended to include power to examine all members of families suspected to be verminous (or suffering from scabies) and to enforce their cleansing at the same time (PUBLIC HEALTH, July, 1940, 53, 229). The judicious enforcement of such powers is an element in public education. Nevertheless it is satisfactory to note that, in the opinion of the Ministry and the Board, infestation is less common and much less severe than it used to be.

*In London, Section 124 Public Health (London) Act, 1936. Outside London, Section 86 Public Health, Act, 1936.

APRIL

The Works' Doctor

Most members of the public health service hold the view that the severance of industrial hygiene from the rest of public health work which has obtained for more than a hundred years in this country is irrational. The practical arguments against the creation of something more than the present tenuous link between public health and occupational health administration were, however, regarded as officially cogent in 1919 to prevent the transfer of the department concerned from the Home Office to the newly formed Ministry of Health, and the existing situation was readily accepted in 1937 when the Factories Acts were reformed and consolidated. Nevertheless it is impossible for medical officers in health departments to take a full-orbed view of the welfare of the people in their domain without regard to the influences to which they are subjected in their places of occupation, where a third or more of the hours of every working day of many of them are spent. Much valuable information on the subject is contained in the reports and publication of the Industrial Health Research Board and in specialized books and journals, and every modern textbook on public health devotes some space to the subject, but hitherto there have been few books dealing comprehensively with it. The gap has been admirably filled by Dr. Collier.* While his book is primarily intended for works' doctors, the preventive aspect of occupational medicine is kept well in the forefront, and there is no chapter in which knowledge vital to our work is not given prominence. For the student of public health it will be invaluable. The book is in five parts, covering respectively the executive duties of a works' doctor, his advisory functions, industrial psychology, industrial medicine, and industrial forensic medicine. Its completeness may be judged from the comment that the only problem which seems to be inadequately dealt with is the chronic respiratory complaint of cotton operatives, which is now known as byssinosis and which has been the subject of very recent legislation. A list of 220 references, mostly to original work or official publications, is included.

It may be worth while to consider further the relation of this field of medicine to public health in general. As we have already said, there are administrative obstacles to the fusion of occupational welfare with other public health work. One of the greatest of these is that highly specialized knowledge is required for an understanding of the health and accident hazards of many types of industry, and it would be difficult for the existing public health authorities, even the larger ones, to carry a staff versed in it. Another is that in this field it is perhaps more difficult than in most others to separate clinical from purely preventive practice. And yet the concern of health departments with infectious disease, and especially with tuberculosis, arising from working conditions is undeniable, and to an increasing extent the need for continuity of medical supervision from school to work-place is being recognized. Dr. Collier is con-

**Outlines of Industrial Medical Practice*. By Howard E. Collier, M.D. Formerly Reader in Industrial Hygiene and Medicine, University of Birmingham. 1940. London: Edward Arnold & Co. pp. xiv + 425. Price 21s. net.

1941

vinced that the conditions of industry preclude any very large expansion in the numbers of whole-time works' doctors. There is much to be said for the association of general practice with factory medical welfare, although the old difficulty of the dual interest of the family and the works' doctor may then arise. It seems possible that this may resolve itself by a fundamental change in the conditions of general practice in the post-war period, and that the need for a centralized administrative department may disappear as the result of the enlargement of local government areas involving the creation of a regional administrative mechanism. The public health service may therefore find itself in closer contact with industrial hygiene than it has been in the past, and Dr. Collier's book will give those who have paid little attention to the subject a conception of its range and a clear guide to its practice.

Senior Medical Officer to the Board of Education

The President of the Board of Education has appointed Dr. J. E. A. Underwood to be Senior Medical Officer to the Board in succession to Dr. J. A. Glover, who reaches the age for retirement on April 10th. Before joining the Board's medical staff Dr. Underwood served for four years in the R.A.M.C. during the 1914-18 war. After the war he was appointed Assistant Medical Officer to a local authority, then Assistant Medical Officer of Health and School Medical Officer. Since joining the Board's staff in 1925 he has taken special interest in the important questions of defects of vision and hearing in children. He was secretary to the Departmental Committee on Defective Vision in Children in 1925, and since 1928 has been specially responsible for advising the Board on questions relating to schools for blind and deaf children. In 1931 he was secretary to the committee which inquired into problems relating to partially sighted children, and the report of that committee in 1934 was largely his work. In 1934 he was Vice-Chairman of the committee which inquired into problems relating to children with defective hearing. He represented the Board of Education at the World Conference on the Welfare of the Blind at New York in 1931, and took the opportunity to visit many American schools for blind, deaf, and rheumatic children. In addition to these special interests Dr. Underwood has obtained a wide knowledge of the school medical service generally and of the work of special schools.

The March *Bulletin* of the Health and Cleanliness Council describes experiments on the cleansing of air-raid shelters with an electric floor-cleaning apparatus. As a result, it is hoped soon to use a mobile cleansing unit for this purpose. The Council's lecturers have also given health talks in air-raid shelters on large housing estates, and are co-operating with the Central Council for Health Education, the Metropolitan Borough Councils and the Ministry of Health, in the organisation of film shows in public air-raid shelters.

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THE ASSOCIATION OF HAEMOLYTIC STREPTOCOCCAL INFECTION OF THE NOSE WITH DIPHTHERIA

By J. M. BOISSARD, M.R.C.S., L.R.C.P., and
R. M. FRY, M.R.C.S., L.R.C.P.,

*From the Emergency Public Health Laboratory
Service, Carmarthen.*

Since June, 1940, we have examined swabs from practically all cases of diphtheria and their contacts in the counties of Carmarthenshire and Pembrokeshire. These swabs—6,962 in all—have been examined on Hoyle's modification of Neill's laked-blood tellurite medium for *C. diphtheriae*,¹ and on blood-agar plates for haemolytic streptococcus. All haemolytic streptococci found have been grouped. There has been a notable general prevalence of haemolytic streptococcal infections, and a striking difference in their distribution in the respiratory tract in diphtheria cases as opposed to their normal contacts. The first part of this paper describes an outbreak of diphtheria in which is seen, on a large scale, what we have constantly observed in the individual patient and his contacts. In the second part some aspects of haemolytic streptococcal infections in diphtheria patients in hospital are discussed.

I.—Investigation of an Outbreak of Diphtheria

During November and December, 1940, there was an outbreak of diphtheria in a Pembrokeshire village. To this village two schools from South-East England had been evacuated—eighty-two children from an infants' school (nearly all under 8) and twenty-eight from another school (up to 14 years, but about half under 8). The children shared a school building with the local children and were billeted in cottages in the village, in which there were also a few unofficial evacuees from London. Because of the steadily increasing number of notifications of cases of diphtheria from this village the Pembrokeshire public health authorities decided to swab the whole school—local children and evacuees, 231 in all. Nose and throat swabs were examined from each case, and in addition a few swabs from aural discharges and skin lesions. The school staff were also swabbed; the results were all negative and are not considered further in this paper.

Thirty cases of diphtheria occurred in the village in persons over school age and five in school children. As a result of the routine swabbing of the schools, diphtheria bacilli were found in twenty-four more children, making a total of fifty-nine infected persons. These twenty-four children, who were mostly evacuees, all showed signs such as nasal discharge and excoriated nares, and were considered to be mild convalescent cases rather than healthy carriers. Since their isolation in hospital there has been no further case in the village. On inquiry, it was found that the entire school had been swabbed before evacuation, because of the occurrence of some cases of diphtheria, and as a result a few of the children were isolated at home. One of the evacuees arrived with

chronic impetiginous-like sores on the head in which *C. diphtheriae* was found, and he is presumed to be partly responsible for the spread of infection in the school.

It was thought that this school would provide a single large homogeneous series for investigation of haemolytic streptococci in contacts, for comparison with the large number of small groups already collected among the routine contacts of sporadic cases. It would also provide a useful comparison with the large amount of material collected from patients in the isolation hospitals. This particular material had given the impression that nasal infection with haemolytic streptococci was very common in cases of diphtheria, especially nasal diphtheria, while in the normal contacts of such cases haemolytic streptococci were rarely found in the nose. This impression has been confirmed by the results in Pembrokeshire. Of the 231 children swabbed, twenty-four were positive for *C. diphtheriae* (see Table I for details). Of the nineteen with positive nasal swabs, twelve had haemolytic streptococci in the nose, half of these being very heavy infections (+++ or ++++). Of the 207 diphtheria-negative children, 106 were carrying haemolytic streptococci, and Table II shows that ninety-nine of these were carrying in the throat alone, one in the nose alone, and five in the nose and throat together. The remaining one was a case of aural infection. Table III shows a similar result in eighty children from a Carmarthen school—all diphtheria-negative—sixteen of whom had haemolytic streptococci, all in the throat alone. This difference between diphtheria-positive and negative persons is so real that,

on at least six occasions, when the tellurite plate from the nose had been passed as negative it was re-examined solely because haemolytic streptococci were found in the nose and a few colonies of *C. diphtheriae* were then discovered.

TABLE II
Carriers of haemolytic streptococcus (H.S.) in 207 diphtheria-negative school-children

(a) H.S. in the Nose or Throat alone				(b) H.S. in the Nose and Throat		
Cases.	Nose.	Throat.	Other Lesions.	Cases.	Nose.	Throat.
Total No. with:	0	11		a	++	++
+	1	42*		b		+
++	0	21†	1 (ear)	c		+++
+++	0	18		d		+
++++	0	7		e		+

* 1 Group C. † 1 Group C and 1 Group G.

TABLE III
Carriers of haemolytic streptococci in 80 diphtheria-negative school-children

Cases.	Nose.	Throat.
Total number with	0	6
" " " " " "	0	4
" " " " " "	0	3
" " " " " "	0	2*
" " " " " "	0	1

* 1 Group C.

TABLE I
Diphtheria-positive cases discovered by routine swabbing of 231 school-children

Case Number.	Nose.		Throat.		Other Lesions.		Source.
	K.L.B.	H.S.	K.L.B.	H.S.	K.L.B.	H.S.	
1	+	+++	—	±			
2	+	+	—	±			
3	+	+++	+	±			
4	+	++	—	—			
5	+	++++	+	+++			
6	+	—	—	—			
7	—	—	—	—	+	+++	Sores
8	+	++++	—	+			
9	+	—	—	—			
10	+	++	—	+++			
11	+	++++	—	+			
12	+	±	+	+++	+	++	Ear
13	+	—	+	+++			
14	+	±	—	—			
15	—	—	+	+++			
16	+	—	—	—			
17	+	+	—	—			
18	+	+++	—	—			
19	—	—	+	±			
20	—	—	+	+++			
21	+	—	—	—			
22	+	—	—	—			
23	—	—	—	±	+	+++	Sores
24	+	—	+	—			

The number of colonies of haemolytic streptococci on the blood agar plate is indicated on an arbitrary scale as follows: ±, a few. +, moderate number. ++, numerous. +++, profuse. +++++, very profuse, nearly pure culture. In this table, and throughout the paper, all strains of haemolytic streptococci are Group A, unless otherwise stated.

This series has also provided some information on the carrier rate for haemolytic streptococci. In the Pembrokeshire school, out of 206 normal children (excluding diphtheria-positive cases and the case of aural infection) 105 were carrying haemolytic streptococci in the respiratory tract. This is a very high figure in view of the fact that this was not a closed community, the children being scattered every evening in a country village. Another unusual point is the overwhelming proportion of Group A strains. R. Hare² stated that about one-third of the haemolytic streptococci isolated from the nose and throat, or two-thirds of any soluble-haemolysin-positive strains, might be expected to be Group A. In this investigation soluble-haemolysin-negative strains (of which not more than five at the most were found) have been neglected, but all the remainder have been grouped. Taking the Pembrokeshire and Carmarthen schools together, including the diphtheria-positive cases, there were 139 strains of haemolytic streptococcus, 135 being Group A, three Group C, and one Group G. These results confirm a general impression which we have had during the last few months that Group A strains form a very high proportion of the haemolytic streptococci found in South-West Wales at the present time.

TABLE IV
Analysis of haemolytic streptococcal groups in three series

	R. Hare (1935).	R.M.F. (1936-1939).	Present Series.
Total number of cases ...	96	148	139
Approximate percentage:			
Group A	65	76	97
" B	5	5	0
" C	16	4	2
" G	14	15	1

These figures are surprisingly different from Hare's, and also from an independent series collected by one of us (R.M.F.: unpublished) from nurses and midwives over a period of about three years, in which the proportions of the groups were approximately similar to Hare's. The results in these three different series are shown together in Table IV.

II. Streptococci in Diphtheria Patients in three Hospitals

The large number of nasal infections with haemolytic streptococci in diphtheria patients described above is also well shown in an analysis of the cases from the County Isolation Hospitals of Carmarthenshire and Pembrokeshire. The similarity of these results to those of the Pembrokeshire outbreak is of interest, especially as, in the hospital patients, there is a long series of observations available for each case.

The series under consideration consists of 245 consecutive patients from three hospitals. (All these cases have been confirmed bacteriologically during their stay in hospital. Cases with a clinical diagnosis of

TABLE V
Distribution of haemolytic streptococci in 85 cases with consecutive diphtheria-positive nasal swabs

H.S. in the Nose.	Cases.
++ or more ...	59*
Less than ++ ...	5
Nil ...	21

* 1 Group C.

"diphtheria" with negative swabs have been excluded.) For the purposes of classification those cases with two or more consecutive diphtheria-positive nasal swabs have been considered together in one group. There are eighty-five such cases (that is, more than one-third of the total), and they have been sub-divided according to their streptococcal content, as shown in Table V. This again shows the large number of haemolytic streptococcal nasal infections in the presence of nasal-diphtheria. Two typical examples of the type of case included in the table are given in Table VI (p. 108). It will be seen from this table that I.S. was admitted with diphtheria and haemolytic streptococcus Type 11 in the nose. Two days later R.H. was admitted to the same ward, and swabs taken on that date did not yield a haemolytic streptococcus. Haemolytic streptococcus Type 11 was, however, cultured from the next swabs of this child's nose. I.S., and later R.H., were transferred to another ward, in which several cases infected with haemolytic streptococcus Type F 69 had been nursed, and both children acquired this strain shortly after transfer.

These observations led to the consideration of the influence of concurrent haemolytic streptococcal infection on the length of stay in hospital of the diphtheria patients. One hundred and twenty-two patients completed their stay in hospital, excluding five who died; complete data as to admission and discharge are not available for sixteen, leaving 106. In Table VII, these 106 cases have been divided into two groups. Of the fifty-nine cases in Table V with a haemolytic streptococcal infection (++ or more) in the nose, twenty-seven have been discharged from hospital, and Group I consists of these. Group II shows all the

TABLE VII†
Effect of streptococcal infection on length of stay in hospital of 106 diphtheria cases

Groups.	Number of Cases.	Average stay in Hospital.
I	27	9.7 weeks
II	79	5.2 "

†In this table patients from two hospitals only have been considered, as the third hospital had no discharged cases. That the differences shown are not due to any differences of rules regulating discharge from the two hospitals is shown by the fact that, for the Group II cases, the average stay in hospital is 5.05 and 5.35 weeks for the two hospitals taken separately.

other discharged cases, including fifteen more of those considered in Table V, one of these having less than ++ haemolytic streptococci, and the others no haemolytic streptococci, in the nose.

From this table it is seen that the average stay in hospital for the Group I cases is nearly twice as long as that for Group II, in spite of the fact that Group II includes twenty-two cases of comparably heavy streptococcal infections in the throat (that is, ++ or over). Group I, however, includes two cases of exceptionally long duration—thirty-three and twenty-nine weeks. One of these (C.W.) was a patient with nasal diphtheria who developed a double otitis media, at first streptococcal but later becoming infected with *C. diphtheriae*. The other (M.D.) also had nasal diphtheria with haemolytic streptococci in the nose, and contracted a haemolytic streptococcal infection of the antrum, from which *C. diphtheriae* was never isolated. The antrum finally required surgical drainage. These two cases might be regarded as having become chronic carriers, but we believe that the persistence of the diphtheria infection was directly due to the concurrent haemolytic

streptococcal infection and the appearance of the complications, which were primarily streptococcal. If, however, they are excluded from Group I as being exceptional cases, the average stay in hospital for this group is reduced from 9·7 to 8·0 weeks. This is still practically three weeks more than for Group II. It should be noted that none of these patients had suffered from any purely diphtheritic complication, such as heart failure or paralysis.

It thus appears that the combination of a haemolytic streptococcal infection with diphtheria in the nose leads to a great prolongation of the period of carrying, while a similar combination in the throat has little effect. Heavy nasal streptococcal infections generally persist as long as diphtheria bacilli are present in the nose, but whether the presence of haemolytic streptococci encourages the diphtheria, or vice versa, it is impossible to say at present. Our experience in the past six months has been that many diphtheria patients pick up a streptococcal infection after admission to hospital (see Table VI, R.H.), and it therefore appears that the prevention of such infection is an important step in economy in hospital administration.

TABLE VI
Details of two typical cases included in Table V

(1) I.S.					(2) R.H.				
Date.	Nose.		Group.	Type.	Date.	Nose.		Group.	Type.
	K.L.B.	H.S.				K.L.B.	H.S.		
Aug. 21	+	+++	A	11	Aug. 23	+	—		
28	+	+++	A		Sept. 3	++	+++	A	11
Sept. 3	+	++	A		5	+	+++	A	
5	+	+++	A	F 69	9	+	+++		
9	+	+++	A		16	+	—		
16	—	+++	A	F 69	20	+	—		
18	+	++	A		23	+	—		
20	—	++			26	+	+	A	
23	+	++			30	+	+++	A	F 69
26	+	++	A		Oct. 4	+	++	A	
30	+	+++	A		13	+	—		
Oct. 4	+	++	A		17	+	—		
13	+	—			21	+	+	A	
17	+	—			23	+	—		
21	+	+	A		28	—	—		
23	+	—			Nov. 11	—	—		
28	—	—			13	—	—		
Nov. 11	—	—							
13	—	—							

SUMMARY.

An outbreak of diphtheria is described, in which 231 children were swabbed, twenty-four of them being positive for *C. diphtheriae*.

Attention is drawn to the preponderance of haemolytic streptococcal infections of the nose in diphtheria-positive cases, especially nasal, and their rarity in normal contacts.

The influence of haemolytic streptococcal infections of the nose on cases of nasal diphtheria in hospital patients is discussed, and it is suggested that such infections materially prolong the period of carrying.

We should like to thank Dr. W. M. Lloyd, County Medical Officer of Health, Carmarthenshire and Dr. Dorothy M. Rees, Assistant County Medical Officer of Health, Pembrokeshire, for their enthusiastic co-operation, and Dr. Dora Colebrook of the Research Laboratory for Streptococcal Infections, London, for kindly typing the strains of haemolytic streptococci.

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SOME OBSERVATIONS ON RECENT
AIR RAIDS IN SHEFFIELD*

By J. RENNIE, M.D., D.P.H.,
Medical Officer of Health, Sheffield.

Within three days in December, there were two concentrated raids on Sheffield, when many thousands of incendiary bombs were dropped and caused a number of fires. These were followed by a number of explosive bombs. In these two raids the attack was widespread. As the second raid followed the first so closely, I shall deal with the two raids as one incident.

Casualty Services

The control system operating in Sheffield consists of divisional control centres and headquarters or main control. Each divisional control centre acts for its own area and reports action taken to main control, which maintains the mobile strength required for each division. The work of the controls was well done.

Many first-aid parties and ambulances were called out direct from the depots by wardens, and it is important that wardens should be encouraged to adopt this method. Motor cyclist messengers did excellent work at the main control. A messenger service can best be organized round the first-aid party and ambulance depots, and the messengers should be, so far as possible, motor cyclists.

Experience in these raids showed the desirability of having some simple rescue equipment available at each depot, as in a number of instances first-aid party men could have effected the rescue of persons trapped in cellars much more speedily if they had been able to obtain a pick-axe, a crowbar, a shovel, and a length of

*Paper read at a meeting of the Yorkshire Branch of the Society of Medical Officers of Health, Leeds, February 28th, 1941.

rope. Each depot has now been supplied with two pick-axes, two crowbars, two shovels and two pieces of rope.

Under the difficult conditions prevailing at many depots and posts, much work was done which did not go on record, but the reports show that the first-aid party cars, ambulances, and sitting-case cars carried many patients. The turn-out of the casualty service personnel was extremely good, and the spirit of the service is shown by the fact that the number of volunteers was greater at the second raid than at the first.

The number of first-aid party cars and ambulances, even in the first raid, was not up to full strength owing to the fact that the use of second-hand vehicles must always entail a relatively high proportion under repair. To the stand-by strength of vehicles was added, during the raids, about 130 volunteer cars for first-aid party duty and about sixty volunteer cars for sitting cases. This section of volunteers gave most valuable assistance. The total number in service was sufficient to deal expeditiously with all calls, and at the end of the raid there were still substantial resources of cars and ambulances available.

The first-aid parties showed good judgment in their division of cases as between first-aid post and hospital. This is proved by the fact that 87 per cent. of cases treated at first-aid posts did not subsequently require to go to hospital. In many cases where the patient subsequently went on to hospital it was undoubtedly greatly to their advantage to be taken quickly under cover and given some preliminary resuscitation—rest, warmth, and morphine—before proceeding to hospital. The lengthy journey to hospital immediately under such heavy bombardment would probably have accentuated their "shock."

The work of the ambulance section was excellently carried out. The personnel, who are for the most part women, showed a coolness and heroism throughout these raids which must rank very high in the brilliant performances put up by all the civil defence services in these raids. The numbers of ambulances and sitting-case cars were sufficient, and after the service had answered every call there were still vehicles ready for further calls. The blanket and stretcher exchange system at the hospitals did not work well in the first raid, but there was an improvement with regard to this in the second.

The fixed first-aid posts completely proved their value in both raids. The functions of the fixed first-aid posts are: (1) To treat the lightly wounded and so screen the hospitals from a flood of minor casualties which would interfere with the treatment at hospital of the more serious cases. (2) To keep people suffering from shock under cover during the period of the raid and to give the simple treatment necessary for this type of case. (3) To give preliminary treatment to more serious cases and to care for them until the condition of such patients is such that the lengthier journey to hospital can be undertaken with a greater degree of safety. The fixed first-aid posts carried out all these functions with marked success, often working under great difficulties owing to "blast" damage to the posts themselves.

Three mobile first-aid units are provided in the

scheme, each attached to one of the hospitals, but no incident was reported of a type in which mobile units could do effective work. During the first raid one mobile unit was called out, and this was by a direct request by someone and not through the controls. The work of the mobile unit was limited at this incident to the giving of morphine to four patients, and this could have been done by a doctor proceeding to the spot without a mobile unit. In view of the experience in these two raids, the Ministry of Health has now agreed to rescind an instruction to convert fourteen fixed aid posts into mobile units. The fixed posts are to remain in being, if necessary, in school premises, and the extension of mobile units is cancelled. Ten vehicles already purchased are to be used as mobile canteens.

Homeless people reported to several of the first-aid posts, and in two instances it was several days before they could be relieved of this burden by the rest centre organization. This imposed a heavy burden on the personnel, who had by the end of the raid already performed a great deal of very hard and trying work. The burden was willingly borne by them, but it is important for the future that all homeless people should be cleared from the first-aid posts within a few hours of action, so that the post can be cleaned up and made ready for further action.

It was difficult during these raids to supply the casualty service personnel with the good meal which was so necessary to many of them after their prolonged and strenuous exertions. Arrangements have now been made for mobile canteens to call at each post and depot and to deliver hot meals to the personnel as soon as possible after a raid. This should provide a satisfactory solution to this difficulty.

Hospitals

During the two raids seriously injured casualties were admitted to the various hospitals. After the raids arrangements were made to transfer both ordinary civilian sick patients and air raid casualties to a hospital which is situated just outside the City boundary, thus reducing the number of patients in the centre of the City and so making provision for further raids.

The number of casualties arriving at the hospitals was at all times well within the capacity of the medical and nursing staffs to deal with. Such difficulties as there were resulted from damage to hospital buildings during the raids. In spite of this, patients were treated and made comfortable in the most expeditious manner. There was some delay in the Almoners' and Clerical Departments in compiling accurate returns for publication by the Casualty Bureau.

One hospital was put out of action very early in the first raid and was unable to receive patients. It was eventually completely evacuated. Another hospital suffered extensive damage to windows early in the raid and the work of receiving casualties was carried on for a time in the hospital basement. When this was no longer possible a surgical team was sent to an annexe on the outskirts of the City, and from then on ambulances were diverted to this annexe, where the work proceeded satisfactorily. On the following day access to this

hospital was difficult and it was considered desirable to transfer a number of the patients elsewhere. Many bombs fell near another hospital and after the first raid as many patients as possible were evacuated. Still another hospital sustained extensive damage, both by fire and by high explosive bombs. One ward suffered a direct hit, and it is to be regretted that five patients lost their lives. Medical and nursing staffs were engaged all through the night transferring patients to the least damaged wards and did magnificent work under the most trying circumstances. After the raid an attempt was made to carry on, but the absence of water, gas, and electricity, and the condition of the buildings, made it necessary to decide upon evacuation, which was carried out. A certain amount of damage to windows, ceilings, and wall-plaster was suffered at a children's hospital, but it was able to function normally.

The experience of the raids showed that an augmented clerical staff is necessary at each hospital to deal with the recording and notification of all casualties. This staff should be so organized as to be immediately available for duty whenever a raid occurs.

The value of adhesive muslin mesh on the glass or windows, etc., as a protective measure was found to be most satisfactory. In one hospital most of the windows were destroyed by blast, but none of the patients or staff was injured by flying glass. This was also found at the other hospitals with the same protection.

Work of the Casualty Bureau

The functions of the Casualty Bureau are to:

1. Receive and dispose of all casualty notification forms and to publish lists of casualties.
2. Collect daily figures relating to the belated state of each hospital and transmit these to the Regional Office of the Ministry of Health.
3. Compile statistics relating to casualties.
4. Disseminate information contained in circulars from the various Ministries and supply stocks of forms to the hospitals and first-aid posts.
5. Act as information bureau to the hospitals as to procedure laid down by the very numerous Government circulars.

It will be appreciated that the work of the Casualty Bureau is entirely dependent upon the effective working of the clerical department of the hospitals, first-aid posts, and the mortuaries.

With regard to first-aid posts, one or two of the first-aid posts failed to send in their lists promptly, while several of the hospitals were behindhand with reports and statistical returns for several days. The mortuaries, which are administered as a separate department, experienced great difficulty in supplying the necessary returns to the Casualty Bureau and thus held up the publication of the death lists. This department has now been re-organized.

In connection with the two raids lists of casualties were issued: 450 copies of each list were duplicated and distributed for posting at the air-raid wardens' posts, divisional police stations, public assistance department, etc. The Casualty Bureau, as such, worked as well as could be expected in all the circumstances, and lists were published as promptly as possible.

Water Supply

The water requirements of the people were supplied by mobile tanks, stationary tanks, and stand pipes on the fringe of the area deprived of pipe supplies.

Within the city some sewers were damaged and wholly or partially blocked. In several cases bombs destroyed sewers and fractured mains in the same crater, and the sites of the craters were materially higher than the area served by the water main. The crater thus became a small reservoir of sewage, which flowed into the fractured end of the water main and so could be drawn from the consumer's tap before such time as the many service mains downstream of the crater could be shut off. It will be obvious that in the case of hilly areas where water mains and sewers are adjacent the risk of dangerous contamination occurs from the moment of the bomb explosion until such time as the service mains downstream can be shut off and emptied.

On the morning after the raid loud-speaker vans were used to warn everyone to boil all water used for drinking and cooking purposes. The same instruction was given with regard to milk.

After fractured mains had been repaired, they were thoroughly sterilized by chlorine and put into service only when a satisfactory bacteriological examination of the water was obtained. A dosage of chlorine of 20 p.p.m. for large mains, rising to 50 p.p.m. for small mains, has been found to give satisfactory results, the standard being absence of *B. coli* in 100 millilitres. The contact period for large mains was usually about seven to twelve hours. The higher concentration of chlorine, up to 50 p.p.m., was used owing to shorter time of contact, and as it was impossible to control water being drawn from users' taps.

I suggest that during this war all public water supplies should at all times contain a maximum residual chlorine content.

Typhoid Immunization

Facilities for typhoid immunization with T.A.B. were made available at various centres and advertised in the Press, but the response was poor, only 1,201 accepting the offer. I am glad to say that not a single case of typhoid fever has been notified.

Damage to Houses

Owing to the widespread nature of the raids the damage to houses was extensive. It is an obligation of the Corporation to ascertain the houses which are damaged and to cause first-aid repairs to be done to them, such repairs to be followed by permanent repairs in due course. The chief officer responsible is the City Architect, whose staff has been supplemented by architects and surveyors in private practice.

Large numbers of workmen have been engaged from outside Sheffield, and the work of repair is proceeding as rapidly as possible. The bad weather increased the difficulty of dealing with this problem. Obviously, from a public health point of view housing conditions, as regards both overcrowding and structural defects, are far from satisfactory.

Billeting

Early in the war, the sanitary inspectors surveyed the whole city for billeting accommodation and a list of billets for 39,000 persons was prepared, but many of the houses on the list were damaged and therefore not available. Billeting the homeless was begun on the morning after the first raid. The school teachers were brought in to help in this work. Large numbers of blankets and other articles of bedding were purchased for billetees where the householders were short of bedding.

Emergency Rest and Feeding Centres

The Public Assistance Department had prepared what was considered an extensive scheme to deal with the homeless, but unfortunately a large percentage of the premises were so damaged by the first raid that they were unusable. Homeless people, therefore, were and had to be housed in all kinds of premises—schoolrooms, church halls, working men's clubs, picture houses, etc. Large numbers of hot meals were prepared and distributed by 6 a.m. on the day before the second raid, and everyone received, even to begin with, not less than one hot meal a day.

The school medical officers and the school nurses undertook the medical and nursing supervision of the rest centres. Large numbers of voluntary helpers from the W.V.S. and school teachers were on duty night and day. This work was well done and great credit is due to all who gave their services. I am certain that the success of the rest centres did much to maintain the morale of the homeless. The rest centres were cleared as quickly as possible by billeting and rehousing, so as to be in readiness for another raid.

During the first raid I regret to say that four members of the A.R.P. Casualty Services were killed in action. A number of other members of the services were injured, but the injuries have fortunately not been of a serious character.

I feel proud to state that the work of the three sections of the casualty services proceeded with smoothness and efficiency, and at no time was there any breakdown. The conduct of all the personnel was magnificent and beyond all praise.

Great credit is due to Dr. Midgley Turner, the A.R.P. Medical Officer, Captain Kenny, the Ambulance Officer, the Post Medical Officers, nurses, volunteers, and senior members of the staff who were responsible for directing a long period of training and numerous exercises.

The following members of the Society have been appointed Honorary Physicians to the King: Sir Weldon Dalrymple-Champneys, Bart. (Deputy Chief Medical Officer, Ministry of Health); Dr. R. Veitch Clark (M.O.H., Manchester C.B.); Dr. W. G. Clark (M.O.H., City of Edinburgh); and Dr. James Ferguson (M.O.H., Surrey C.C.).

FRONT LINE HYGIENE, 1940*

By A. T. ELDER, M.D., B.H.Y., D.P.H.,
Regional Medical Officer, North Eastern Region,
Ministry of Health.

It is difficult when passing through any series of events to assess changes at their full value. The present sketch of recent developments in administration and technique in the science of preventive medicine by one who has seen service first in local government and secondly in central government administration during the present war may be of interest. I have endeavoured for the most part to view the position as a completely disinterested onlooker, but here and there have tried to be helpful by indicating the policy of the Government. Any circulars quoted in this article were issued by the Ministry of Health, unless otherwise stated.

Water Supplies

The most noteworthy development under this heading has been the extension of chlorination to all water undertakings, except, perhaps, in the case of small undertakings supplying fewer than 1,000 people (Circular 2086, July, 1940—this was preceded by a memorandum—221, January, 1939, setting forth the steps to be taken in the safeguarding of water supplies). In addition to continuous chlorination there has been the introduction of the portable chlorinators, to which I shall refer in detail under the section dealing with air-raid damage.

Gathering grounds are no longer immune from trespass. There are military operations or occupation. Some of the gathering grounds are ploughed up for agricultural purposes. An interesting point to discuss is the extent to which animal faecal matter can be a danger to water supplies which are both filtered and chlorinated. With regard to military operations close co-operation in matters relating to water supplies and sanitation generally should exist between the Medical Officer of Health and Commanders of the military units in the area (Circular W.2, August, 1939). The danger of sabotage of water supplies should always be considered. What, then, is the position of the Medical Officer of Health towards the safeguarding of his water supply?

For many years in most large undertakings a complete surveillance of water has been most adequately carried out by the water engineers. The Ministry of Health (Circular 1684, March 12th, 1938) drew attention to the need for close co-operation between the Water Committee and its officers and the Public Health Committee and the Medical Officer of Health, and under the stress and strain of war conditions it is all the more important that this should be so. The circular pointed out that where the water undertakers are not the local authority for the area supplied by them they should always be ready, on request, to furnish full information to the local authority or its Medical Officer of Health as to the quality of the water supplied and the precautions taken to safeguard its wholesomeness. It is realised also that many Medical Officers of Health

have no water engineers with whom to consult, and in fact many water undertakings do not belong to the local authority but to statutory water companies, some of which have no water engineer and have been dependent for advice on the engineers of larger undertakings. Medical Officers of Health have no responsibility in regard to statutory undertakings so long as such undertakings will supply a wholesome water. I mention this point in order to stress the need for a Medical Officer of Health in certain instances to take more than a passing interest in the purity of the water supplied within his district.

Sampling of water supplies is receiving greater attention, but samples may be taken once in three or four months by one undertaking or daily by another undertaking. Has the time not come when in the interests of national safety sampling of water supplies should be done at agreed frequent intervals. I would refer you to the Ministry of Health Report No. 71 (Revised Edition) 1939, in which it was stressed that each water undertaking should take expert advice on the minimum of samples necessary in order that an effective watch can be maintained on the condition of the water from each of the sources from which it is drawn, and on the state of the water as it reaches the consumer. "A single laboratory examination of water, however favourable the result, does not justify the conclusion that all is well and the supply is suitable for drinking purposes." Under the conditions I have mentioned too great a reliance on sampling as the only safeguard would be dangerous, and extensive personal knowledge of the gathering grounds, reservoirs, etc., is of equal if not greater importance (Memo. 221, Circular 1684). Again, in certain rural districts, owing to the influx of evacuees, workpeople, military, etc., the existing water supplies are inadequate to cope with the increased population, and many problems of supply are therefore brought to the fore.

Sewage Disposal

As a result of enemy action or lack of materials considerable delay may occur in proceeding with sewage schemes or even the repair of existing damage to sewage works. Therefore one has recourse to various methods of disposal on land. Theoretically, the chemical closet (for instance), if proper safeguards are taken, should prove reasonably safe apart from the cumbersome method of disposing of faecal matter on land. Although the action of chemical is chiefly bacteriostatic and deodorant, no guarantee of sterility can be given, and the method of handling prior to disposal becomes all important. The remarks applicable to the water supplies of rural districts whose population has been increased will be found to apply to drainage problems.

Food and Milk

The control of food passed at the outbreak of war into the hands of a separate Ministry, but health departments were asked to continue their routine sampling of food and milk. In some instances it has been found that depletion of sanitary staffs as the result of calling up has prevented the local authority from carrying out its normal routine inspection of

cow sheds and dairies, and in some instances the sampling of milk has even been completely suspended. Milk must be protected just as much as, if not more than, in peace-time.

With regard to food in general, it is important that Medical Officers of Health should act with energy and precision whenever bacteriological or other food poisoning is suspected. Food which formerly came from varying quarters of the globe and in smaller individual consignments now comes in bulk supplies and therefore contamination of food-stuffs might now affect a much greater number of people. Close co-operation exists between the Regional Office of the Ministry of Health and the Divisional Food Control in cases where any urgent large-scale action is desirable.

Scientific knowledge of the value of various food-stuffs can now be put to practical use in the institution of communal meals.

It has been advised that, at present, the public should boil their milk supply before consumption when pasteurised milk cannot be obtained. Pasteurisation, if efficiently carried out in accordance with the Milk (Special Designations) Order, 1936, destroys the tubercle bacillus, but it is of course possible for the milk to become contaminated after pasteurisation during its passage to the bottling machine or in the bottles. The most recent development in this connection is the increasing use of the phosphatase test for the efficiency of the pasteurisation process. I would refer you to an informative little booklet published by the United Dairies in April, 1940, on pasteurisation and the phosphatase test. This test, the principle of which is based on the fact that the phosphatase enzyme in milk is destroyed at a temperature lower than that necessary to destroy the tubercle bacillus, is expressed in Lovibond blue units in a tintometer.

Meat Inspection

By the Live Stock (Restrictions on Slaughtering) Order, 1940, and accompanying memorandum control of slaughtering passes into the hands of the Ministry of Food, but local authorities, where centralised slaughtering takes place within their area, are expected to maintain an efficient meat inspectorate. Technical advisers have been appointed by the Ministry of Food to advise on problems arising out of meat inspection (Circular 2218, December, 1940).

Centralisation of slaughtering is something which we have always hoped for in order that conditions might be maintained at an efficient standard. It is interesting to note that some inspections of such central slaughterhouses are now being undertaken by officers of the Ministry of Health in co-operation with inspectors of the Ministry of Food in order to bring about such improvements as may be required by the increase of work thrown on the central abattoir. Unsound meat, instead of being burned, is now salvaged. This may be a development which has come to stay, as undoubtedly a great deal of waste occurred during peace-time. The following figures showing the quantity of by-products which can be obtained from meat which would otherwise have been destroyed was obtained from one of the larger northern abattoirs. During the nine months to September 30th, 1940, 3 tons 17 cwt.

of meat and bone meal, 10 tons 6 cwt. 2 qrs. of fertilizer, and 7 tons 16 cwt. of blood meal were obtained from condemned meat, 7 tons 7 cwt.; offals and topops, 77 tons 12 cwt. 1 qr.; blood, 32 tons 4 cwt. 2 qrs.

Infectious Diseases

Under this heading I will mention only four developments.

(1) The first is the dramatic effect of the sulphonamides on cerebrospinal fever. The fear of agranulocytic anaemia has deterred us from applying this drug to a generalised prophylactic use, but the search is still continuing. I believe, for drugs of the sulphonamide group which may be less toxic.

(2) The evacuation of children from bombed areas has brought to light the need for institutional accommodation for minor infectious diseases, and the extent to which smallpox hospitals can be adapted for this use is under consideration. Though smallpox has virtually disappeared from our islands, who is to say to what extent we must still maintain institutional accommodation for it?

(3) In immunology one notices the development of combined vaccines—for example, T.A.B. and tetanus; and it has been suggested that the combination of T.A.B. and diphtheria prophylactic may be used. The Ministry of Health has advised that special effort be made by all local authorities to secure the immunisation of as many children as possible against diphtheria (Circular 2230, December 7th, 1940). Stocks of alum-precipitated toxoid for this purpose are available at the Emergency Public Health Laboratories and will be supplied on application free of charge to the local authority. With regard to immunisation against organisms of the typhoid group there would not appear to be occasion for mass immunisation for this purpose in general, but conditions may arise as a result of the war, or in sparsely populated rural districts where the water supply may be of doubtful purity or subject to contamination, which may render it necessary for immunisation to be offered. Again, stocks of the vaccine required are available on application and as necessity for its use arises, free of charge to any local authority from the Emergency Public Laboratory in their Region (Circular 2230).

(4) Lastly, there is the Emergency Public Health Laboratory Service set up by the Ministry of Health, organised on behalf of the Ministry by the Medical Research Council and including many persons of that Council in its personnel. Unlimited facilities are available to Medical Officers of Health in respect of public health laboratory work, but the laboratories do not undertake routine inspections of milk and water, the normal arrangements for these being maintained. The service was established to supplement existing facilities and to ensure quick results in circumstances connected with the war. There is scope here for team work in the investigations of epidemics by the Medical Officer of Health, the field worker of the Ministry of Health, and the laboratory worker, and the Medical Officer of Health should not hesitate to make use of these facilities for such a service whenever the occasion is of sufficient importance to demand it.

*Paper read at a meeting of the Yorkshire Branch, Society of Medical Officers of Health, Leeds, January 31st, 1941.

Maternity and Child Welfare

Under this section we are concerned with the issue of National Dried Milk, the establishment of day nurseries for the babies of munition workers, under the control of the local authority, and the Emergency Maternity Service for evacuated expectant mothers. The establishment of such new institutions brings very much to our notice the various safeguards which must be maintained to prevent overcrowding and the spreading of disease.

Housing

Housing schemes have necessarily come to a stop. A noteworthy point is the approval of a six-monthly licence for local authorities resuming the use of condemned houses (Circular 2156, September, 1940). The destruction of houses has led to communal life in hostels and the like. Here it would be unsound to hamper the war effort, and circumstances may not allow us to make any move, but we must do our utmost to prevent overcrowding where possible, especially in hostels under the direct control of the local authority. There are a few cities, such as Coventry, where new houses are being built in spite of the war, and it may be argued that, even as ships are rebuilt to replace those sunk by enemy action, so we ought to build houses, to the limits of materials available, to replace those destroyed during air raids.

Venereal Disease

Statistics have not shown any very great increase in venereal diseases, but we can safely assume that there will be an increase, and the necessity for providing increased facilities for treatment has already been stressed (Circular 1956). Schemes for expansion of clinics or the provision of mobile units in scattered areas have been called for by the Ministry of Health, and I would draw your attention to Circular 2226 of December 17th, 1940, regarding the employment by local authorities of suitably qualified practitioners who would give treatment at their own surgeries during normal hours of attendance. "This method is one particularly suited to the needs of the rural areas, and it is not suggested that the practitioner service should in any area replace any existing treatment centre."

Air-Raid Shelter and Rest-Centre Hygiene

It is not my intention to comment at length on the recommendations of Lord Horder's Committee or on the safeguards of health which are now under way, but one cannot help commenting in passing on what is really a danger in crowded shelters and rest centres. I refer to the spread of streptococcal infection and tuberculosis.

The further recommendations of Lord Horder's Committee published in December, 1940, advised: "(1) That arrangements be made to hospitalise at once cases of open tuberculosis known to frequent shelters; (2) As far as possible each tuberculous family should have a family shelter and should obtain priority in the issue of Anderson shelters or of other issued shelter accommodation." It would be wise, therefore, for Medical Officers of Health to review notified cases

of tuberculosis in their area and to consider advising through health visitors or tuberculosis nurses sufferers from tuberculosis not to frequent public shelters and during the hours of darkness to make use of their own family shelter by remaining at home.

As to masks, the Committee recommends that the "principle of the mask for reducing the risk of droplet infection should be capable of practical application, special consideration being given to cellulose acetate (cellophane) 5½ in. square supported by an elastic cord." For a scientific discussion on the dangers of bacteria in shelters, difficulties of the use of masks, and methods such as ultra-violet light, bactericidal mists, etc., in the control of air-borne infection, I would refer you to an article by C. H. Andrewes and others at the National Institute for Medical Research, London, which was published in the *Lancet* of December 21st, 1940, in which it is concluded that none of the present methods for the control of respiratory disease is of proved efficiency in the field, though all of them have given encouraging results in the laboratory. "Our weapons of defence include the improvement of ventilation, masks, ultra-violet light, antiseptic mists, paraffining of floors and blankets. Which of these is best employed in any set of conditions is a tactical problem for the medical man in charge." It is, however, agreed "that masks should be worn during the day-time by workpeople and occupants of shelters who have colds and by all occupants of public places during influenza epidemics. In shelters those with coughs should wear a gauze mask at night." In any case the view of the Ministry is that in the light of our present knowledge the wearing of these masks could not be made compulsory although their use in certain circumstances, already illustrated, might be desirable.

Air-Raid Damage

Bomb damage to water mains and sewers in close proximity (Circular 2172, October, 1940) does not necessarily mean that sewage will obtain access to the water-main; positive pressure in the main may prevent this. In most conditions the position of the water-main in relation to the sewer, should there be a possibility of contamination, must always be borne in mind, as should such special circumstances as the gradient of the roadway and the extent of fracture of the pipe beyond the bomb crater. The proper sterilisation of fractured water-mains before taking them back into service is essential, and there are several methods of sterilising the mains by the use of chlorine in various forms. There are many types of apparatus on the market, but in general the methods of emergency chlorination fall into one of four groups: (1) Bleach paste may be fed through a hydrant into the main. (2) Liquid chlorine gas in cylinders, which are carried to the scene of the incident in suitably equipped vans, may be injected into a main by water from a feed-pipe, the pressure of which is maintained above the pressure in the water-main by the use of a petrol-driven pump, the water being pumped from a neighbouring stand-pipe. (3) A hydraulic-action portable chlorinator which is fixed between the ends of the fractured main

may be used, the chlorine in this case being added in the form of a solution by means of a hydraulically-operated piston. (4) A similar arrangement fixed on a trailer may be employed, the water for the operational feed being obtained by petrol pump from a neighbouring stand-pipe.

Should water supplies be cut off, there is the question of the possibility of inter-communication between towns, but experience of recent severe raids on places like Coventry, Birmingham, and Sheffield show the importance of water storage and a ready system of water cartage. Important points to remember are that: (a) the public should be advised not to use water closets or run off any tap water during a raid or immediately after until told to do so; (b) Reliance should be placed on the boiling of water until it is declared by the water engineers to be free of contamination. After and during chlorination of the mains samples are drawn off for examination, reliance being placed on a safe residue of, say, 0.2 to 0.5 parts per million. This gives a speedy and reliable indication of the purity of the water supply.

An interesting technical point is how far sewage which has welled up in bomb craters can remain a danger to the community after repair of the sewer, especially in dry weather, since it is conceivable that a certain number of organisms may lie about in dust, etc. Bleach treatment of the roadway after repair of sewers may possibly be worthy of consideration.

Health Services in Reception Areas

Finally, the necessity for reviewing the health services of reception areas in the light of the increase of population in them, and a changing population at that, is brought before us by a new circular (Circular 2204, November, 1940). In the main it raises no new problems but merely asks us to adapt existing services to changing conditions. It does, however, agree that the Government shall meet the expense of extensions to health services under Section 56 of the Civil Defence Act, 1939.

Conclusion

In reviewing the changes which have taken place one cannot but be struck by the potential load which technically falls on the shoulders of the Medical Officer of Health, and this in addition to the casualty services. The health departments perform a function of paramount importance for by maintaining the health of the population they maintain its morale. How then is the Medical Officer of Health to cope with all the issues which have been raised? Obviously one man cannot undertake every conceivable branch of preventive medicine. A great deal can be achieved, however, by delegating as much as possible of the non-medical organisation to lay assistants or lay colleagues and by the concentration of the medical officer's time on actual medical problems concerned with the spread of disease. As much responsibility as is consistent with efficiency should devolve on the shoulders of deputies and Assistant Medical Officers. On the other hand, as close a degree of collaboration as possible should exist between the health department and other departments

of the local authority—viz., water engineer, food control, public assistance; the last-named especially, as the care of homeless persons raises many problems.

Time will only allow me to mention briefly the following points:—

(1) So far as is compatible with the war effort an adequate public health staff must be left in civilian life.

(2) Responsibility should be delegated by the Medical Officer of Health to his assistant, so far as this is possible, in order to allow the former to be free to act in his rightful capacity as adviser to his committee on all matters relating to preventive medicine.

(3) Medical Officers of Health should remember that the Regional Office is always willing to give all the help that it can, and they should not hesitate to make use of it. The Government office can then act (a) as a "clearing house" of information helpful to the local authorities, and (b) in the facilitation of speedy contacts with the necessary branch of specialist service in Whitehall.

I have tried to bring out the technical developments to show that the science of preventive medicine, far from being at a standstill as a result of the present conflict, is being put to the test in all its phases. Inasmuch as tremendous advances in surgery were made during the war of 1914-18, it is possible that we may look on the present war as a period during which preventive medicine made advances just as great. We may have to rebuild, but we shall assuredly do so on a foundation of accurate knowledge acquired from bitter experience.

CORRESPONDENCE

STERILISATION OF REPAIRED MAINS

To the Editor of PUBLIC HEALTH

SIR, A paper entitled "The Sterilisation of Repaired Mains," which I contributed to the December, 1940, number of *Water and Water Engineering*, has been reprinted in a number of journals. In some cases, when the paper has been condensed, the standard procedure advocated has been described in detail, and the reader has been left with the impression that this procedure was considered adequate to deal satisfactorily with all cases, including those in which mains have been grossly polluted with crude sewage. Any such impression would be misleading and might have serious consequences.

It was stated explicitly in the original paper that, "In the case of large mains, and particularly of trunk mains, when it may be necessary to isolate considerable lengths, or when heavy contamination with sewage is known to have taken place, some departure from any standard procedure is often permissible and desirable. In such cases there is time between the fracture and the completion of the repair for a conference to be arranged, etc." The undesirability of applying any ready-made formula to all cases was repeatedly emphasised.

The standard procedure was designed to meet circumstances in which it might not be possible to arrange

BOOK REVIEWS

Textbook of Public Health. By W. M. FRAZER, O.B.E., M.D., CH.B., M.S.C., D.P.H., and C. O. STALLYBRASS, M.D., CH.B., D.P.H., M.R.C.S., L.R.C.P. Edinburgh: E. & S. Livingstone. 10th edition, 1940. Pp. xvi + 488. Price 21s. net.

It is now some years since the last edition of this book was published, and in the interim numerous revolutionary changes have been effected in public health. It is therefore with interest that the reader will examine this new edition, in which Professor Hope has retired from a partnership with Dr. Stallybrass, and has been succeeded by Professor Frazer. The authors have used their opportunities well, and the result is a most comprehensive and readable treatise.

To deal in detail with the various chapters, it may be said that the section on climate is very comprehensive and contains all that a student, or even a Medical Officer, might be expected to know, though the reviewer would like to have seen a rather fuller account of the uses and methods of application of ultra-violet rays. There is a good account of the measurement of suspended matters in air, and the effects of impure air are well described. Certain readers will perhaps find the section on clothing hardly full enough. The chapter on smoke is generally excellent, and the student will find the description of the flue-gas recorder well done. In the chapter on water a diagram of a mechanical filter might have been inserted to advantage.

The chapters which deal with sanitary matters and environmental public health are sufficiently full for the purpose, and the illustrations are diagrammatic and clear. In the chapter on sewage there is a useful summary of the findings of the Fifth Report of the Royal Commission on Sewage Disposal and refuse tips are discussed fairly fully. As might be expected in a book which emanates from a city like Liverpool, the chapter on housing administration is comprehensive and lucid, and is illustrated by a number of instructive maps. The heavy naphtha method of dealing with bugs is well described. Books on hygiene tend to be either too discursive or too brief on the question of food, and therefore the discussion in the present work will be read with interest. Opposite page 214 there is a valuable table on vitamins, but remarks on meat inspection—admittedly a difficult subject to include in a single work—might have been expanded somewhat, including further extracts from the Memo. 62 (Foods).

The chapter on vital statistics is clear and adequate from a descriptive standpoint. It includes a brief discussion of Kuczynsky's work on gross and net reproduction rates, but it would have been advisable to illustrate by a concrete example the method of calculating a standardised death rate. There does not appear to be any reference to the Registrar-General's area comparability factor. There is a short section on the methods of statistics in which correlation is briefly described. The authors should, however, consider substituting standard errors for probable errors. The chapters on epidemiology and infectious diseases are very useful and reflect the experience of the authors.

A noteworthy feature of this work is the amount of space given to such important branches of public health as tuberculosis, maternity and child welfare, and the school medical service. The chapter on genetics serves as an introduction to mental deficiency. The final chapter deals with civil defence, and it is no criticism to say that it is already incomplete. One hopes that by the time the next edition appears there will be no necessity to include this chapter.

This is certainly one of the most comprehensive and readable books on hygiene available for the student or practitioner. The authors claim justifiably that it fulfils all the requirements of the D.P.H. examination, and it should have an extensive sale. The publishers have done their work well, and the text, though fairly closely set, is very readable.

Cerebrospinal Fever. By DENIS BRINTON, D.M. (OXON), F.R.C.P. (LOND.). 1941. Edinburgh: E. & S. Livingstone. 4 photographs. pp. viii + 163. Price 8s. 6d. net.

Books on diseases which show a secular periodicity tend themselves to appear in waves. The epidemic of cerebrospinal fever which was present during the last war gave rise to at least four books on this condition, not to mention Sir Humphrey Rolleston's Lumleian Lectures. Dr. Brinton's book is the first to deal with the present outbreak. This being the case the author has perhaps wisely restricted his field, and he specifically mentions that the bias of the book is clinical, and that attempts have been made to reduce the number of clinical forms formerly described, and to relate symptoms to morbid anatomical changes. The book is therefore not really a textbook. The historical and epidemiological sections are brief, and do not cover all the recent work on these subjects. There is no mention of the effect of injury as a possible predisposing factor, and prophylactic inoculation is not dealt with.

These are, however, minor drawbacks to a work which should be of great value to the clinician. The clinical features are well described. The author generally emphasizes that the disease is essentially a septicaemia, and discusses the symptoms according to the four main stages of the disease. He has been able to reduce the special varieties to the fulminating form, the abortive form, the chronic septicaemic form, and the posterior basic meningitis of infants. The section on differential diagnosis is especially well done, though the author may perhaps be considered optimistic when he states that in all other forms of acute meningitis the correct diagnosis is given by examination of the cerebrospinal fluid.

The sections on treatment are probably the most important in the book. The author adopts Banks's technique without variation, and a clear description is given of the dosage of the sulphonamide drugs, and of their toxic effects. He considers that idiosyncrasy is the most important factor in the causation of granulocytopenia. Although there is no question that sulphonamide therapy has been an outstanding advance in the treatment of this disease, the author is perhaps disinclined to admit that the present epidemic may not have been of the extreme virulence which characterized some

conferences and to carry out elaborate tests, and when it would be of the utmost importance that mains should be restored to use with the least possible delay.

The opinions expressed in the paper referred to have been amply confirmed, but for the reasons given above it would appear to be desirable to emphasise once again that special cases require special measures.

It is well known that chlorine will not penetrate large particles of excrement. When a main has been polluted by crude sewage it should, therefore, be washed out, preferably with heavily chlorinated water, until there is good reason to believe that it has been cleared of excremental matter, when valves may be shut down and the main allowed to stand for the necessary contact period. Unless there are pressing reasons for no doing so, samples should be drawn and the results of analysis awaited before the main goes back into supply.

Perhaps I may be permitted to add that a pleasing feature of which I have become aware through communication with other water undertakings is the close liaison which has been established in many cases between executive officers of the undertakings and their Medical Officers of Health. This cannot but contribute to the advantage of both and to the welfare of the public.

Yours faithfully,

E. F. W. MACKENZIE,

Director of Water Examination.

Metropolitan Water Board,
Water Examination Department,
177, Rosebery Avenue, E.C.1.

March 20th, 1941.

TRAINING FOR THE PUBLIC HEALTH SERVICE.

To the Editor of PUBLIC HEALTH.

SIR,—I was interested in your editorial (PUBLIC HEALTH, February, 1941, p. 71) on "Training for the Public Health Service," commenting on Dr. Edward S. Godfrey's paper in the *American Journal of Public Health* (December, 1940). I find in it certain points of agreement with the proposal which I made in my paper, "The Diagnosis of Health," published in PUBLIC HEALTH, December, 1936, p. 73. One point of agreement in the two papers is the suggested probationary period, which I think is of vital importance in not only being an advantage in the training for the public health service, but more especially in giving greater opportunity for extended service under the Superannuation Act. Here, again, the better advantage for promotion in the service should not be overlooked.

Yours faithfully,

S. T. BEGGS,

Medical Officer of Health.

Health Office,
Middleton, Manchester.

March 3rd, 1941.

[Dr. Beggs' Presidential Address to the North-Western Branch was not open to discussion at the meeting. We should welcome an expression of members' views both on his paper and on our editorial.—Ed.]

EMPLOYMENT OF ALIEN DOCTORS

The communication printed below (Circular 2312) has been issued by the Ministry of Health to the various authorities concerned with the employment in the Emergency Hospital Scheme of alien doctors of enemy alien nationality. We referred to this matter in the last issue of PUBLIC HEALTH (p. 87) in an editorial on the registration of overseas practitioners.

SIR, I am directed by the Minister of Health to state that, after consultation with other Government departments concerned, it has been decided further to modify the existing restrictions on the employment of doctors of enemy nationality at hospitals and similar institutions. These modifications are being made in view of the shortage of doctors, and the restrictions at present in force with regard to other staff (including nurses) will continue to apply as set out in Circulars 2080 and 2193, issued on July 3rd and November 4th last, respectively.

2. Henceforward doctors of German, Austrian or Italian nationality qualified to practise in this country either under the ordinary law or under the special provisions of the Medical Practitioners (Temporary Registration) Order, 1941, or selected for employment with a view to registration under the latter provisions, may be employed in any hospital (whether or not in a Protected Area) which may provide treatment for members of His Majesty's Forces, subject to the following conditions: (a) the employment of such aliens must be on the understanding that, in the event of invasion or other serious military situation which would make it necessary for the military authorities to take full control of the area, the military authorities may find it necessary to order the immediate removal from the hospital of the persons in question. (b) Wherever practicable, such aliens should be employed only in wards where British doctors and nurses are also engaged. (c) The number of such alien doctors employed in any hospital must not exceed the following proportions of the total medical staff employed there: hospitals with less than 100 beds 20 per cent.; hospitals with 100 beds or over 10 per cent.

3. Condition (c) of Circular 2193 is now modified in its application to doctors of enemy alien nationality to the extent that they may be employed in separate wards set apart for Service patients, subject to the conditions laid down in the previous paragraph.

4. In any case an individual permit from the Aliens War Service Department will still be required before an alien can be employed in a hospital which may provide treatment for Service patients. In ordinary circumstances such a permit is not likely to be refused, unless it is found that there is reason to think that the applicant might be a danger to national security, but there may be a few exceptional localities from which it may be necessary to continue to exclude persons of enemy alien nationality for reasons of defence.

I am, Sir,

Your obedient Servant,

A. W. NEVILLE.

former outbreaks. There are many experienced physicians who remember with dread some of the hopeless cases which occurred in past years, and hesitate to say that the present outbreak, large though it has been, has produced anything to equal them. Dr. Brinton does, however, pay a graceful compliment to serum treatment. Its retirement to the list of historic therapeutic methods will be an honourable one, and few who have experience will disagree with him when he states that the frequent administration of serum to a number of patients in a cerebrospinal fever unit taxes the energies of the medical officers beyond all reasonable limits.

The book is well produced and easily read. The author has perhaps wisely limited his illustrations to four excellent photographs showing toxic sulphonamide rashes. There is no other work, apart from original papers, which gives such a complete description of the modern treatment of cerebrospinal fever.

The Ambulance Vade mecum. First Aid to the Injured and Sick. By J. F. SUTHERLAND. Revised and re-written by HALLIDAY SUTHERLAND, M.P. 13rd edition. 1940. Edinburgh: E. & S. Livingstone. pp. 77. Price 6d. net.

The first edition of this little book was published in 1887, and the number of editions through which it has passed shows the need which it must have met. The booklet measures only 2½ in. by 4 in. and is a marvel of clear printing and compact arrangement; there is an amazing amount of information packed within the familiar yellow covers. The sections deal in sequence with the skeleton; fractures; dislocations; the circulation and haemorrhage; wounds; antiseptics; bandaging; the nervous system; shock; respiration and asphyxia; foreign bodies; burns; electricity accidents; poisons; war gases, and transport. Under each of these headings the particulars given are surprisingly full. A few minor criticisms may be useful in later editions. The signs and treatment of the common Colles' fracture might be dealt with more fully. The differentiation between a strain and a sprain might be given. The statement on page 46 that "carbonic acid is a poisonous gas and air twice breathed injures health" may perhaps be misleading to the uninitiated. The reviewer feels that on page 72 the great danger of liquid mustard gas in the eye is not made clear enough. One hesitates to take up the cudgels with Dr. Halliday Sutherland for suggesting that consumption in the early stages is easily cured by tuberculin treatment.

Black's Medical Dictionary. By the late J. D. COMRIE, M.A., B.Sc., M.D., F.R.C.P. (Ed.). Sixteenth Edition. 1941. London: A. & C. Black, Ltd. Pp. 1006. With over 500 illustrations and two full-page plates in colour. Price 20s. net.

This standard work is something less than a technical dictionary and is meant for lay persons concerned with, or interested in, medical matters. It contains a special 12-page supplement on air-raid casualties. It will be a useful addition to the library of a public health department if it is kept readily accessible to the non-medical members of the staff.

Citizens Advice Notes.—The second revised edition of *Citizens Advice Notes* has recently been issued. These notes are the outcome of the activities of the National Council of Social Service which in September, 1939, started the formation of the Citizens Advice Bureaux. The present volume, which is twice the length of an ordinary novel, provides authoritative summaries of war-time legislation, and deals with, among many other matters, The Factories Act, 1937, notification of infectious diseases, medical supervision of emergency rest centres, tuberculosis, and treatment and prevention of venereal disease. The volume also includes notes on "as many as possible of the diverse subjects which trouble a people at war." It costs 10s. post free and can be obtained (by order accompanied by cash) on application to the National Council of Social Service, 26, Bedford Square, London, W.C.1.

AWARDS FOR GALLANTRY IN CIVIL DEFENCE

The award of the George Medal to Dr. O. M. Holden, Medical Officer of Health, Croydon, is announced in a *Supplement* to the *London Gazette* dated March 7th:

DR. OSCAR MADELEY HOLDEN: "A heavy calibre bomb hit a report centre, completely demolishing it. There were five telephonists in the room at the time, three of whom were killed instantaneously and two ultimately rescued alive. One of the latter was trapped under tons of debris, but was able to communicate with the rescue party personnel. It was seen that she had been severely injured. Dr. Holden, at great personal risk, crawled under the wreckage and proceeded in the most difficult conditions imaginable to administer morphia to her. Owing to the abnormally confined space in which he had to work Dr. Holden was only able to come out by crawling backwards. During the time he was working debris was continually shifting and he was in great danger of being buried under the ruins."

The award of the George Medal to Dr. D. C. Logan, Assistant Medical Officer of Health and Resident Hospital Medical Officer, Clayponds Emergency Hospital, and to Dr. M. Kamill, House-Surgeon, Clayponds Emergency Hospital, is announced in a *Supplement* to the *London Gazette* dated March 14th:

DR. DANIEL CRAWFORD LOGAN and DR. MOSTAFIA KAMILL: "A time bomb penetrated the roof of the diphtheria block at the Clayponds Hospital, coming to rest among debris on the floor of the bathroom, without exploding. Dr. Logan and Dr. Kamill, who had experienced the results of previous bombings on the hospital, arranged for the evacuation of the patients. They carried out their duties with coolness and courage, regardless of any danger to themselves, and prevented the possibility of great damage being done to the hospital buildings and to the houses of people adjoining. There is no doubt that by their initiative and devotion to duty Drs. Logan and Kamill saved many lives."

OBITUARY

G. H. MASSON,

O.B.E., M.D., D.Sc., F.R.C.P. (Ed.), F.R.S. (Ed.).

Dr. G. H. Masson, who died recently, was widely known in the West Indies for the pioneer work he did in connection with public health in those islands. He was Medical Officer of Health for Port of Spain, capital of Trinidad.

George Henry Masson received his medical education at Edinburgh and subsequently studied in Paris, Berlin, and Vienna. He qualified M.B., C.M., in 1895, and a year later took the B.Sc. in Public Health, proceeding to the D.Sc. in the same subject in 1907. He took the M.D. with honours in 1897, and a year later the M.R.C.P. of Edinburgh University, being appointed a Fellow in 1923. He was also a Fellow of the Royal Society, Edinburgh. As a student of the late Sir Robert Philip, Dr. Masson naturally turned to tuberculosis as one of his first interests, and as Tuberculosis Officer he soon instituted a dispensary scheme in Port of Spain. As the result of his repeated recommendations a tuberculosis sanatorium is shortly to be built. His publications included works on tuberculosis in Trinidad and Tobago (1912), and administrative control of tuberculosis (1913).

The mixed population of Trinidad, with all that this implies, made it no easy task to introduce measures directed to raising the level of the common health, but Dr. Masson met and overcame these difficulties with a remarkable degree of success, steering his way with great skill through the various political currents that were inevitable in the community he had to serve. Nutrition and housing were, as in so many other parts of the world, outstanding problems in Port of Spain. In 1921, for example, the population of the city was 61,896, and the density 34.2 per acre; in 1939 the corresponding figures were 90,375 and 35.6. It must have been disheartening to a man of Dr. Masson's calibre to find the housing of the population in such an appalling state. A suburb of Port of Spain, mainly inhabited by the East Indian population and at one time in very bad condition, was rebuilt under his direction, and this village remained for some years notably in advance of others of its kind—although on a few isolated sugar and cocoa estates experiments in rehousing were privately undertaken. It was not until 1939, two years after Dr. Masson's retirement, that his far-sighted policy became more generally adopted.

Dr. Masson was in large measure responsible for the establishment of a quarantine system in the West Indies. He drew attention to the dangers of suppressing news of quarantenable diseases, which were thus unwittingly spread to other ports. His views were met with a storm of protest, but they were given publicity and as a result an intercolonial quarantine conference was convened, and in 1906 Dr. Masson was appointed to organize Port of Spain as a modern quarantine port.

Among Dr. Masson's other interests was the local society for prevention of cruelty to animals. He was concerned with problems of education—complex in that part of the world—and was himself a student of classical literature. He will be missed for his breadth of outlook as much as for the medical reforms he instituted.

JAMES BATES WILKINSON, M.D., C.M., D.P.H.

By the death on February 22nd of Dr. J. B. Wilkinson, Medical Officer of Health of Oldham from 1898 to 1936, there passed on one who, in his day and generation, did probably more for the health of the County Borough than any other individual.

James Bates Wilkinson was born at Godmanchester in Huntingdonshire. He qualified M.B., C.M. at Edinburgh in 1883, and proceeded to the M.D. in 1885; he took the D.P.H. Vict. in 1894. After holding a post as demonstrator in pathology at this University, he obtained experience in general practice in London, Peterborough, and Manchester, and finally started in practice for himself in Oldham in 1887. He was appointed Medical Officer of Health for Oldham in 1898 and held this post until his retirement in 1936. He was also Superintendent School Medical Officer from 1906 to 1936, and Consulting County Medical Officer for Huntingdonshire from 1898 to 1911. For many years he lectured in public health subjects at the College of Technology, Manchester.

Dr. Wilkinson was always a keen member of the professional societies associated with his particular branch of the profession; he was a Past President and Fellow of the Institute of Sanitary Engineers, a Fellow of the Royal Institute of Public Health and Hygiene, and a Fellow of the Royal Sanitary Institute. In his early days as M.O.H., Dr. Wilkinson took a great interest in the scientific aspect of sewage disposal, and gave evidence before the Royal Commission on this subject. His concern in charitable matters was exemplified by his serving for some 20 years as Secretary of the Oldham Poor Children's Holiday Association. For many years he was a Director of the Oldham Garden Suburb Association; he was also a founder member of the Oldham Rotary Club, and on retirement was placed in the limited class of Honorary Members as one of those who had rendered great service to the town of his adoption. Perhaps Dr. Wilkinson's greatest interest outside his work was the Order of St. John of Jerusalem and its associated body the St. John Ambulance Association. He was a lecturer and examiner of the St. John Association for very many years, and was also chief surgeon and superintendent of the Oldham Corps of the St. John Ambulance Brigade. He was awarded several medals and decorations for his work in connection with the Order of St. John, being finally honoured with the high Order of Knight of Grace. At the time of his death he was the senior surviving Pastmaster of the Friendship Lodge (Oldham) and a Past Provincial Senior Deacon of the Province of East Lancashire.

Dr. Wilkinson is survived by a son and daughter—Mr. L. St. G. Wilkinson, M.C., Borough Engineer of Wallasey, and Dr. Gladys Wilkinson, Assistant County Schools Medical Officer, Cheshire—to whom we extend our sympathy in their bereavement.

CHARLES VALUE CHAPIN, M.D.

We regret to announce the death at the age of 85 of Dr. Charles V. Chapin, who was formerly Superintendent of Health of the City of Providence, Rhode Island, and an Honorary Fellow of the Society of Medical Officers of Health.

Dr. Chapin was Superintendent of Health of the City of Providence for forty-eight years, during which period he made, as administrator, teacher, and author, important contributions to the development of public health as we know it to-day. Over the same period he also assumed the duties of Registrar of the City of Providence, and by his personal reviews of the death records he achieved a high reputation for accuracy. From 1886 to 1896 Dr. Chapin was professor of physiology, and from 1891 to 1893 director of physical culture, at Brown University. He also lectured at Harvard Medical School, at the Harvard-Technology School for Health Officers, and at the Harvard School of Public Health. The Providence City Hospital, on the Board of the Hospital Commissioners of which he acted as Secretary, was in 1931 renamed the Charles V. Chapin Hospital in recognition of his outstanding services to medicine. In 1934 sixteen of his papers on public health administration, control of infectious disease, epidemiology, and vital statistics were published in book form by the Commonwealth Fund. Among his other publications were *Municipal Sanitation* (1901), *Sources and Modes of Infection* (1910), and *How to Avoid Infection* (1917). Dr. Chapin also contributed numerous articles to public health journals and was a member of many professional organisations, being President of the American Public Health Association in 1927. He received honorary degrees from Brown University, Rhode Island State College, and Yale University. His influence on public health in the U.S.A. is one that will long be felt.

COLONEL E. A. BURNSIDE, M.R.C.S., L.S.A.

Colonel Eustace Augustus Burnside (R.A.M.C. retired), died at the age of 80 on February 17th. He qualified M.R.C.S. and L.S.A. in 1886, receiving his medical education at King's College, London. He entered the Army as surgeon in 1887, became Lieutenant in 1911 and Colonel in 1915, retiring in 1917. He served in the South African War and also in the war of 1914-18. In 1917 he was appointed Knight of Grace of the Order of St. John of Jerusalem. Colonel Burnside was a member of the Society of Medical Officers of Health from 1927 to 1930, and lectured for the British Social Hygiene Council.

The Annual Register of Charities and Public Institutions for 1941 (pp. xxix + 457; price, 8s. 6d. net), has just been published. It is the forty-eighth edition of this valuable work of reference, containing, as it does, details of more than 2,700 institutions and societies. The book is divided into forty-two sections, among which may be noted those on the care of the blind, the deaf and dumb, medical and surgical homes, London County Council hospitals and ambulance service, maternity and child welfare, public assistance committees, and special war organisations. Throughout the book there are occasional blank pages for notes, and a comprehensive index appears at the end. The publishers are Longman's Green & Co., London, for the Charity Organisation Society.

THE SOCIETY OF MEDICAL OFFICERS OF HEALTH

COUNCIL MEETING.

A meeting of the Council was held at Tavistock House, Tavistock Square, on Friday, February 21st, 1941, at 11 a.m.

The President (Dr. F. T. H. Wood) was in the chair and there were also present Drs. J. S. Anderson, Cyril Banks, G. F. Buchan, James Ferguson, J. M. Gibson, A. W. Johns, A. S. M. Macgregor, Professor R. M. F. Picken, Drs. R. Sutherland, A. G. G. Thompson, E. Ward, H. Gibbons Ward and Dr. H. C. Maurice Williams.

Apologies for absence were received from Drs. H. S. Banks, Vynne Borland, J. J. Buchan, J. A. Charles, Sir Francis Fremantle, M.P., Drs. A. G. Glass, C. E. Herington, Sir Wilson Jameson, Drs. R. H. H. Jolly, Gordon Lilico, T. N. V. Potts, A. T. W. Powell, T. P. Puddicombe, Sir William Savage, Drs. J. E. Spence, P. H. Stirk, J. A. Stirling, E. W. Cyril Thomas and H. G. Trayer.

The minutes of the last meeting held on November 15th, 1940 (see PUBLIC HEALTH, December, 1940, pp. 49-51) were confirmed and signed.

LIFE MEMBERSHIP. Having paid annual subscriptions for periods of not less than twenty-five years, the following Fellows, now retired, were recommended for election as fully-paid Life Members under Article 12 on the nomination of their respective Branches: *Home Counties Branch*, Dr. A. Senior; *Metropolitan Branch*, Dr. G. Clark Trotter; *Midland Branch*, Dr. J. H. Mason; *Yorkshire Branch*, Dr. J. J. Huey.

AWARDS FOR GALLANTRY. The Acting Executive Secretary was instructed to send letters of congratulation to Dr. Malcolm Manson (M.O.H., Wood Green) and Dr. W. S. Walton (M.O.H., West Bromwich), who have been awarded the George Medal for conspicuous courage in recent air raids.

MILITARY RECRUITMENT OF PUBLIC HEALTH CHIEF CLERKS.—Letters were considered from Dr. A. W. Johns and Dr. H. G. Trayer in reference to the depletion of public health staffs owing to demands for national service. Dr. Johns urged that public health chief clerks should be included in the proposed schedule of reserved occupations, irrespective of age. Dr. Trayer drew attention to the urgent problem of staffing tuberculosis sanatoria and fever hospitals. He suggested that the Ministry of Health should be asked to secure the retention of nurses and domestic workers for these institutions.

The Acting Executive Secretary was directed to recommend the Ministry of Health to represent to the Ministry of Labour that the post of chief clerk in health departments be regarded as a reserved occupation, and also to draw the attention of the Ministry of Health to the dangerous position arising from shortage of staffs in public health departments and hospitals.

SCABIES AND PEDICULOSIS.—A letter was received from the Association of Municipal Corporations in reference to powers covering scabies and pediculosis for local

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health departments. It was agreed to send the Association a copy of the resolution in this connection forwarded to the Ministry of Health on August 30th, 1940 (*Public Health*, August, 1940, p. 243) and to ask the Ministry whether it is proposed to take action thereon.

TUBERCULOSIS IN PIGS.—The Council considered the following communications forwarded by the Association of Municipal Corporations:—

MINISTRY OF AGRICULTURE & FISHERIES.

December 4th, 1940.

SIR,—I am directed to refer to your letter of October 2nd addressed to the Ministry on the subject of tuberculosis in pigs, a copy of which has been forwarded to this Department. In reply I am to say that it is estimated that about 50 per cent. of tuberculous infection in pigs is of the bovine type, the remainder being due to other strains of tubercle bacillus. While bovine infection may be transmitted to pigs by the consumption of tuberculous milk, such infection may also be contracted by other means:

In so far as milk is concerned I am to say that under the Tuberculosis Order of 1938, the general execution and enforcement of which is a matter for Local Authorities for the purpose of the Diseases of Animals Acts, any person having in his possession or under his charge a cow which is or appears to be affected with tuberculosis of the udder, or with tuberculous emaciation, or which is affected with a chronic cough and showing definite clinical signs of tuberculosis, is required to give notice of the fact to the police or to a veterinary inspector, to detain and isolate the animal, and to boil or otherwise sterilize its milk. If as the result of an examination by a veterinary inspector of the Ministry the animal is found to be an affected animal for the purpose of the Order, it is slaughtered. Similar action is taken where at a routine veterinary inspection of a dairy herd an animal amenable to the Order is found.

The number of cattle slaughtered under the Order has declined in recent years, and since routine veterinary inspection of dairy herds has not been curtailed, the reduction in the number of animals slaughtered may be regarded as reflecting some improvement in the position.

With regard to your Council's suggestion that all milk used for the feeding of pigs should be required to be boiled or sterilised before use, I am to enclose a copy of a reply given by the Minister to a question put to him in the House of Commons on the subject on November 28th. In this connection I am to say that the purpose of the Foot-and-Mouth Disease (Boiling of Animal Foodstuffs) Order, which requires the heat treatment of certain foodstuffs before they are to be fed to animals, is to prevent the dissemination of epidemic diseases such as foot-and-mouth disease by means of meat, bones or offal, or swill, or any other broken or waste foodstuffs which have been in contact with meat, bones or offal.

I am to add that owing to the present shortage of milk, small quantities only will for some time be available for butter and cheese making, thus reducing the risk of infection of pigs by means of skimmed milk and whey.

I am, Sir,

Your obedient Servant,

G. H. HIGGS.

HOUSE OF COMMONS

Question put on November 28th, 1940.

Pigs (Tuberculosis)

Mr. Hannah asked the Minister of Agriculture whether his attention has been called to the amount of tuberculosis found in pigs sent to bacon factories for slaughter, and whether he will make an Order that as a precaution all skimmed milk and whey, before being fed to hogs, shall be boiled.

The Minister of Agriculture (Mr. R. S. Hudson): I am aware that from time to time parts, and, less frequently, whole carcasses, of pigs consigned to bacon factories are condemned on account of tuberculosis, but I have no reason to think that the general incidence of the disease is on the increase. With regard to the latter part of the question, the adoption of my Hon. Friend's suggestion would not be practicable in present circumstances, nor would it in any event affect the spread of infection by strains of tubercle bacillus other than the bovine, which account for about 50 per cent. of tuberculous infection in pigs.

After discussion the Council approved a memorandum by Sir William Savage, to be forwarded for the information of the Association of Municipal Corporations, as follows:—

PIG TUBERCULOSIS

The letter of the Ministry of Agriculture and Fisheries of December 4th deals with four points:—

1. It admits that pig tuberculosis is at least 50 per cent. bovine in origin (I put it considerably higher) and suggests that a mere 50 per cent. is not worth reducing. In the penultimate paragraph it admits that heat treatment is effective and is used to prevent the spread of infection, but gives no grounds for its refusal to employ this method to eliminate tubercle bacilli, although it is scientifically proved that boiling will destroy tubercle bacilli.

2. It discusses the Tuberculosis Orders and points out that the reduction in the number of animals slaughtered suggests a diminution in the amount of bovine tuberculosis. This Order is ineffective either to reduce bovine tuberculosis or to diminish the risks of human infection. Whenever the second point has been pointed out to the Ministry of Agriculture their invariable counter has been that it never was so intended and is not regarded as having any bearing on the problem. Put scientifically that is an admission that the working of the Order has no relationship to the percentage of tubercle bacilli found in milk and therefore its efficiency of operation does not affect this problem.

3. The point as to the present shortage of milk has no significance. Spring is inevitable and equally inevitable is the surge of milk production which occurs every spring. We are discussing a long term policy not a problem of immediate milk shortage.

4. The parliamentary reply of the Minister of Agriculture suggests that pig tuberculosis is a rather infrequent phenomenon. Every experienced meat inspector knows that it is common. It is further evident that much of it is missed under our normal and present systems of inspection. The following is an illuminating instance. About a dozen years ago no pigs were being found tuberculous in a small town in Somerset. Just then I instituted a very comprehensive course of Meat Inspection and the responsible inspector of this town attended. He had no special meat certificate previously. On his return, fortified

by his training, he found that 10 per cent. of all the pigs slaughtered in the town were tuberculous and at least 10 per cent. of heads had to be destroyed. The purveyors of these pigs were exceedingly annoyed and transferred most of their animals to other centres where the examinations were by less experienced inspectors. Undoubtedly much pig tuberculosis is never ascertained.

A further point is that the favourite site of tuberculosis in pigs is the submaxillary glands, suggesting very clearly the *ingestion* method of infection. In places with a well-conducted system of inspection the submaxillary glands are examined as a routine for pigs.

The Minister of Agriculture stated that boiling of skimmed milk and whey "would not be practicable in present circumstances," but no reason whatever is given for this statement and the Ministry letter does not enlighten us.

It cannot be said that the Ministry of Agriculture has given satisfactory reasons for refusing our very legitimate requirements.

B.M.A. MEDICAL PLANNING COMMISSION.—It was decided to ask the Association of County Medical Officers of Health to suggest a county medical officer for nomination by the Society for election to this Commission.

NATIONAL MILK SCHEME.—A letter dated December 28th, 1940, from the Ministry of Food was read, acknowledging with thanks the Council's letter of November 19th addressed to the Ministry of Health, enclosing a memorandum by Dr. J. A. Charles on the subject of the National Milk Scheme, and at the same time expounding the observations of the Council on that scheme.

The Ministry stated that they had given careful thought to the points raised, and, although in sympathy with the Council's point of view, felt that practical considerations preclude further developments of the scheme on the lines indicated—at any rate for the present.

It was resolved to take no further action.

REPRESENTATION OF THE SOCIETY.—Dr. C. F. White and Dr. A. Massey were appointed to represent the Society at a conference to be convened by the 1940 Council to consider plans for the betterment of social environment.

The Council then adjourned.

Glaxo Laboratories have recently put on the market "Infant Celin tablets" intended for the supplementary feeding of infants in cases in which the supply of fresh fruit juice is uncertain or reduced. Each tablet contains 5 mg. of ascorbic acid, and dissolves readily in milk. An accompanying leaflet describes the preparation of turnip or swede water as an alternative method of giving vitamin C. It is recommended that half an average-sized turnip or a quarter of a swede should be cut into small pieces, covered with water, boiled gently for twenty minutes, and then strained. The result is kept in a covered receptacle. It is recommended that two teaspoonfuls of water, drained off, should be added to each of the six daily bottle feeds.

The Society: Branch Meetings

YORKSHIRE BRANCH.

President: Dr. N. Gebbie (M.O.H., Hull C.B.).
Hon. Secretary: Dr. R. Sutherland (M.O.H., Brighouse M.B.).

An ordinary meeting of the Branch was held in the Civic Hall, Leeds, on January 31st. The President was in the chair and the following members were present: H. T. Bates, A. T. Elder, H. M. Gall, J. F. Galloway, C. F. Good, W. B. Hill, E. D. Irvine, K. H. Odling-Smee, D. D. Payne, G. H. Pearce, G. J. C. Russell and R. Sutherland.

Food Decontamination.—The Secretary submitted a letter from Dr. Irvine, of Shipley, in which he suggested that the Society should direct the attention of the Ministry of Food to the desirability of their giving some financial assistance towards the cost of training and equipping food decontamination personnel, and the adaptation of premises as food decontamination centres. It was resolved that the Secretary be instructed to write to the Secretary of the Society asking that the Ministry of Food should be communicated with to that effect.

It was resolved that the time of the meeting should be restored to the former time namely, Council Meeting at 2.30 and Meeting of the Branch at 3 p.m. on the last Friday of the month.

The President then called upon Dr. Elder of the Ministry of Health to read his paper on "Front Line Hygiene, 1940," which appears in the current issue of PUBLIC HEALTH.

Discussion on Dr. A. T. Elder's Paper

Opening the discussion, Dr. Hill agreed that the emergency laboratories were most useful in his area of the East Riding of Yorkshire; they had co-operated most helpfully both in the field and in the laboratory. He hoped that the arrangement would be a permanent one. He hoped, too, that the Ministry of Health would take steps to deal with the very serious problem resulting from the loss of sanitary inspectors who had left for military service.

Dr. Irvine deplored the manifest tendency of counties to take from county districts the power of administrative services which had been satisfactorily carried out in the past. He thought that people would not boil water for fifteen minutes and was recommending, like the Central Council for Health Education, that water should be boiled for five minutes. He stressed the importance of co-operation where smaller districts were supplied by large towns.

Dr. Galloway asked what would be the effect of chemicals dumped on land from excreta from chemical closets.

Colonel Bates expressed the view that there should be no difficulty in the relationship between the military medical authorities and public health authorities. He reminded members that military medical officers, although not making any exaggerated claims for their clinical knowledge were administrators and were really experts in hygiene.

Dr. Gall mentioned the new arrangements for the distribution of national dried milk in towns. She thought that the suggestion that mothers should bring the old tins to the food centres for refilling, and should not wash the tin after use but should wipe it with a duster, was a clear indication that the person drawing up the memorandum had no acquaintance with the type of duster often used in many of the homes.

Dr. Sutherland referred to the scarcity of oranges and tomatoes. This was a very serious matter in the nutrition of infants and young children, and he suggested that the Government should regard these as essential foods, and make a special effort to ensure that adequate stocks were imported. If the scarcity was unavoidable, however, these fruits should be rationed and allotted to children only. He thought that the proposal to fortify bread was an unsatisfactory way of tackling the problem of the serious loss of essential foodstuffs which resulted from the milling of white flour. If as much money and thought had been directed towards the discovery of some method of satisfactory storage of whole-wheat flour as had been devoted to the production of synthetic vitamin B₁, the community would have had the advantage of the whole vitamin B complex, vitamins A and E, and several valuable minerals, in addition to the calcium which it was intended to add. He had dealt with the problem in his own area by purchasing from a local miller the wheat germ which the miller had extracted from the whole-wheat grain. This wheat germ he had put up into pound packets, which he was distributing in all the clinics to expectant and nursing mothers and pre-school children. He suggested that this was a cheap and effective method of overcoming the defects of white flour, which could be adopted in most areas.

The President thanked Dr. Elder for his most stimulating paper, and said he thought that sanitation was more important than ever, as the failure to deal promptly and efficiently with problems arising from air raids might cause more deaths than the "blitz" itself. He was fortunate in having in Hull the excellent co-operation of the water engineer and City analyst, with whom he held periodic consultations. When unsatisfactory water samples had been received they made a joint examination of the gathering grounds, discovered potential sources of pollution, removed these sources, and as a result got satisfactory samples.

Dr. Elder, in replying, explained that he could not discuss matters of policy; he could speak only of technical matters. The French had claimed that combined vaccination increased the potency of individual antigens. He agreed that the problem of dealing with a large-scale military camps and posts in an area was a difficult one. He thought that we could not rely on intercommunication of water-mains after a "blitz"; the essentials were speedy repairs, effective chlorination, and adequate water haulage. We must have sufficient water carts.

In proposing a vote of thanks to Dr. Elder, Dr. Pearce (who had taken the chair) welcomed the presence of three gentlemen from the Ministry of Health. The motion was seconded by Dr. Gall. A hearty vote of

thanks was extended to Dr. Elder for his valuable and thought-provoking paper.

HOME COUNTIES BRANCH.

President: Dr. E. W. Caryl Thomas (M.O.H., Harrow U.D.C.).
Hon. Secretary: Dr. Cecil Herington (M.O.H., Dagenham U.D.).

A meeting of the branch was held at Tavistock House South, Tavistock Square, London, W.C.1, on February 7th, 1941. The President was in the chair and was supported by 24 other members. The minutes of the meeting held on January 10th, 1941, were confirmed and signed.

Discussion.—In the absence of Dr. Buchan, who was to have opened a discussion on health in public air-raid shelters, Dr. Powell at very short notice undertook this. In the course of his remarks he mentioned that patients with open tuberculosis were, by arrangement with the Borough Engineer, supplied with Anderson shelters on a priority basis. He outlined the precautions taken in Walthamstow against infection in public shelters.

Dr. Johns pointed out the objections to chemical closets and the advantages of water closets, which were being substituted for those of the chemical type. He was not favourably impressed with the approved type of heating stove.

Dr. Leonard Williams was insistent that the Government should provide adequate shelters, which should be warmed, lighted, and ventilated. Given these conditions the problem of hygiene would be much simplified.

Dr. F. Grundy described the deep shelters which had been constructed in his area. He questioned whether the disadvantages from the regular use of public shelters were justified by the comparatively small number of casualties caused in most districts.

Dr. Garland was of the opinion that the conditions under which many shelterers lived might usefully be regarded as a field for the investigation of health generally. He thought that observation of the general level of health apart from infectious disease should receive close attention.

Dr. Geffen advocated a system of calling on the services of general practitioners if and when they were required. In his area all the doctors concerned were on call for this purpose. He strongly advocated the protection of rooms in houses as being the solution of many of our difficulties.

Dr. Orr was not in favour of spraying shelters with a hypochlorite solution. He pointed out that if this practice was not carried out carefully certain deleterious effects were produced. He suggested the spraying of a solution of dettol to counteract offensive odours which might be present.

Dr. Garrow proposed a vote of thanks to the President and Dr. Powell. In the course of his remarks he mentioned that Dr. M. Manson, of Wood Green, had been awarded the George Medal. This was received with acclamation by all those present, and Dr. E. E. Caryl Thomas, on behalf of the branch, offered sincere congratulations to Dr. Manson. Dr. Manson replied.

PUBLIC HEALTH

YORKSHIRE BRANCH.

President: Dr. N. Gebbie, (M.O.H., Hull C.B.)
Hon. Secretary: Dr. R. Sutherland (M.O.H., Brighouse M.B.).

An ordinary meeting of the Branch was held in the Civic Hall, Leeds, on Friday, February 28th, 1941. The President was in the chair, and 36 members were present.

The minutes of the last meeting were taken as read, approved, and signed.

The President then called on Dr. J. Rennie, Medical Officer of Health for Sheffield, to deliver his paper on "Some Observations on Recent Air Raids in Sheffield," and expressed a hearty welcome to him and his colleagues from Sheffield. Dr. Rennie's paper is published at another page in this issue. Dr. Rennie said it should be clearly understood that his address represented the agreed views of his team of chief workers.

In answer to questions from Drs. Potts, Hill, Benn, Gibson, Irvine, Buchan, and Ringrose, Dr. Rennie replied as follows: The official strengthened cellar was satisfactory for material protection, and in Sheffield there has been no case of drowning or gassing in cellars. The distribution of casualties by first-aid parties had been excellent and no difficulties had arisen in this direction. It was possible only to warn hospitals in general terms that they must expect quite a number of casualties. The getting out of the official records in the required time had not been possible. The first thing was treatment, and some of the patients were not fit to be questioned for a considerable time. Theoretically, a panel of general practitioners for the examination of patients at the site of the incident and for the administration of morphine was excellent, but in actual practice it had proved very difficult to find any real need for doctors to come out. He thought, however, that if doctors were stationed at central depôts they might be useful. Very few people suffering from minor injuries had attended doctors' surgeries for treatment there. Although wardens sometimes failed to give the number of casualties, they were not guilty of exaggerating the number. About half the ambulance and sitting-car cases were voluntary workers, and a high proportion were lady drivers. All had done excellent work. Mobile units were not as good as fixed first-aid posts in urban areas. Although the application of adhesive muslin to institution windows did not prevent the windows breaking, no accidents would result. It was essential to have satisfactory and adequate advance arrangements for the storage of furniture. There had been no panic, no psychosis, and no precipitate midwifery during the Sheffield blitz.

The President then called on Dr. J. Clark, Medical Superintendent of the City General Hospital, Sheffield, and Deputy Medical Officer of Health, to discuss the hospital treatment of casualties.

Hospital Treatment of Casualties.

Dr. Clark said that only 10 per cent. of the casualties treated at the City General Hospital after two big raids on the town had died. Discussing the question of reception, he said it was essential that a senior officer should see all the cases in the ambulance and

arrange for them to be put to bed in appropriate wards and the old-fashioned remedies to be applied—namely, rest, warmth, and, if there were no alimentary injuries, hot drinks. It was extremely difficult to examine casualties at first because they were all filthy; consequently no immediate attempt should be made to separate the different types of cases. The patients should be put to bed at once and not undressed until they had recovered from shock. They should be left alone for at least an hour, and it was amazing what recoveries would occur. At first, only the simplest and essential dressings should be done. Operation must not be rushed except for serious bleeding. He would go so far as to say that in very few cases indeed need really serious surgery be attempted until the "all clear" had gone. Plasma or blood transfusion should not be rushed; heat, rest, and hot drinks alone would cause astonishing recoveries. Only 5 per cent. of Dr. Clark's cases had required plasma or blood transfusion. The resuscitation team should be directed by a physician. After the "all clear," early excision of wounds was most important. In Sheffield open wounds of joints were excised and stitched up and every case had healed by first intention.

In reply to questions from Drs. Jervis and Irvine, Dr. Clark replied: Their hospitals were mostly blacked-out by shutters, and if these were blown down they could be replaced; otherwise they had to work with shaded hand-lamps. The reception room was satisfactory if the raid was a small one, but in a big blitz it might become blocked with walking patients and their relatives, and, in his view, if the reception room was not big enough to allow people to be kept there for twenty-four hours, they were better sent to the wards. The first-aid party work had been excellent. Although he was anxious to stress the importance of not rushing blood transfusion, it was nevertheless invaluable in those cases where there was a failure to respond to the old-fashioned remedy of rest, warmth, and hot drinks.

Replying to points raised by Drs. Jervis, Buchan, and Irvine, Dr. Midgley Turner, the officer in charge of the casualty services in Sheffield, agreed that rapid clearance from the site was essential, but members of first-aid party squads should be trained to reach an automatic standard of orthodox first-aid to ensure that they could do essential and speedy first-aid in moments of stress. People did swarm into first-aid posts or hospitals when rendered homeless, but in future they would be transferred immediately to the nearest public shelter for the remainder of the raid, and after the "all clear" the warden would take charge of the homeless and arrange for their transfer to rest centres. There had been a fair amount of attendance at first-aid posts for re-dressings. The President stressed the importance of having black-out shutters inside the glass if the danger of accidents was to be averted.

Proposing a vote of thanks at the request of the President, Dr. McIntosh said that the size of the meeting was the best thanks that Dr. Rennie could receive. The excellent results described in Dr. Rennie's splendid paper were a testimony to the team work which

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had been practised. Seconding the proposal Dr. Jervis said that we had all learned a lot from Dr. Rennie's valuable paper. The vote of thanks was carried unanimously.

The meeting of the Branch was preceded by a meeting of the Council at which the President was supported by a full attendance of Council members.

METROPOLITAN BRANCH

Pressure of work has delayed the preparation of any reports of the recent proceedings of this Branch. The Branch, however, had two very successful meetings in January and February under the presidency of Dr. Maitland Radford. On January 10th Lieutenant-Colonel E. F. W. Mackenzie, Medical Officer of the Metropolitan Water Board, gave a most interesting but mainly confidential address on the precautions being taken to ensure the purity of London's water supply during the war. At this meeting Dr. G. Clark Trotter, retiring Medical Officer of Health of Islington, was recommended for election by the Council of the Society as an Honorary Life Member of the Society. The meeting on February 14th, which was a joint one with the Home Counties Branch, was addressed by Lord Horder on the subject of "Shelter Health." Collaboration with the Home Counties Branch will be continued at the meeting on March 14th, when Professor Major Greenwood is to speak on "Epidemiology in Relation to War Conditions in London."

VYNNE BORLAND, M.B., D.P.H.,

Hon. Secretary.

18, Greville Hall,
 Greville Place, N.W.6.

March 3rd, 1941.

The Quarterly Return of Births, Deaths and Marriages for the thirteen weeks ended September 30th, 1940, issued by the Registrar-General (H.M. Stationery Office, price 6d., by post 8d.), shows an increased marriage rate and a fall in the birth-rate compared with pre-war years. The number of live births during the quarter was 149,249, a decrease of 11,774 on the September quarter of 1939. The birth-rate per 1,000 of the population was 14.3. This compares with an average of 15.3 for the third quarters of the five preceding years. Of the live births registered, 76,660 were males and 72,589 females, the proportion having risen slightly to 1,056 males per 1,000 females from an average of 1,051 for the ten preceding quarters. There were 131,254 marriages. This is a decrease of 21,676 on the corresponding quarter of 1939, but 7,877 more than the September quarter average for the five previous years. The marriage rate per 1,000 was 25.2, compared with 29.3 in the same quarter of 1939. The civilian deaths registered totalled 108,880, compared with 103,127 during the corresponding quarter of 1939. Infant mortality was 42 per 1,000 births, which is 3 below the average of the ten preceding third quarters.

PUBLIC HEALTH

RECENT RETIREMENTS

Many Medical Officers of Health in this country will hear with regret that Dr. H. A. Macewen, Senior Medical Officer at the Ministry of Health, has just retired.

After some years of field work in public health in Cumberland and as M.O.H. for Fife and Kinross he was appointed to the service of the Local Government Board in 1911, and in the thirty years that have passed he has had unrivalled experience of the changes that have taken place in the Public Health Service during a time of rapid development. When he was appointed Senior Medical Officer in 1924 his duties embraced the administrative control of infectious diseases, the construction and development of infectious diseases hospitals, the appointment of medical officers of health and sanitary inspectors, medical inspection of aliens, and port sanitary administration. When the Local Government Act, 1929, came into effect on April 1st, 1930, Dr. Macewen became responsible for the medical aspects of public assistance and for the Ministry's surveys of the health services of local authorities; he also undertook the important duty of supervising the hospital services of local authorities. Since the beginning of the war Dr. Macewen's chief duty has been the supervision of the medical staffs of the eleven regions into which Great Britain is divided for civil defence purposes.

In addition to the tactful way in which Dr. Macewen carried out his official duties, his kindness and friendly personal relations with Medical Officers of Health were such that they will all extend to him their warm wishes in his retirement.

Dr. C. J. Thomas, who has been connected with school medical work in London for nearly 40 years, retired this month. His colleagues in the school medical service will appreciate the tribute which has been recorded in the minutes of the London County Council as follows: "Dr. Thomas entered the service of the School Board for London in 1902 as an assistant medical officer, after holding the position of Assistant Medical Officer of Health of Brighton. He was promoted in 1914 to the rank of Principal Assistant Medical Officer and in 1924 to that of Senior Medical Officer. Throughout his career with the Council, he has been connected with the school medical service. On the reorganisation of the administration of that service in 1911, he became directly responsible to the school medical officer for the revised arrangements. He steadily implemented the policy of securing the co-operation with the Council of parents and voluntary associations in this important service. Special work he undertook in connection with the Coronation celebrations in 1911, the Royal Jubilee celebrations in 1935 and the Coronation celebrations in 1937 was rewarded in the latter year by the award of the Coronation Medal. In 1909 and on subsequent occasions he rendered valuable service to departmental committees set up by H.M. Government relating to the health of school children. He is the author of numerous papers

on school hygiene and, for many years past, has written the greater part of the school medical officer's annual report. His extensive experience of school medical work has been of great value to the Council and his wide knowledge of the subject gave him an international reputation, with the result that he was consulted by students of child welfare from all parts of the world. He is the doyen of whole-time school doctors in this country. His work in connection with the various evacuation schemes for school children merits the highest praise. He is an officer of exceptional ability, high ideals and unrivalled experience, who has given many years of ungrudging service to the welfare of London school children."

After 20 years' service as Medical Officer of Health for Islington, Dr. G. Clark Trotter retired on February 28th. The Mayor presided over a large attendance when Dr. Trotter took farewell of his staff who presented him with an electrical wireless set. Tributes to Dr. Trotter were paid by his successor, Dr. Victor Freeman, Dr. Katherine Hirst (Deputy M.O.H.), Mr. G. J. Bridel (Chief Sanitary Inspector) and Mr. J. Wolfe (Chief Clerk). All of them testified to the good work done by him in Islington, and by his wife Dr. Margaret Trotter. Dr. Clark Trotter, making acknowledgment, said that the work of the public health department in such a borough as Islington was by no means a one-man job, and he owed much to the loyal co-operation of Drs. Freeman and Hirst and the other members of the staff.

Dr. A. M. Hewat, a senior medical officer in the London County Council public health department, has been promoted, at a salary of £1,600 rising by increments of £100 to £1,800 per annum, to the position of Principal Medical Officer in charge of the general public health branch, vacant since the promotion of Dr. Daley to the position of Medical Officer of Health in November, 1939.

At the Council meeting of the Royal College of Nursing in February, it was pointed out that they were faced at one and the same time with a rapid expansion in public health nursing and a serious shortage of health visitors. This was due in part to the number of centres that since the war had discontinued their training facilities, and partly to the expense incurred by nurses in maintaining themselves in war-time. Hitherto, grants for the training of health visitors have not covered maintenance. The Council is bringing these matters to the notice of the Minister of Health and is urging that training facilities for health visitors should be extended without delay. It also recommends to the Minister that local authorities should no longer be allowed to make appointments to "any so-called temporary post" as health visitor or school nurse candidates lacking the health visitor's certificate.

RECENT APPOINTMENTS IN THE PUBLIC HEALTH SERVICE

The following are some recent appointments to the health departments of various local authorities. The Editor will be grateful if members of the Society will notify him at once of any new appointments.

- BURY C.B.: A.M.O.H. (A.R.P.), Lt.-Col. Frederic Harvey, R.A.M.C. ret. Salary £550 p.a.
- CARMARTHEN M.B. & R.D.: A.M.O.H., Dr. Dilys L. Davies (R.M.O., Llandough Hospital, Penarth).
- DARTFORD R.D.: Deputy M.O.H., Dr. Eveline M. D. M. Scott.
- DUMFRIES C.C.: Dep. C.M.O.H., Dr. S. K. Drainer (A.C.M.O.H., Aberdeenshire).
- EAST LOTHIAN C.C.: A.C.M.O.H., Dr. Margaret H. G. Anderson (Res. Asst. Phys., Ruchill Fever Hospital). Salary £500, rising by annual increments of £25 to £700 p.a.
- GLASGOW, CITY OF (KNIGHTSWOOD HOSPITAL): Physician Superintendent, Dr. Thos. Anderson (Dep. Phys. Supt., Ruchill Fever Hospital).
- MANCHESTER C.B.: A.M.O.H., Dr. W. P. Cargill (A.C.M.O.H., Glos. C.C.).
- MERTON AND MORDEN U.D.: Temp. A.M.O.H., Dr. Fanny Wride.
- NEWCASTLE-ON-TYNE C.B.: A.M.O.H. (Temp.), Dr. Ian E. McCracken.
- NEWTON-LE-WILLOWS & GOLBORN U.D.: M.O.H., Dr. S. K. Appleton (A.C.M.O.H., Notts C.C.).
- SCARBOROUGH M.B.: Cons. Obstetrician (Pt.-time), Dr. Mildred L. Ealing. Salary £500 p.a.
- SOUTH MIDDLESEX EMERGENCY & FEVER HOSPITAL: Deputy Medical Superintendent, Dr. Nancy K. Dick.
- STAFFORDSHIRE, WOLVERHAMPTON & DUDLEY JOINT BOARD FOR TUBERCULOSIS: Tuberculosis Officer, Dr. E. R. Bennion (F.O. & Dep. M.O.H., Greenwich Met. B.).
- STEPNEY MET. B.: A.M.O.H. (Temp.), Dr. Caroline Macade and Dr. J. P. Crichton.
- TENBURY R.D.: M.O.H., Dr. G. J. Eady.
- WOOLWICH MET. B., Deputy M.O.H., Dr. Thomas Standring (A.M.O.H., Willesden M.B.). Salary £800, rising to £1,100.
- YARMOUTH C.B.: A.M.O.H. & A.S.M.O., Dr. Alice Johnston.

CORRECTION

Dr. Stanley Rodgers was by error described in the March issue as having been appointed Assistant Medical Officer of Health to the borough of Weston-super-Mare. He is still medical officer on the central administrative staff of the London County Council and has been temporarily seconded to assist in dealing with public health problems at Weston-super-Mare and in the County of Somerset. The Assistant Medical Officer of Health to Weston-super-Mare is Dr. Kathleen Ball.

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Editorial

Regions for Tuberculosis Administration

Although we are pressed for space, Dr. Lissant Cox's exposition of the administrative problems of tuberculosis is so important that it has been published in full in the May and June issues (pages 133 and 158). It describes exactly the legislative basis of tuberculosis schemes in England and Wales and in Scotland, the local government fabric into which they have been fitted and the actual nature of the clinical and administrative organisation which has evolved in the three countries and in different types of area within them. It would be difficult, perhaps impossible, to find an equally concise, full, accurate and up-to-date account elsewhere. Dr. Lissant Cox concludes that much larger administrative units are required than usually exist, and that legislation is necessary to enforce the combination of local authorities in many areas where it has not been voluntarily accepted. In the search for an ideal size of unit, he cites the proposals of the British Hospitals Association and the Nuffield Provincial Hospitals Trust and the regionalisation of the Ministry of Health for general administrative purposes and for the management of the Emergency Hospital Scheme. He finds none of the areas so proposed or adopted to meet exactly the requirements of tuberculosis, but he seems to incline to the view that the Ministry's regions might suit if they were brought into line with existing county boundaries and some of them were subdivided. In this connection it may be mentioned that smaller groups of linked hospitals do form units within the regions of the Emergency Hospital Scheme, although some of them filter over county boundaries.

Running through Dr. Lissant Cox's discussion there may be said to be three main themes: (1) that the diagnosis and treatment of tuberculosis require specialisation; (2) that institutional beds within an administrative unit must be sufficient in number—whether in large or small institutions—to allow of proper classification of patients according to their age, sex, type and stage of disease; and (3) that there should be the closest possible contact between those who have clinical concern with the patients and those who are responsible for the improvement of their domiciliary, environmental and social circumstances. The first two of these arguments present a powerful case for large areas of administration. It is economically impracticable for small authorities, such as many of the county borough or burgh councils and even several of the county councils, to provide a staff of whole-time specialists and sufficient, well balanced institutional accommodation. But it is,

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theoretically at least, easier for what might be called the general purposes type of public health staff of the smaller authorities to correlate the special exigency of tuberculosis in a family with the social conditions which tend to make it a centre of not one but many public health problems. Dr. Lissant Cox touches on this difficulty in Wales, to which the Clement Davies Report devoted so much attention, and which has detracted from the value of an otherwise well designed scheme. He appears to be satisfied with the arrangements for interchange of information between the clinical and preventive staffs which obtain in some of the joint schemes he describes, but the mere transmission of information on paper does not ensure that a live interest will be taken in the remedy of domestic and social defects. An authority which has delegated the clinical care of tuberculosis to some other body does not readily provide senior staff with sufficient time, free from other duties, to ensure that the special environmental problems of tuberculosis receive due attention. It is this sort of difficulty in Wales, rather than any conscious or deliberate unwillingness to co-operate, which accounts for the state of affairs described in the Report of the Committee we have mentioned. The transfer of most health functions from the small district councils to county councils would be a step toward better things, but it would be better still if areas could be devised which would be suitable for the administration not only of tuberculosis schemes and of hospitals generally, but also of most other health services. The members of a common staff have obviously fewer bridges to cross in order to make contact with one another than those who are separately responsible to more or less independent masters.

It should not be forgotten, however, that compartments within large departments are apt to become watertight. The claim that the care of tuberculosis is a specialism emphasises this danger. There can be no doubt that the creation of *ad hoc* organisations for the diagnosis and treatment of tuberculosis has led to a vast improvement in the detection of those who have been infected and in their subsequent care. There is evidence that a medical practitioner of average ability who concentrates on this disease, and has at his disposal all the facilities of a specialised organisation, will make far fewer mistakes than his opposite number who becomes a consulting physician. But there may be some justification for the criticism, so often heard, that a doctor whose eye is filled with one disease is not the best consultant for the general practitioner, and it is even more difficult to answer the allegation that the great tuberculosis service of this country has made little contribution to original discovery. It may be that one of the greatest benefits of regionalisation would be to bring together hospital and other clinical staffs into a unity and promote a measure of fluidity within the unit which would counteract the sterilising effect of over-specialisation. If the public health service had not evolved in a piecemeal fashion, taking under its wing one disease, or one medical problem, or one group of the population at a time, its staffing might have taken a different form. But whatever may be the best arrangement from the clinical point of view, it is desir-

able that those who are actively concerned with the prevention of such diseases as tuberculosis in their daily work should not only be in contact with the clinicians but should themselves have sufficient practical knowledge of the disease to keep their activities on scientific lines. On the other hand, tuberculosis opens up so many other social problems that this function cannot be left solely to the specialist.

Health of the Army in India

The Annual Report on the Health of the Army in India,* which formerly was issued by the Public Health Commissioner with the Government of India, now more fittingly comes from the D.M.S. in India himself. The present volume covers the year 1939, a period marked by the outbreak of war, and throughout its pages repeated references are made to the consequent increase in preventable disease. The unusual journeys, the early return of British troops to the plains from hill stations, the overcrowding of barracks, the manning of defensive posts scattered over unhealthy areas away from the protection of cantonment life, the drafting into cantonments of infected reservists, and the numbers of recruits infected before acceptance—all these had an unfavourable influence on the Army's health. That was evidenced by a rise in hospital admission rates, which are described as higher than any recorded in recent quinquennial periods. But this state of affairs needs no apology; an army would be of little use if it were confined to cantonments in order to keep its infectious diseases' incidence at a low level. It will, however, be interesting to compare the figures for 1940, when the next report is published, with those now under review. The Army Medical Services may be expected to have had time and opportunity to organise suitable preventive measures to meet the more difficult circumstances arising from the war.

The present volume is divided into three sections, the first two dealing with British and Indian troops respectively. The third section of General W. H. Hamilton's report will be that to which most health officers will turn, for it contains interesting and instructive paragraphs on different health problems and on modern methods of preventive medicine.

Among both British and Indian troops malaria was as usual the commonest disease, although the dysentery-diarrhoea group also exacted a large toll of sickness. As regards the former, the D.M.S. pays a well-earned compliment to his trained and alert anti-malaria officers for their enthusiastic and skilled work in military cantonments. An equally deserved tribute is paid to the Malaria Institute of India and its staff for the valuable anti-malarial teaching courses given there. No one with any experience of India has any doubt of the immense debt which both military and civil authorities in India owe to the Malaria Institute. The three main anti-malarial methods practised in all cantonments are: (a) permanent drainage, (b) mosquito destruction in occupied premises, and (c) personal protection. As regards the elimination of the "carrier" mosquito, the usual well-tried methods are still in use, but recently it

* *Annual Report on the Health of the Army in India for the Year 1939*. Vol. II, Part I. Published by the Manager of Publications, Delhi. Price 5s. 3d.

has been found that breeding places can be effectively dealt with by spraying with pyrethrum solutions, the larvae being destroyed in a few seconds. Another innovation is the "dry-day," the introduction of which ensures that all potential breeding places in the cantonment are treated and that all the inhabitants sooner or later become acquainted with anti-malaria teaching. This bit of propaganda is said to have been very successful.

Some years ago the Malaria Institute of India began investigations on the results to be obtained from destruction of adult mosquitoes in houses, barracks, etc., and it was found that pyrethrum spraying markedly reduced the incidence of malaria in the communities among which the experiments were carried out. This method is now widely practised in army cantonments and is used as a defence not only against mosquitoes but against other disease-bearing insects, with, it is said, effective results. A further and more recent development is the successful cultivation of the pyrethrum plant in Kashmir and other parts of India. As the Indian-grown plants contain an equally high percentage of the pyrethrin base, and the price will be considerably lower than that of the imported drug, it is expected that this preventive method will soon be much more widely applied. Atebrin has now been used for some considerable time in India in the treatment of certain forms of malaria. An interesting paragraph gives preliminary results of the "anticipatory" treatment of malaria by atebrin and promises a final note later. It is hinted that the experiment was not very successful, and this is perhaps not altogether surprising.

Sandfly fever has for many years been a veritable bugbear in a number of Indian military stations, and more than one research enquiry on this disease has been financed by the Indian Research Fund Association. The present war has necessitated the premature closing down of the latest investigation, but, although laboratory work on blood sera failed to produce results, the value of various anti-larval methods and of insecticidal spray solutions has been successfully demonstrated. In North India, particularly, very striking reductions have been effected in the incidence of sandfly fever since the spraying campaign was vigorously prosecuted.

One of the most successful pieces of preventive work is that which has practically abolished enteric fever from both British and Indian troops in India. When it is remembered that this infection is almost ubiquitous in the civil population, it is surprising to learn that only one soldier in 2,000 was infected during the year under review. The claim is made that this result is unquestionably due to the high standard of protective immunisation with T.A.B. vaccine. The figures given in the report (even though there is a serious statistical error in the sentence following Table 69) will be of particular interest to health officers in this country at the present moment, when the question of inoculating certain groups of the population with T.A.B. vaccine is being actively discussed.

Restrictions of space prevent comment on other important subjects, such as the prevalence of the diarrhoea-dysentery group of infections, the V.D. situation, the experiments in composting, the use of bore-hole latrines, and modern prevention against heat

stroke and heat exhaustion. Much useful and interesting information is contained in the report, but owing to the somewhat unusual arrangement of its contents it is not so easy as it might be to find that information. One more word of advice may perhaps be added. If it is intended, as promised, to issue later on a volume of statistical tables as an appendix to this report, is it necessary to include so many figures in this first volume? And in these days of paper shortage it can hardly be justifiable to waste space by repeating the same figures even though these appear on different pages.

Tuberculosis in Wartime

In a symposium on tuberculosis in wartime* by Professor Edgar Collis, and Drs. Frederick Heaf and Lloyd Rusby, Professor Collis writes on "Tuberculosis and Influenza in Relation to the World War, 1914-18"—presumably because he thinks that the peculiar behaviour of these two diseases had a common cause. He says of the last war, "Its end coincided with the great and deadly influenza epidemic of the 1918-19 winter. . . . Had not the armistice intervened hostilities would almost certainly have been thereby closed down." With that personal opinion most of us would disagree. It is not indeed proven that that epidemic was a direct outcome of the war and would not have occurred otherwise. A single epidemiological experience, even on a vast scale, is not proof. When the present war burst upon us it was feared that there would be widespread epidemics as a result of dispersal of the population, and some severe late winter epidemics from the herding of people in shelters. But neither prophecy has yet been fulfilled.

As to tuberculosis, Professor Collis, whose contribution is mainly statistical, states that if 100 be taken as the tuberculosis mortality for 1851-60, in 1931-35 the figure was reduced to 10, 26.9 and 82.6 for the age-groups 0-5, 20-25 and 45-55 respectively. It is said that the rise in mortality of 1918 "can only be attributed to deficient food supply," but this is qualified by the explanation that what is meant is a food supply which is deficient having regard to energy output. To one who moved among the working-class population at that time the food supply did not appear even relatively defective but better than before the war; it is possible that overwork and too little rest were more important predisposing factors. A chart comparing real wages with tuberculosis mortality suggests a definite relationship.

Drs. Rusby and Heaf, reviewing the present position of tuberculosis, consider first the pre-war background and the various lines of research then in progress. They then come to "the period of anticipated bombing," when tuberculosis organisation and staffs were disarrayed, and "the effort to return to normal services." The statement that "tuberculous or potentially tuberculous individuals could be excluded by mass radiography and in no other way" seems a little extreme, for already the method of reference to the tuberculosis officer has led to the discovery of large numbers of such recruits. No doubt mistakes do occur, but while mass

* *Tubercle*, August-September, 1940.

radiography would probably reduce them it would not eliminate them entirely. There are some useful comments about nutrition and rationing. It is pointed out that, while in institutions with skilled catering the rations provided are adequate, it is very different in patients' homes where an all-too-meagre public assistance allowance may be the main support, and in many instances the pre-war public assistance allowances have not been increased. The various items in a balanced diet are gone through in some detail in support of the views expressed. Milk is especially important, and a cut unimportant to the majority may seriously handicap the tuberculous. Some attention is given to rehabilitation and also to medical education. It is feared that facilities for familiarising students with tuberculosis in all its aspects will be much more limited unless an effort is made by teaching centres to take greater advantage of the tuberculosis dispensaries than has been the custom in the past. As for the future, these authors foresee a remodelling of the tuberculosis campaign after the war, but exactly how it is impossible to foretell, as we do not know what the new conditions will be or how great an increase in tuberculosis will have taken place. Wider control of areas similar to the regional divisions of the Ministry of Health are suggested.

The symposium will stimulate readers to a useful mental stocktaking and direct attention to the main problems of to-day and to-morrow.

Vegetables as Food

Undeterred by the war-time difficulties confronting those who try to arrange scientific meetings, the Food Group (Nutrition Panel) of the Society of Chemical Industry continues its important series of symposia on the nation's food. At B.M.A. House on April 9th, four papers were read on the subject of vegetables as food, which it is hoped shortly to publish in *Chemistry and Industry*, the Society's official organ.

Dr. Magnus Pyke illustrated his paper on the chemical composition of vegetable foods and their place in peace-time and war-time diets by three ingenious diagrams in colour, showing how many hours' contribution was made by various four-ounce portions of vegetables to the 24-hour requirements of vitamins A, B₁, and C, and of iron and calcium, and how green and root vegetables compared in this respect with fresh fruits and certain other protective foods. Although he devoted some attention to the value of root vegetables and pulses as sources of carbohydrate, and particularly to the growing recognition of green leaves as a source of high-grade protein, he rightly stressed their primary importance, especially to-day, as sources of carotene and ascorbic acid, of iron and, to a less extent, of calcium. The greenness of leaf vegetables is closely correlated with their usefulness as protective foods.

As Dr. H. V. Taylor pointed out, plans have to take into account not only the most economical use of the available land so that it may produce the maximum supply of calories and various nutrients, but also questions of taste and palatability. Some acreage must always be set aside for herbs and spices. The major problem, however, is to analyse and to find ways to reduce the disconcertingly large gap between the tonnage of crops produced, as shown by agricultural

returns, and the amount of produce consumed, as shown by dietary surveys.

Miss Olliver and Mr. W. B. Adam stressed again that home-cooking entails a very considerable wastage, especially of water-soluble nutrients such as vitamins B₁ and C. Similar wastage occurs in the blanching process of canning. Neither cooking nor canning seems seriously to affect carotene, however, and by both methods valuable minerals and water-soluble nitrogenous compounds can be conserved, either in the stock-pot or by consuming both the liquid and solid contents of the tin. Miss Olliver has found that the relatively high ascorbic acid content of the freshly dug potato suffers a serious diminution during "clamping." A further loss takes place on peeling, whether this occurs during or after cooking, and still more disappears, mostly in the cooking water, if the peeled potato is boiled. Finally there is a rapid disappearance of the vitamin when the cooked vegetable is kept hot, even for half an hour. A portion of cooked potato may thus contain only a tenth, or even less, of the vitamin C present when the tubers were first taken from the ground.

In the discussion that followed, Dr. Leslie Harris advocated a thorough re-investigation of the biological value of vegetable protein, especially leaf protein. Several speakers called attention to the relative inferiority of carotene to pre-formed vitamin A. The Chairman, Sir John Russell, F.R.S., observed that little was known, and much needed to be learnt, about methods of production designed to influence directly the composition, and so the nutritive value, of edible crops; there was certainly no valid evidence to-day for believing that methods of cultivation could do much more than markedly affect the quantity produced.

Mothercraft Training

Two articles in this issue, by Dr. Leslie Honaden and Dr. Agnes Nicoll, put forward a convincing plea for the teaching of mothercraft to young girls. Among the many lessons of the evacuation of town populations into the country, one that stands out is the lack of care given by some mothers to their children. This is a social evil, and no doubt bad social conditions have in many instances made parental neglect almost inevitable. Nevertheless, if these mothers in their youth had been taught the elements of mothercraft and of the various difficulties they would have to meet in the bringing up of children, much of the dirt and disorder brought to light by evacuation would not have occurred. Even from a strictly utilitarian standpoint, countries such as this, with a falling birth-rate, cannot afford to allow the future mothers of succeeding generations to blunder in their parental duties through sheer ignorance. Anyone with experience of young working-class mothers cannot fail to be impressed with the pathetic beliefs that pass with them for knowledge of how to bring up children. No wonder so many of them relapse into a state of apathetic neglect.

The stirrings of maternal interest are obvious in the small girl of four or five who dotes upon her dolls. This maternal interest is sharply deflected when the child goes to school and is immersed in the intricacies of the three R's. It would surely seem right that in any

educational system not completely subordinated to the examination fetish this maternal instinct should be kept alive and catered for in different ways according to the age of the child. There should be a progressive programme, not so much of instruction, but of gradual enlightenment on the duties, function, and privilege of motherhood. Dogmatic instruction on set lines would probably defeat its own purpose. What is needed, rather, is material and scope for freedom of expression on the part of the developing girl. The student, so to speak, would set the pace, a pace commensurate with the rate of her own individual evolution. The teacher's function would be to reply to questions rather than to supply ready-made textbook answers, to guide rather than to push, to hold aloof rather than to thrust herself into the foreground. And this indeed would seem to be the crux of the question—the instruction of the instructor. A writer on a small book on the calculus began by saying, "What one fool does another can." This may be true of such a relatively simple matter. But in the teaching of mothercraft something more than mere knowledge of the "craft" is needed. Intuition, sympathy, special aptitudes of character, are probably more important. Few medical men, we may rightly suppose, would deny the value of mothercraft training, training that should start in the elementary school and continue until a girl is past her teens. Methods of selecting and training the teacher would seem to be a more difficult and a more urgent task, and one which might well engage the attention of the Maternity and Child Welfare Group of the Society of Medical Officers of Health.

London School of Hygiene*

Although the current report of the London School of Hygiene and Tropical Medicine, covering the academic year 1939-40, appears in abbreviated form, it nevertheless records in brief a considerable volume of work, and describes the action which was taken to overcome difficulties which, although not unexpected, must have proved a very severe trial to the governors and the professional staff. The School is not only the acknowledged centre for public health training in this country, it also attracts to itself students and graduate workers from many lands, and members of its own staff are constantly carrying out special investigations relating to hygiene and tropical medicine.

Sir Holburt Waring, in his introduction, records the fact that, although the work of the School has been seriously affected by the war, it is satisfactory that most of the departments have been able to remain in the school building and to continue their research and also a limited amount of teaching. It was also found possible to accommodate certain members of the staff of the university and of the Medical Research Council. Despite numerous difficulties, it was found possible to give two courses in tropical medicine for service graduates and others, each course lasting six weeks, and the regular classes for the Diploma in Tropical Medicine and Hygiene began in October, 1940. Owing

*London School of Hygiene and Tropical Medicine (University of London), incorporating the Ross Institute. Report on the work of the School for the year 1939/40. Pp. 45.

to the fact that the Emergency Public Health Laboratory Service has absorbed all the staff concerned with the teaching of the subjects for Part I of the Diploma in Public Health, it was not found to be practicable to institute the regular classes in what is essentially the main work of the School.

Sir Wilson Jameson describes briefly the School's activities in various parts of the tropics. Sir Malcolm Watson carried out an extensive tour of Southern Rhodesia, India and Ceylon in connection with malaria control, and other members of the School have been active in the Empire. Mention is also made of work in East Africa on malaria and in Kenya on filariasis. The important investigation on sub-clinical helminthiasis in Great Britain is being done outside London. A work well known to medical officers in this country is the "Memorandum on Measures of Control of Mosquito Nuisances in Great Britain," which was compiled by Colonel Sinton and Mr. Schute and issued by the Ministry of Health. The Department of Entomology has, since the beginning of the war, carried out work on the louse, which is bearing fruit in the difficult conditions associated with life in shelters.

The Department of Epidemiology and Vital Statistics has devoted much attention to subjects which are of importance at the present time, and Professor Greenwood, Dr. Bradford Hill and Mr. Russell are still carrying out a statistical investigation connected with air-raid casualties. The normal research work of the department has been continued. The Department of Public Health, despite depletion of staff, continues research, especially that concerned with regulation of skin temperature and with pulmonary disease among anthracite miners. The Ross Institute is conducting investigations into the spread of yellow fever.

It is to be hoped that the valuable work conducted under the auspices of the School will continue unhindered by the hazards of war.

Further recommendations to deal with flooding in Anderson shelters are contained in a new circular (No. 96/1941) which has been issued to all local authorities by the Ministry of Home Security. Many Anderson shelters have been abandoned by the public and local authorities because it is claimed that it is impossible to make them waterproof. The results of a survey carried out by the Ministry show that methods previously advocated for dealing with this problem can be effective if carried out honestly and with care. The circular, *Steel Shelters—Cases of Flooding*, is on sale at the Stationery Office, price 2d. It contains further suggestions for drainage, concrete tanking, construction of sumps and floors, and a method of clay puddling to seal joints. Attention is again drawn to the necessity for placing sufficient earth covering on top and round the sides and back of Anderson shelters.

At the Annual General Meeting of the Royal Sanitary Institute held on April 25th, the Right Hon. the Earl of Bessborough was elected President of the Institute in succession to Lord Balfour of Burleigh, whose period of office had expired.

CO-ORDINATION AND REGIONALISATION OF TUBERCULOSIS SERVICES IN ENGLAND, WALES AND SCOTLAND*

By G. LISSANT COX, M.D.,
Central Tuberculosis Officer, Lancashire C.C.
(Continued from page 138)

Tuberculosis Schemes in Scotland

In Scotland the prevention and treatment of tuberculosis are governed by the law of general infectious diseases as adjusted by the 1907 Amendment to the 1897 Public Health (Scotland) Act, and by the Tuberculosis Regulations made under the main Act. Under that Act local authorities have the power to control an infectious patient and to treat patients suffering or believed to be suffering from tuberculosis. The Committee on Scottish Health Services, 1936, recommended that "similar general powers should be conferred on the Scottish authorities" to those in England under the Public Health (Tuberculosis) Act, 1921.

The administrative areas are much smaller in population than those in England, as can be seen from the statement below:—

Population	Number of Counties	Number of Large Burghs
Under 25,000	6	6
25,000 to 50,000	9	11
50,000 to 100,000	10	3
100,000 to 150,000	3	—
150,000 to 200,000	—	2
200,000 to 250,000	2	—
250,000 to 500,000	1	1
500,000 to 1,000,000	—	—
1,000,000 and over	—	1

It will be seen that twenty-five counties out of thirty-one, and twenty large burghs out of twenty-four, have a population of less than 100,000.

Scotland presents special geographical difficulties.

TABLE II.—SCOTLAND.

County or Burgh	Population	Dispensaries	Medical Staff
Counties—			
Angus	77,000	None	M.O.H. is T.O. Asst. M.O.H. is Asst. T.O.
Argyllshire	61,800	None	M.O.H. is T.O. Two part-time Asst. T.O.s.
Ayrshire	211,934	Two	Dep. M.O.H. is T.O.
Banffshire	53,886	None	M.O.H. is T.O.
Berwickshire	26,402	None	Do.
Bute	16,231	None	Three part-time T.O.s.
Caithness	25,889	None	M.O.H. is T.O.
Clackmannan	32,807	One	Do.
Dumbartonshire	86,509	Four	Do. Dep. M.O.H. is Asst. T.O.
Dumfriesshire	58,277	None	Do. Asst. M.O.H. is Asst. T.O.
East Lothian	47,644	None	Do.
Fifeshire	201,476	None	Exec. T.O.
Kirkcudbrightshire	30,358	None	M.O.H. is T.O.
Lanarkshire	303,784	Six	Two senior Asst. M.O.s.H. are T.O.s.

*Memorandum submitted to the Joint Tuberculosis Council at its meeting on March 1st, 1941.

County or Burgh	Population	Dispensaries	Medical Staff
Orkney	21,730	None	M.O.H. is T.O.
Ross and Cromarty	62,704	One	M.O.H. and two Assts.
Roxburghshire	45,908	One	Dep. M.O.H. is T.O.
Selkirkshire	21,967	One	M.O.H. is T.O.
Shetland	20,704	None	Do.
Stirlingshire	110,988	Four	Do. Asst. M.O.H. is Asst. T.O.
Sutherland	15,422	None	M.O.H. is T.O.
Wigtownshire	29,783	None	Do.
Burghs—			
Airdrie	27,832	One	M.O.H. is T.O.
Arbroath	18,049	One	Do.
Ayr	40,419	One	Do.
Clydebank	47,751	One	Do.
Coatbridge	44,488	One	Do.
Dumbarton	21,813	One	Do.
Dumfries	23,696	One	Do.
Dundee	177,711	One	One T.O. and Asst.
Dunfermline	36,771	One	M.O.H. is T.O. Asst. M.O.H. is Asst. T.O.
Edinburgh	446,817	Three	T.O. and Assistant
Falkirk	38,004	One	M.O.H. is T.O.
Glasgow	1,119,863	Five	One senior Asst. M.O. for Tuberculosis; 5 Asst. T.O.s.
Greenock	80,957	One	M.O.H. is T.O. Asst. M.O.H. is Asst. T.O.
Hamilton	38,991	One	M.O.H. is T.O.
Kilmarnock	39,847	One	Do.
Kirkcaldy	44,947	One	Do.
Motherwell	67,392	Two	Do. One Asst. T.O.
Paisley	90,774	One	Deputy M.O.H. is T.O. and V.D. Officer
Perth	35,995	One	M.O.H. is T.O. Asst. M.O.H. is Asst. T.O.
Rutherglen	25,453	One	M.O.H. is T.O.
Stirling	23,667	One	Do.

Authorities Combining for Various Public Health Purposes

Aberdeenshire	350,000	Seven	One Regional M.O. for tuberculosis. Divisional M.O.s assist with tuberculosis work.
Aberdeen			
Kincardineshire			
Perthshire	90,813	None	M.O.H., Dep. M.O.H. and two assistants not specially for tuberculosis.
Kinross			
Moray	49,294	None	M.O.H. is T.O.
Nairn County			
Peeblesshire			
Midlothian	187,371	One	Asst. M.O.H. is T.O.
West Lothian			
Inverness-shire	81,472	None	M.O.H. is T.O.
Inverness			
Renfrewshire	142,513	Five	Deputy M.O.H. is T.O.
Port Glasgow			

The above table of dispensary arrangements in the counties and large burghs shows how in many small areas the medical officer of health is administrative officer and clinical officer. In such areas there is no consultant with wide knowledge and experience for the family doctors, as is the case in the large areas like Lanarkshire and Glasgow.

*See later under "Aberdeen Regional Scheme."
†Joint County Councils, constituted by the Local Government (Scotland) Act, 1929.
N.B.—Information in this table is extracted mainly from the N.A.P.T. Handbook of Tuberculosis Schemes, 1939.

Some form of regionalisation would appear to be necessary in Scotland in order that the tuberculosis arrangements may be brought to a higher standard of efficiency. Little use has been made of travelling diagnostic clinics, and these would appear to be the best solution in the remote parts of the Highlands and Islands. While much good work is being done by the Highlands and Islands Medical Service no specialist tuberculosis service exists for a great part of Scotland. Dr. Munro, the medical superintendent of Glenlomond Sanatorium, Fife, writes:—

"With regard to the actual treatment of the disease, the ideal is to secure for every sufferer from tuberculosis the advantage of the available resources of specialised treatment, and this cannot be obtained with the multiplicity of schemes operating in small areas. To secure this the pooling of resources over wider areas is essential."

"For treatment in Scotland the existing institutional accommodation should be overhauled with the object of securing that: (1) adequate treatment is given in specially staffed and equipped regional institutions for the modern treatment of pulmonary tuberculosis; (2) all cases over wide areas should go to such centres; and (3) such centres should be equipped to deal with all other forms of tuberculosis."

"There are far too many small units in Scotland. There are 115 hospitals approved for tuberculosis cases, and these give some 5,000 beds. Nineteen of these have 100 beds or more; ten have between 50 and 100 beds; and forty-four have fewer than 50 beds. There are other beds in general hospitals for non-pulmonary cases."

In my opinion there is nothing wrong in a number of small institutions if they are staffed by a team, as in Wales and Lancashire, and do not try to undertake certain forms of treatment which require large institutions. For the preventive side they can do good work, but they must be linked up with other parts of a scheme. As in England, several of the Scottish areas share or combine for parts of tuberculosis work. Thus the East Fortune Sanatorium provides specialised treatment for seven counties; but as the medical officers of health of the small combining local authorities are also tuberculosis officers with few cases each, the diagnosis of patients and after-treatment at home are weak.

ABERDEEN REGIONAL SCHEME

The Local Government (Scotland) Act, 1929, gave power to any two or more local authorities to combine for any purpose in which they were jointly interested and to form joint committees. Several local authorities have agreed to combine for public health purposes (see Table II), but the best-known scheme for tuberculosis in Scotland which has been produced and elaborated under the Act is the Aberdeen Regional Scheme.

In 1929, the town council of Aberdeen (population 177,317) and the county councils of Aberdeen (population 146,912) and Kincardine (population 26,455) agreed to form the Aberdeen Regional Scheme. Thus there is now a public health unit with a population of nearly 350,000. Under the scheme a highly successful service for the prevention and treatment of tuberculosis is operated.

The staff of the tuberculosis services consists of a regional medical officer, who is a whole-time tuberculosis specialist, and there are divisional medical officers who act as assistant medical officers of health and consult the regional tuberculosis medical officer. In Aberdeen city there are three whole-time tuberculosis health visitors who deal with cases of tuberculosis only. In Aberdeen county and in Kincardine county the tuberculosis health visiting is performed by the district nurses, who visit all statutory cases in their districts and are also engaged in general nursing. Sanitary defects in houses, etc., are reported by the sanitary inspectors, the tuberculosis health visitors or district nurses as the case may be, and by the visiting tuberculosis medical officers. In the city there are two local authority institutions where modern radiological plants have been installed, and where the regional tuberculosis medical officer has 200 beds for tuberculosis under his control. In the counties and in the city there is plenty of accommodation for the treatment of all forms of tuberculosis. It is claimed that the arrangement has worked smoothly and that no actual difficulties, administrative or otherwise, have arisen.

Regional Scheme of the British Hospitals Association

The British Hospitals Association was founded in 1884 and incorporated in 1929. It is the only body representative of the voluntary hospitals as a whole in Great Britain and Northern Ireland. In 1935 the Association set up a Commission under the chairmanship of Lord Sankey:—

"To take into consideration the present position of the voluntary hospitals of the country; to inquire whether in view of recent legislation and social developments it is desirable that any steps should be taken to promote their interests, develop their policy and safeguard their future, and to frame such recommendations as may be thought expedient."

One of the principal recommendations of this Sankey Commission was that the country should be divided into hospital regions based on the regional organisation of the British Hospitals Association. By that organisation the whole of the United Kingdom is divided into twenty-three regions, one of which covers the whole of Scotland. Of the twenty-three regions, eighteen were stated by the Commission to be active in greater or less degree, and five were to all intents and purposes inactive. Each region is governed by a regional committee which is composed of representatives from all the voluntary hospitals in the region that are members of the Association. The regional committees appoint their own honorary secretary and such other officers as they consider necessary, and organise meetings for the discussion of hospital matters in their own areas. A central body called the Council of the British Hospitals Association meets in London quarterly. Each region is entitled to at least one representative on this Council, and regions with more than 1,000 beds are entitled to an additional representative (up to five) for every 1,000 beds. Regional committees may appoint, to represent them on the Council, only those who are either presidents, treasurers, chairmen, trustees, members of the

TABLE III.—REGIONS OF MINISTRY OF HEALTH AND EMERGENCY HOSPITAL SCHEME

Region	Population	Districts
No. 1 Northern	2,679,000	Northumberland (including Newcastle and Tynemouth). Durham (including Darlington, Gateshead, S. Shields, Sunderland and West Hartlepool). Yorkshire, N. Riding (including Middlesbrough).
No. 2 North-Eastern	3,858,000	Yorkshire, E. Riding (including Kingston-upon-Hull). Yorkshire, W. Riding (including Barnsley, Bradford, Dewsbury, Doncaster, Halifax, Huddersfield, Leeds, Rotherham, Sheffield, Wakefield).
No. 3 North Midland	3,031,000	Derbyshire (part) (including Derby). Leicestershire (including Leicester). Lincolnshire (including Grimsby and Lincoln). Northants (including Northampton). Notts (including Nottingham). Rutland. Soke of Peterborough.
No. 4 Eastern	2,940,000	Bedfordshire. Cambridgeshire. Huntingdon. Norfolk (including Great Yarmouth and Norwich). Suffolk, East (including Ipswich). Suffolk, West. Isle of Ely. Essex (part) (including Southend-on-Sea). Hertfordshire (part).
No. 5 London	8,655,000	London County. Middlesex. Essex (part) (including East Ham and West Ham). Kent (part). Surrey (part) (including Croydon). Hertfordshire (part).
No. 6 Southern	2,987,000	Berkshire (including Reading). Buckinghamshire. Dorset (part). Hampshire (including Bournemouth, Portsmouth and Southampton). Oxfordshire (including Oxford). Surrey (part). Isle of Wight.
No. 7 South-Eastern	2,797,000	Cornwall. Devon (including Exeter and Plymouth). Dorset (part). Gloucestershire (including Bristol and Gloucester). Somerset (including Bath). Wiltshire.
No. 8 Wales & Monmouth	2,479,000	
No. 9 Midland	3,896,000	Hereford. Shropshire. Staffordshire (including Burton-upon-Trent, Smethwick, Stoke, Walsall, West Bromwich, and Wolverhampton). Warwickshire (including Birmingham and Coventry). Worcestershire (including Dudley and Worcester).
No. 10 North-Western	6,538,000	Cheshire (including Birkenhead, Chester, Stockport and Wallasey). Cumberland (including Carlisle). Derbyshire (part). Lancashire (including Blackburn, Burnley, Barrow-in-Furness, Blackpool, Bolton, Bootle, Bury, Liverpool, Manchester, Oldham, Preston, Rochdale, St. Helens, Salford, Southport, Warrington and Wigan). Westmorland.
No. 11 Scotland	4,976,000	
No. 12 South-Eastern	1,701,000	Kent (part) (including Canterbury). Sussex (including Brighton, Eastbourne and Hastings).

boards of management, or senior administrative officers. To expedite work there is an executive committee of the Council consisting of fifteen members which normally meets in London monthly.

The work of the Association includes efforts to unify hospital methods; the holding of annual and other conferences; the publication jointly of a year-book of voluntary hospital work and finance; and the maintenance of a central bureau of hospital information, which has published a large number of memoranda upon matters of hospital interest and importance. The Association is in close touch with the Ministry of Health and has taken part, through its representatives, in various commissions and enquiries which have been set up in recent years.

Although the Sankey Commission recognised the difficulties and shortcomings of the British Hospitals Association, they were of the opinion that it should form the basis upon which to set up a better organised and more effective machine. Since the report of the Commission was published in 1937, the Association has been trying to promote regional schemes, and has now

provisionally agreed upon the division of England and Wales into fourteen areas, each of which, it is stated, is a geographically workable hospital unit. The Nuffield Provincial Hospitals Trust is now taking a vigorous part in the promotion of such schemes of regionalisation outside London.

Emergency Hospital Scheme, Regionalisation of the Ministry of Health, and Comments thereon

EMERGENCY HOSPITAL SCHEME

In June, 1938, the Ministry of Health assumed responsibility for the organisation of an emergency hospital scheme for the reception and treatment of air-raid and other war casualties and sick, and the Department of Health for Scotland assumed a similar responsibility for that country. By this organisation the country was divided into twelve regions, of which one covered the whole of Scotland and another the whole of Wales. Under the scheme the hospital arrangements for air-raid casualties were organised by

the Ministry after consultation with the local authorities and representatives of the voluntary hospitals. Hospital officers were appointed to work out details of the organisation for the different regions and appropriate schemes suited to their respective areas. These hospital officers in the event of war were to exercise general control over the operation of the schemes; and in each county and county borough the medical officers of health were to act as their agents.

The basis of the scheme was the division of hospitals into different classes according to the use it was intended that they should serve, and the affiliation of certain of the casualty hospitals in the danger areas to each other and to appropriate hospitals outside the towns for the double purpose of giving mutual assistance and facilitating the transfer of patients to the appropriate hospitals.

MINISTRY OF HEALTH REGIONAL SCHEME

In March, 1939, the Minister of Health announced that the regionalisation of the medical staff of the Ministry of Health, which had been contemplated for some time, would be put into operation. This involved the placing of a principal regional medical officer and assistant medical officers in each of five regions in England, with headquarters in Leeds, Birmingham, London, Reading, and Manchester. In September, 1939, however, on the outbreak of the war, it was decided to amend this scheme and to adopt the same ten regions in England as in the Emergency Hospital Scheme above, Scotland and Wales each forming a separate whole region. The regions are shown above, together with the districts in each region, and the approximate populations.

Comments on Regions

There are several comments to be made on these regions from the point of view of their forming the basis for tuberculosis schemes. Many contain part only of one county or parts of several counties. Unless county councils were abolished, anti-tuberculosis measures based on these regions, with present-day legal and other arrangements, would be more confounded than ever. Except perhaps the last, No. 12, the regions are in my opinion too big for basic tuberculosis purposes, i.e., domiciliary supervision, dispensary diagnosis and treatment, isolation and treatment of most of the pulmonary cases. Some of the regions, if the county boundaries are ignored—Nos. 1, 2, 3, 4, 6, 7, 9—might be useful for certain hospital purposes—i.e., treatment of non-pulmonary disease, major chest surgery, and perhaps rehabilitation schemes. But Nos. 5, 10 and 11 would have to be divided for these purposes. Existing institutions (e.g., Papworth) would make serious anomalies if ever these regions were accepted as a basis for wider and bigger areas. Thus, patients from the Soke of Peterborough should go to Papworth (as they do), but the Soke of Peterborough is in region 3 and not in region 4.

It is possible that in spite of the difficulties described above grouping of authorities in some regional areas might be made. Thus, to take region 4 (Eastern), there would, in my opinion, be considerable advantages if for general tuberculosis purposes, prevention and treatment, two divisions were made—one to be a combination of Bedfordshire, Cambridgeshire, Huntingdonshire and Isle of Ely, and the other, Norfolk, Norwich, Suffolk East, Suffolk West, Ipswich and Great Yarmouth.

Summary

ENGLAND

1. Many local authorities are not large enough to deal adequately with prevention and treatment of tuberculosis on modern lines. Some form of combination or regionalisation is required throughout England and Scotland. It already exists in Wales.

2. It will be appreciated that the special problem in any tuberculosis scheme is the combination of prevention and treatment; and any scheme which does not provide full and proper combination of means for prevention as well as for treatment is a bad scheme.

3. Prevention of tuberculosis in England is undertaken by the county boroughs, non-county boroughs, urban districts and rural districts (but not by counties as such) under the Public Health (Tuberculosis) Regulations, 1930, with roots in the 1875 and 1896 Public Health Acts.

4. Treatment of tuberculosis is the responsibility of the counties and county boroughs and originated in compulsory form from the National Insurance Act of 1911, the Public Health (Tuberculosis) Act of 1921, and consolidated in the Public Health Act of 1936. The obligation is definite and clear as the exact wording shows:

Public Health Act, 1936. Sec. 171.—(1) It shall be the duty of the council of every county and county borough to make adequate arrangements for the treatment of persons in their county or borough who are suffering from tuberculosis, at or in dispensaries, sanatoria, and other institutions approved by the Minister.

5. The councils of counties and county boroughs responsible for the organisation of tuberculosis schemes in England deal with populations varying from under 50,000 to 2,000,000 (excepting London), and the counties vary considerably in geographical area. Although these authorities are supposed to have schemes similar in efficiency and completeness, in practice it is found that this is not the case. It is well known, also, that the schemes of similar local authorities vary on account of the calibre and vision of the authority and the staff they employ. But for so complicated and expensive a public health work as a complete anti-tuberculosis scheme, a large authority is in a position to provide more economically a modern scheme than a small and poor authority.

6. There are some relatively small counties and county boroughs with schemes whose efficiency is not low, but they are usually fortunate in having a person of exceptional ability to direct the scheme or having in the area peculiar advantages.

7. Many of the smaller authorities would have the efficiency of their schemes improved if they combined one with another or with the county area adjoining. There is ample legislation to enable local authorities, if they wish, to combine and form joint committees or joint boards for the purpose of carrying out their statutory duties in regard to tuberculosis. But joint committees or joint boards dealing with tuberculosis on a wider scale than an individual authority are rare in England. There are only three: (1) Staffordshire, Wolverhampton and Dudley Joint Board for Tuberculosis; (2) Gloucestershire Joint Board for Tuberculosis; and (3) Warwickshire and Coventry Joint Committee for Tuberculosis. The action of these local authorities in combining has resulted in the setting up of three efficient schemes for the prevention and treatment of tuberculosis, and there is more co-operation between the institutional side and

the dispensary side and more team work than in many of the individual county or county borough schemes.

8. It is possible, by agreement, for a small authority to have its tuberculosis work done by a larger authority. An example of this is the small county borough of Canterbury, which has its tuberculosis work done by the Kent county council.

9. The Joint Tuberculosis Council in 1932 recommended that rural areas of 200,000 and urban areas of 300,000 could be managed by one whole-time tuberculosis officer with adequate medical and clerical assistance. They also recommended that a small area should form with an adjacent area a joint committee to administer the tuberculosis scheme, or alternatively that a small area should allow its work to be done, under agreement, by a larger authority.

10. Areas adequate for some aspects of tuberculosis work—for example, isolation, nursing and some minor surgical treatment—can be smaller than areas for more specialised treatment. Thus, treatment for non-pulmonary disease (especially bones and joints) for children and adults can only be dealt with efficiently and economically by large areas (or combinations of small areas), and the institutions should be large. Major thoracic surgical work requires similar arrangements. Every tuberculous patient should have the opportunity to receive modern treatment.

11. As is indicated in 7 above, local authorities are unwilling to surrender any of their powers under the Public Health Acts. Legislation should be enacted to enforce the combination of authorities too small to provide efficient schemes.

WALES

12. In Wales and Monmouthshire the diagnosis and treatment of tuberculosis are most efficiently conducted by the Welsh National Memorial Association. This Association is in reality a combination of the thirteen counties and four county boroughs in Wales for tuberculosis purposes. It is a regional scheme on a big scale. But in the matter of prevention the Association scheme is weak. We know from the report of the Committee of Inquiry into Anti-Tuberculosis Services in Wales and Monmouthshire that the responsibilities of local authorities in the matter of prevention have not been properly realised, and their duties and those of many of the part-time medical officers of health have been neglected. This again is an argument for larger local authorities, for a prime cause of the neglect has been the small size and inadequate financial resources of these bodies. The very excellence of the Memorial Association scheme on the diagnosis and treatment side seems to have been an excuse for neglect on the preventive side.

SCOTLAND

13. The prevention and treatment of tuberculosis in Scotland are governed by the law of general infectious diseases, and it would appear that general powers should be conferred on the Scottish authorities similar to those in England.

14. There are special geographical difficulties in many parts of Scotland, and for the purpose of diagnosis travelling clinics would appear to be the best solution.

15. The administrative areas are smaller in population than in England, and these small independent authorities in nearly every case have a medical officer of health who is also the clinical tuberculosis officer. This for the purpose of diagnosis is a bad arrangement, and is one of many reasons for the necessity for reorganisation and regionalisation in Scotland.

16. A very good example of successful and efficient regionalisation is the Aberdeen Regional Scheme.

BRITISH HOSPITALS ASSOCIATION

17. An example of regionalisation is provided by the scheme of the British Hospitals Association. For many years this Association has had an organisation by which the country is divided into twenty-three regions, one of which covers the whole of Scotland. The regions have committees and honorary secretaries and hold meetings for the discussion of hospital matters in their areas; there is a central council which meets in London. As the result of a Commission which reported on voluntary hospital matters in 1937, the Association have now provisionally agreed upon the division of England and Wales into fourteen regions for their purposes. It may well be that the tendency is not so much to increase the size of the areas as to decrease the number of regional bodies, as it was stated in the Commission's report that five of the twenty-three regions were "to all intents and purposes inactive."

EMERGENCY HOSPITAL SCHEME AND REGIONALISATION OF MINISTRY OF HEALTH

18. There are two recent examples of regionalisation in the country for health and war purposes. One is the Emergency Hospital Scheme of the Emergency Medical Service, and the other is decentralisation of a large part of the staff of the Ministry of Health.

19. In 1938 the Ministry of Health organised a hospital scheme for air-raid and other war casualties. For this purpose the whole country was divided into twelve regions, one of which covered the whole of Scotland and another the whole of Wales.

20. On the outbreak of war, also, the Ministry of Health, for its long contemplated decentralisation, adopted the same regions as in the Emergency Hospital Scheme.

21. The Emergency Medical Service regions—twelve for Great Britain—do not lend themselves for tuberculosis areas for various reasons. Many contain part only of one county or parts of several counties. Unless county councils were abolished, anti-tuberculosis measures based on these regions, with present-day legal and other arrangements, would be more confounded than ever.

22. Except perhaps one, the regions are too big for basic tuberculosis purposes—i.e., domiciliary supervision, dispensary diagnosis and treatment, isolation and treatment of most of the pulmonary cases.

23. Some of the regions, if the county boundaries were ignored, might be useful for certain hospital purposes—i.e., treatment of non-pulmonary disease, major chest surgery, and perhaps rehabilitation schemes—but three of them would have to be divided for these purposes.

24. It is possible, however, that in spite of the difficulties described above, grouping of authorities in some regional areas might be made.

Conclusions

1. While the efficiency of prevention and treatment of tuberculosis is related to size of area, population and rateable value, it depends even more on the concept of anti-tuberculosis work and the personnel who carry out the work. Many of the small authorities, however, do fall short of the high standard attained by some of the large authorities. If it were not for the fact that some of the small areas already combine in an unorganised way for part or parts of prevention, diagnosis and treatment, the general efficiency of their work would be lower than at present.

2. The best way to improve the efficiency and economy of the tuberculosis schemes of the small counties and

county boroughs is to aim at regionalisation, but not necessarily regionalisation on the exact lines of the Emergency Medical Service. The Ministry of Health, when making their "survey" reports on the public health services in an area, should bear closely in mind whether the tuberculosis scheme would not be more effective if merged into a much larger administrative unit. Legislation will be required to enforce a combination of local authorities held to be too small to provide efficient schemes.

THE NATIONAL TEACHING OF MOTHERCRAFT*

By LESLIE GEORGE HOUSDEN, M.D.,

*Chairman, Mothercraft Teaching Sub-Committee,
National Association for Maternity and Child
Welfare Centres and for Prevention of Infant
Mortality.*

The National Association for Maternity and Child Welfare Centres and for the Prevention of Infant Mortality is convinced that the teaching of mothercraft, on a national scale, is necessary for the improvement of the nation's health, but it realises that such general teaching will be instituted officially only when there is a public demand for it. This demand must be created, and the members of this maternity and child welfare group of the Society of Medical Officers of Health will be in an especially favourable position to assist in its creation once they are convinced of its necessity.

It has long been known to the Association, whose representative I am, that all was not well with the children of Great Britain. Although it is the National Association of Maternity and Child Welfare Centres, it has wider opportunities than its title would imply of finding out how our children are faring. Such knowledge can be obtained only in the children's homes. Welfare centres have this in common with peace-conferences and prayer-meetings—that those who need them most, often stay away. But the Association's committees include members, both medical and non-medical, who have an intimate knowledge of the insides of homes and of what passes in them for family life. That is how they knew that the state of child-rearing in many districts was of a low standard; but the authorities and the general public did not seem to have the same insight into the matter.

Lessons of Evacuation

Then came the evacuation at the beginning of the war. I do not think it is necessary for me to say anything about the condition of some of these evacuated children except this—that the accounts published about them were not, to my personal knowledge, exaggerated. They were, as *The Times* said, "horrible children." Some sought to explain their condition by saying that they were slum-children, the products of horrible housing; but this was only a fraction of the truth. In one district, where many families had been moved from their slums into brand-new council houses, 20 per cent.

* Paper read before the Maternity and Child Welfare Group, Society of Medical Officers of Health, March 29th, 1941.

showed no change whatever in cleanliness and mode of living, and in a further 20 per cent. the improvement was only slight. That their condition was not due to any innate horribleness of the children themselves has been proved by the changing in a few months of so many of these young horrors into attractive and lovable children, through the care of capable and motherly women. And in that change we find the answer to "why were the children horrible?" Their condition was due to the neglect of their parents, who often showed a lack not only of knowledge but also of interest in the rearing of their families.

Leaving aside the humanitarian aspect of the case, such children are liabilities to the State. They are civic parasites and the country should be rid of them, not by extermination but by preventing their becoming parasites. Whatever the condition of the world at the end of this mad slaughter, one fact is certain. Children will still be born to people the earth, and the parents of those children will be the children of to-day. It is the hope of the National Association that those parents will be better instructed than were their own mothers and fathers, and for that reason and that reason only they have inaugurated the National Mothercraft Teaching Movement.

So much by way of introduction. We may take it as proved by the evacuation that many thousands of children are reared annually in this country under conditions that are physically, mentally and morally deplorable. That in itself should awaken the country to the need for mothercraft teaching, but I want now to draw attention to the far greater number of children whose upbringing is mismanaged, rather than neglected.

Dangers of Mismanagement

In far too many of our homes to-day young people marry without any thought for the upbringing of their children. Sometimes the marriage takes place because an unwanted baby is discovered to be already on the way. Young people often have no interest whatever in children, but this does not prevent their arrival, and in most of these homes a baby is in due course born to parents who do not know how a baby should look or what he should do. From the start he is a constant source of worry to them and they readily listen to their friends, relations and neighbours, who are eager to offer advice. Under such conditions it is impossible to rear a young baby satisfactorily. The anxiety of the mother, by itself, is sufficient to increase her baby's restlessness and crying, and this crying becomes the focusing point of the household's activities. The parents cannot decide for themselves why the baby is crying, and, even in the interludes, find themselves listening for it to restart. There arises in the house a nervous tension which upsets everybody. Nights are broken, and both parents and baby become worn with insufficient sleep. This is an atmosphere that is productive of bad habits, one after another. Unable to content her baby by management, the mother seeks the aid of patent medicines of various kinds. The so-called "comforter" or dummy is pressed into service, and quite early the baby is weaned from the breast. Meanwhile, her fretful baby keeps the mother from the orderly pursuit of her household duties, and

all the time she is gnawed by the anxiety that her baby is not doing well.

One of the most important points emphasised in mothercraft teaching is that all babies are born healthy and are much more likely to stay healthy than to become ill. This is taught for a good reason. The mother who believes this has a mind freed from anxiety. She is able to regard crying and other small irregularities as matters for adjustment by management in a healthy baby and not as signs of impending disaster in a diseased one. Criticism of this teaching that all babies are born healthy has been made on the ground that a number are born with syphilis, morbus cordis and cleft palate. A mother of such a baby would know soon enough that her baby was abnormal and the matter would be one for her doctor, but if we teach what is scientifically true—that most babies are born healthy—the whole object of the teaching is lost. One of the greatest needs to-day is to imbue mothers with confidence. If they are taught that all babies are born healthy they are given this confidence, but if only that most babies are born healthy, then some are only too likely to feel that theirs are the unfortunates who are not among the healthy ones. Everyone who has practical experience of them must know that mothers, particularly the mothers of first babies, are more likely than not to look for signs of ill-health and poor progress in their quite normal progeny.

Nervous and Digestive Disorders

The largest groups among the patients of most children's doctors are formed by those suffering from disorders of the digestive and nervous systems, but it is not so generally recognised that such disorders are manufactured in the houses of uninstructed mothers. In the case of digestion, an instructed mother who feeds her baby sensibly, first at her breast and then on a well-chosen mixed diet, has no cause to seek medical advice. With the uninstructed and consequently nervous mother the matter is very different. Having usually weaned her baby from the breast early and needlessly, she proceeds to try out a variety of unnatural foods and milks, with varying results. In extreme cases the babies die or become hospital patients, but usually they merely fail to flourish and become constipated. Aperient medicines are then started and the children grow up in the belief that their bowels will not act without the aid of drugs. This dangerous belief is entirely wrong. Granted that unsuitable foods will cause hard motions, painful to pass, the chief cause of constipation in children still remains, not an inability of the bowel to perform its functions, but the inability of the mother to insist on its performance. It is the same with diet. Leaving out of account the very few children who from allergic or other cause react badly to certain food ingredients, those who cannot eat fish or green vegetables or who cannot drink milk are the ones whose mothers failed to get them to take these foods as part of their ordinary diet. With the knowledge imparted by mothercraft teaching, the numbers of children suffering from constipation, indigestion, weak stomachs and the many allied disorders could be reduced almost to disappearance.

It is the same with nervous disorders. They, too, are manufactured in our uninstructed homes. Far too many mothers expect their children to be nervous. The jump, caused by a sudden noise near the cot, is taken as the first sign. It is in fact no more a sign of nervousness than is the contraction of the pupil on exposure to a light. Both are reflexes, but for many a mother the jump stamps her baby as nervous. She tells her friends about it and they agree with her. The news goes round—baby is nervous. And this nervousness becomes impressed on his growing consciousness at the earliest possible moment of his comprehension. For the same reason he grows up to be shy. If a child in his second year is invited by a stranger to come to her, confidently and with invitation in her voice, gesture and expression, that child will come—but not without a perfectly normal hesitation, during which he comprehends the invitation and prepares to accede to it. It is during this pause that the untaught mother usually says, "Go along now, don't be shy" (often with a little physical encouragement in the form of a push); or, "I'm afraid he's very shy with strangers." The child is as much taught to be nervous and shy as he is taught to use a spoon. It is not so much any particular action of the mother as the influence on all her actions, thoughts, speech and behaviour of the obsession that her child is nervous. Mothercraft teaching makes this clear. It points out how sudden clutchings and warning cries teach a child fear of physical injury, how night-lights and sitting by the cot teach him fear of darkness, and how anxiety for good behaviour and extravagant methods to ensure it produce the bed-wetter.

The Mother's Example

In uninstructed households another aspect of mismanagement becomes apparent. The mother, weary and anxious, has no time for real motherliness. She loves her children in an abstract manner, but in practice finds them a hindrance to the performance of her daily work. The children, lacking sympathetic guidance, become fretful and quarrelsome and get into mischief. The mother then behaves towards them, not in any carefully considered manner, but in whatever manner she feels will ease the tension of the moment, without thought of its effect on the child's character. She will alternately pet and scold and will lie incessantly. If one sits in a room where such a mother is trying to undress a reluctant child, one will be struck by the fact that her flow of conversation has not one word of truth in it. She will threaten to spank her child (but does not), will tell him that she will go away (but make no show of doing so), and will attempt to startle him into temporary submission by imagining the sudden appearance of Daddy, gee-gees, aeroplanes, policemen or whatever else occur to her, none of which is actually there. The mother has sunk into this low level of child management by a process of auto-suggestion. Just as she knows that her child is nervous, so she knows that he will not do as she tells him. It is no good for her to expect to be obeyed for she knows that obedience is not forthcoming, and so she holds out lying inducements without any hope of their

success. In time they become just words, neither true nor false but meaningless.

This kind of treatment has two most harmful effects on the child. In the first place the mother loses all authority over him, and, in the second, he grows up with no grasp of the value of veracity. When so much that the mother says is untrue, why should the child tell the truth? The moral atmosphere of the house becomes bad, and as for the joy of each other's company—where is it?

Mothercraft teaching emphasises the importance of the personal environment. It shows how children will grow in thought and behaviour according to the lives of those who constantly surround them. This conception is of the highest importance if happy, contented children are to be reared—children who will come to manhood and womanhood with a sense of good citizenship and a desire to be of service to their fellows. There is nothing complicated or obscure in the teaching. It merely shows how much ease of mind and happiness follow the rearing of children on a carefully devised plan—one, moreover, that has been thought out by mother and father together. It is only because we are discussing mothercraft that I am ignoring the important part played by a father in the rearing of his family. Sympathetic parental co-operation is essential.

Mothercraft Instruction for Young Girls

I have only touched on the scope of mothercraft teaching. The National Association have, however, no doubt about this teaching and have published a standard schedule and textbooks, which are available to all who are interested. But from what I have said, and, indeed, from ordinary observation, it must be obvious that from the points of view of health, happiness, economy and good citizenship, the instruction of girls in the unbringing of their children, before the first one is born, will result in the improvement of the national health. No one should achieve motherhood without first acquiring an adequate knowledge of mothercraft. Such knowledge would best be given between the ages of 16 and 20; but that is not at present possible. Once a girl has left school she is a free agent, and the subject of mothercraft is not yet sufficiently understood to make it sought after on a national scale. Only before the school-leaving age can the teaching be given on a national scale, and that is one of the chief aims of the National Association—that mothercraft shall be taught to every girl between the ages of 12 and 14, and that the subject shall be made so interesting that she will continue the study, voluntarily, when she has left school.

There is one point here that must be made quite clear. There are two subjects, related but separate, knowledge of which is necessary to any girl who intends to marry. One is "mothercraft" and the other is "the preparation for motherhood." It is not suggested for one moment that young girls should be lectured on the preparation for motherhood. All that it is wished to teach on the practical management of infants and children can be taught to any girl without adversely affecting her mental or moral outlook in any way whatever.

Now if the need for this teaching is so urgent, why has it not been organised already by the medical and educational authorities? For we know, from enquiries made, that the school teaching of mothercraft in Great Britain is both scanty in amount and inadequate in scope. Surely the answer is that these authorities are not aware of the urgency of that need. The Board of Education, indeed, have said so. With the best will in the world, it must be very difficult for those in offices to appreciate the home conditions—the mental and nervous home conditions—in which so many children are reared to-day. In my opinion, and I believe that it is the opinion held by the National Association as a whole, there are only two reasons that could be advanced against the national teaching that we advocate—its cost, and the availability of efficient teachers in sufficient numbers. The question of teachers is well on the way to solution, but I should like to say just a few words on the subject of expense.

Expense of Mothercraft Training

Vast sums of money are spent in this country each year on account of invalidism. Hospitals, sanatoria and welfare clinics of various kinds spend millions of pounds yearly in restoring, or attempting to restore, good health that should never have been lost. I am referring not to disease but to ill-health, such as is largely preventable by good mothercraft. Juvenile courts, approved schools and prisons absorb more millions. Asylums and homes for the feeble-minded swell the expenditure. Fortunes fall into the hands of the proprietors of patent medicines that are so eagerly swallowed by the public and its children. How then can we say that the country cannot afford the introduction of national mothercraft teaching? The cost, in any case, would be comparatively small, and the saving of public money in other ways would pay for it over and over again. Mothercraft teaches that healthy parents have healthy children, that such children will grow up strong and healthy without difficulty, and that the sympathetic understanding of their parents will cause them to grow into contented, self-respecting girls and boys. With this teaching part of the curriculum of every girl in the country, the reduction in the numbers of congenital invalids, of sick, weakly and nervous children and of moral delinquents will save money that will be available not only for mothercraft teaching but for better housing and recreation as well. I am a believer in the regular medical examination of children to discover the first signs of preventable disease and deformities, and have no wish whatever to do away with useful health services, but the first responsibility for the health of her children should rest always with the mother. A large number of children are now brought to infant welfare centres because preventable mismanagement has already occurred. It is bad for the children to have been wrongly treated, and it is bad for the country's finances that centres should have to be provided for dealing with them. With the confidence born of knowledge and an appreciation of the importance of her personal watchfulness and example, a mother can rear her children with very little help from expensive public services, whether they be those of physical

health or of moral welfare. I would give it as an axiom that the more a mother knows about the care of her children the less they will cost the State. How then can the cost of national mothercraft teaching be used as an argument against it?

The study of family life in all grades of society for nearly 20 years, together with the more detailed study afforded by the rearing of my own family, have made me so certain of the national importance of a knowledge of mothercraft to all mothers that I find it difficult to understand how any thoughtful person can doubt it. The national mothercraft teaching movement, being new, has no actual opposition, but it is met with considerable indifference. This must be dispelled, for it is a movement that will play an important part in restoring health and happiness to the country after the war.

THE NATIONAL TEACHING OF MOTHERCRAFT BEFORE MARRIAGE

History of the Movement*

By AGNES NICOLL, M.A., M.B., CH.B., D.P.H.,
Late Assistant Medical Officer, Willesden Borough Council

This movement started in January, 1937, when Dr. Leslie Housden wrote to the National Association for the Prevention of Infant Mortality urging that steps should be taken to "ensure that no girl should attain motherhood without having had adequate practical instruction in mothercraft." The National Association for the Prevention of Infant Mortality and the Association of Maternity and Child Welfare Centres were then in process of amalgamation, and one of the first acts of the joint executive committee was to appoint a special subcommittee to be called the Mothercraft Teaching Subcommittee, with Dr. Housden's desideratum as its terms of reference. The subcommittee was a small one to begin with, but was fortunate in securing Dr. G. F. McCleary as its chairman. When he left for America in 1939 he was succeeded by Dr. Leslie Housden. Work has gone on steadily and the membership has been strengthened by the addition of representatives from most of the organisations concerned with health, child welfare, and the teaching of girls.

Evolution of Scheme

The first meeting was held on January 15th, 1938. The position at this time was that many people were alive to the fact that, however well the subject of mothercraft was taught in centres, it came too late. The Board of Education had shown some awareness of this in that it had directed that teaching of infant care should be included in the domestic science classes in schools. It had even arranged for the teachers of domestic science to have some instruction on this subject in order that they might teach it. In 1929, indeed, it had approached Miss Halford and had had some short classes arranged for such teachers. The teaching given in schools was, with exceptions, per-

functory, given by people who knew little or nothing about it, and aroused no interest to speak of in the pupils. Also, between the appointment of the subcommittee and this first meeting another point had been raised. By this time I had started a pioneer class in mothercraft in Kilburn Polytechnic Evening Institute (M.C.C.) and had run it for two years. This class has since been broken up by the war, but it served to show that such a class was feasible; it provided a trial syllabus and a trial list of equipment, and it demonstrated that an examination would be required. This last point was brought to the notice of the subcommittee, and its first task was to evolve a practicable scheme for the teaching of mothercraft on a national scale and to persuade the executive committee of the National Association of Maternity and Child Welfare Centres to sponsor it and to constitute itself an examining board in the subject. In June, 1938, this was done, and the subcommittee were instructed to draw up for approval detailed syllabuses and regulations for the conduct of examinations. After many meetings, discussions and revisions the regulations and syllabus were finally approved in February, 1939, and instructions given to have them printed and available for circulation.

Inquiries and Propaganda

This marked a definite stage in progress. In addition to carrying on with the routine of preparing lists of books, sets of sample questions, panel of examiners, etc., the subcommittee was now in a position to make suggestions for propaganda to the committee and, through its members, to approach the Press and public with something definite to offer.

In April, 1939, certain groups of medical officers of health were approached; the scheme was submitted and criticisms and co-operation asked for. One hundred and seventy-two letters were sent and only twenty-nine replies received. Out of these seven were definitely co-operative, two were quite satisfied with present conditions, two thought no useful purpose would be served, and fourteen thought the time inappropriate but promised co-operation after the war. Shortly after this, an inquiry was directed to 138 Directors of Education with a view to finding out what was already being done and whether any examination was held after such instruction as was given in their schools. In this case fifty-eight replies were received, and a study of these showed only too plainly that with few exceptions there was neither any attempt to teach the subject properly nor any realisation that it mattered to the country.

This brought the subcommittee to October, 1939 and to the decision that public opinion must be educated; a vigorous campaign was started by personal and written approach to individuals, organisations, and the Press. The Board of Education received a delegation in January, 1940, and the Ministry of Health later in the same month. The Board expressed agreement as to the need in the case of girls of 16 and over, thought that teaching should be given in day continuation classes on the lines of the scheme if and when these became compulsory, and promised encouragement later. There was very little encouragement in respect of the teaching to girls of 12 to 14, and an objection was raised to the

idea that the teaching should be given by health visitors in these schools. The Ministry, though approving in theory, was not prepared to give active co-operation or to spend money.

Results and Projects

To meet the objection of the Board of Education to health visitors' entering the schools as teachers of mothercraft, the subcommittee, with the kind assistance of the Director of Hygiene of Battersea Polytechnic, has drawn up a syllabus of training in mothercraft which could be taken by a teacher as a "deferred third year" special training, and which would be sufficient to enable her to go back and teach mothercraft in her own school. This was submitted to three heads of training colleges in London for approval. Two thought it practicable and were prepared to support it and submit it to the Board if there were any demand. One disapproved of teaching mothercraft to girls of 12 to 14 on psychological grounds, though in full sympathy with the scheme for older girls.

The College of Nursing is very interested and co-operative, has sent a representative to the subcommittee, and is prepared to train in the art of teaching nurses who propose to take up this work. It considers that the teaching in the elementary schools should be given by nurses. It has itself approached the Board on the subject and refuses to be discouraged. The Women Public Health Officers' Association sent a representative, as has the Society of Medical Officers of Health. Co-operation of other bodies and the interest of the lay and medical Press has been forthcoming.

The response to all this propaganda had been very promising up to last summer, when this paper was written. Many inquiries were received with a view to getting classes started. The National Council of Girl Guides at Gateshead had a class going with a local maternity and child welfare medical officer as lecturer, and a nurse demonstrator and twenty-two pupils. Many teachers were anxious to get classes started in their schools. In Aberdeen, for example, a specially qualified woman was appointed for this purpose, and is already working. In Edinburgh a meeting of social workers and health visitors and other influential persons was addressed by me on the subject last summer, and a committee was formed to consider it. Towards the end of the year almost all the organisations dealing with women and with education in that city were personally seen and the movement and scheme explained, and although nothing in the way of a practicable proposal to start classes was achieved, the way has been prepared for action later.

During the autumn and winter there was necessarily some interruption of the subcommittee's activities. It is now meeting regularly. All that is needed now, apart from the continuing education of the public, is a lead from the Board of Education, the Ministry of Health, local health and education authorities, local maternity and child welfare officers, medical practitioners, and persons who lead public opinion in "fashions of thought." Members of the maternity and child welfare group can help chiefly by stimulating the formation of classes in their areas by being willing to act as lecturers for senior classes or by finding

suitable lecturers; by persuading their best-suited health visitors to be interested and to act as teachers or demonstrators; and by acting as examiners or suggesting the names of suitable local examiners. They can also get in touch with local teachers on the prickly subject of who is to teach the subject in schools, and try to get consent to one of the alternative methods—health visitor specially trained to impart her knowledge, or teacher specially trained in the essentials of mothercraft.

BOOK REVIEWS

Venereal Diseases. By E. T. BURKE, D.S.O., M.B., CH.B. (GLAS.). 1940. London: H. K. Lewis & Co. 133 illustrations and six coloured plates. Pp. xv + 549. Price 30s. net.

It is very appropriate that Colonel Burke should have produced his work on venereal disease just when it was most required. Although current information does not suggest that the expected increase in venereal diseases has yet materialised, it is certain that many practitioners now in the Services will have to learn modern methods of dealing with such conditions.

Colonel Burke has had a very wide experience in the East, at Salford, and during the last few years as head of the L.C.C. Whitechapel Clinic. He could, therefore, have produced a valuable treatise on current practice in treating. Instead, he has chosen to give an exposition of his own highly personal views, and in his preface admits that certain parts of the book may be considered heretical. The sections which deal with the pathogenesis of syphilis and gonorrhoea respectively are especially open to criticism from this aspect. For example, Dr. Burke adopts the view that the *Treponema pallidum* has a life cycle, and that the treponema itself is not the infective phase. He considers that the lymphocyte acts essentially as a phagocyte in syphilis; its function is to produce and carry a ferment. There is a sex difference in these diseases, and the female is the natural host of the *Treponema pallidum*. The gumma is not the typical lesion of chronic syphilis. So far as the time-honoured classification is concerned, Dr. Burke rejects the terms acute and chronic, and divides the whole stage of the diseases into eight phases, which may merge into each other. While, therefore, the acute disease may be "cured" spontaneously so far as the non-appearance of chronic manifestations is concerned, inefficient treatment of the acute phase is likely to be worse than no treatment at all, in that it may serve to stimulate the spread of the organisms throughout the viscera.

Colonel Burke is also a heretic regarding the pathogenesis of gonorrhoea. He adopts the view that the gonococcus is not really intracellular in the acute phase, but that it is attracted to the surface of the leucocytes by positive chemotaxis. The leucocytes do not, therefore, play a phagocytic part and no useful purpose is served by increasing the number of leucocytes.

It should be said that the author gives clear indications to his potential followers of the statements which are unorthodox. There should be no excuse for anyone who uses this book to say that he is not aware that

* Paper read at a luncheon-discussion of the Maternity and Child Welfare Group of the Society of Medical Officers of Health, on March 19th, 1941.

any particular opinion happens to be that of the author. Apart from these few sections the work is a most valuable contribution to the subject. The clinical descriptions are especially lucid and comprehensive, and the sections on treatment are as full as could be reasonably desired. As regards the latter, the book is essentially an exposition of the methods which are used at the Whitechapel Clinic, and important points are the assessment of the efficacy of a course of anti-syphilitic treatment by means of the efficiency index, the sections on the use of sulphonamides in gonorrhoea, and the description of the Kettering hypertherm. The author puts in a strong plea for the routine performance of the Wassermann reaction in all pregnant women. Gonorrhoea is fully dealt with. Colonel Burke condemns the indiscriminate use of sulphonamides, and suggests that the introduction of these drugs in the treatment of gonorrhoea is not an unmixed blessing. The ease with which the acute phase is "cured" may lead to an increase in relapses and of the defaulter rate; consequently there may be an increase of both gonorrhoea and syphilis at a later date.

This book must be considered as a very important contribution to the subject. It will undoubtedly be widely read by practitioners and students. In the next edition the author should consider documenting statements drawn from the experience of himself and of others—such, for example, as the remark that 8 per cent. of *post-mortem* cases of syphilis show syphilitic infection of the lung.

Preventive Medicine. By MARK F. BOYD, M.D., M.S., C.P.H., Field Staff Member, International Health Division of the Rockefeller Foundation; formerly Professor of Bacteriology and Preventive Medicine in the Medical Department of the University of Texas. Sixth edition. Revised 1940. London and Philadelphia: W. B. Saunders Co. Pp. xi + 588. With 168 figs. Price 25s. net.

This standard American textbook retains in its sixth edition precisely its original form. It is, however, materially enlarged and extensively revised in the light of modern knowledge. By far the largest of its eight sections is devoted to diseases due to invading micro-organisms, including not only descriptions of most of the diseases communicable to man and their prevention, but also accounts of the large-scale engineering methods of ensuring the purity of water-supplies, disposing of sewage, pasteurising milk, etc. The other sections deal with deficiency diseases, occupational diseases, the puerperal state, heredity and disease, special aspects of hygiene and sanitation, demography and public health. The book is copiously illustrated, most of the figures being good and relevant to the text. It is intended for students and practitioners in the U.S.A., where the laudable object is to interest and instruct fully the majority of doctors in the principles and practice of hygiene, rather than to give to all a smattering of the subject and train intensively a selected few, as we do here. If anything, the material in this book may prove a little indigestible to the student, presenting as it does a large mass of information on many subjects which are not closely related to one another. Its very pro-

fuseness may tend to leave him with the impression that there is not much more to be learned in his subsequent practical career. The book will be useful to him, however, for subsequent reference and is quite good as a basic textbook for those pursuing post-graduate studies in public health. The revision has brought it well up to date on the whole, although one does not expect to find a bald statement that "hogs become infected (with trichiniasis) from eating infected rats" in a modern American publication. Throughout the text mention is made of the names of many workers and discoverers whose writing do not appear or are not easily found in the bibliography contained in the appendix. This practice is irritating and seems to serve little practical purpose.

Man, Microbe and Malady. By Dr. JOHN DREW. 1940. Harmondsworth, Middlesex. Allen Lane. Pelican Books. Pp. 218. Price 6d.

The Physiology of Sex and Its Social Implications. By KENNETH WALKER. 1940. Harmondsworth, Middlesex. Allen Lane. Pelican Books. Pp. 157. Price 6d.

The war does not seem to have made much difference to the activities of the publishers of Penguin and Pelican books, and the two noted above are among the first to appear on medical matters. Both these books have been especially written for this series, and the publishers are to be congratulated on two interesting productions which should be very popular. Dr. Drew's book deals simply with the whole of bacteriology, including the classification and general physiology of bacteria, methods of infection, the problems of immunity and practical prophylaxis, and then in detail with each type of organism. Although the author gives quite a lot of meat, he aids digestion by serving it in a simple and straightforward manner. There are a number of sentences in this little book that are memorable. For example, the statement "food that is lying in the lumen of the [alimentary] tract is outside the body" probably conveys more to a non-medical reader than several diagrams of the structure of the peritoneal cavity. It would be interesting to know how the author would explain his statement that Burns' Highland Mary was one of the last persons to die from typhus fever in Great Britain. Dr. Drew is keen on the licensing of cats, and his remarks on the spread of plague are very full. The final chapter in the book is a well-balanced account of the possibilities of bacterial warfare. There are eight full pages of photomicrographs, which make the reader wonder still more how the book could be produced at the price.

Mr. Kenneth Walker has produced a balanced account of the scientific and sociological aspects of sex. He has packed a great deal of information into a small space, and, starting with fundamental biological conceptions, drawn from examples in the lower plant and animal kingdoms, he passes quickly to sex differentiation and to a fairly detailed consideration of primary and secondary sexual characters. Sex problems at different ages are briefly discussed, and a considerable proportion of the latter half of the book

is devoted to pre- and post-marital problems. The chapter on sexual deviations occupies only twelve pages, but it is long enough to prevent the non-medical reader from assuming that such aberrations form an important part of the make-up of modern man. The author has written a particularly sane book on a difficult subject. He has drawn widely on the writings of other sociologists, and on literature in general, and the result is a small work which should be read with profit by doctor and layman alike.

OBITUARY

WILLIAM McDONALD SCOTT, M.D., D.T.M. & H.

Epidemiology and preventive medicine suffered irreparable loss when Dr. W. McD. Scott and Dr. F. Griffith, his friend and colleague at the Ministry of Health, were recently killed by enemy action. William McDonald Scott was born in 1884, and educated at Dumfries Academy and the University of Edinburgh, where he graduated M.B., Ch.B. with first-class honours in 1905. He took the D.T.M. and H. in 1906, the B.Sc. in Public Health in 1907, and the M.D. in 1910. He held the Ettles scholarship at the University of Edinburgh, and subsequently the John Lucas Walker student scholarship in the University of Cambridge, where for some years he was University Demonstrator in Pathology. From 1908 to 1910 he worked on the identification of bacterial species by serological methods, and in this matter of identifying types of bacteria was one of the most experienced bacteriologists in the world. There must be many men in the public health service who are deeply in his debt for the help he gave them in identifying bacteria and discovering the origin of outbreaks of infection. He also conducted researches on anaphylaxis and on the immunity reactions of trypanosomes. His most outstanding work probably was that on food poisoning by *Salmonella* organisms, of which his knowledge and experience were unrivalled. In 1914 Dr. Scott was Medical Officer of Health to the North-east Kent United Districts, and in 1917 was appointed to the permanent staff of the laboratory of the Local Government Board, which in 1919 became the pathological laboratory of the Ministry of Health.

Dr. Scott's modesty and kindness endeared him to a wide circle of private and professional friends, and to bacteriologists in other countries whom he met both here and in the congresses of the International Society for Micro-biology. To his widow, four daughters, and three sons, we extend our deepest sympathy in their loss.

FREDERICK GRIFFITH, M.B., D.P.H.

Dr. F. Griffith, who was a friend and close colleague of Dr. Scott in the Ministry of Health laboratories, graduated M.B., Ch.B. at Liverpool in 1901, and took the D.P.H. of Oxford in 1910. He was the younger brother of Dr. A. S. Griffith, who died a short time ago. He served as house-physician and house-surgeon at the Royal Infirmary, Liverpool, and subsequently worked as Alexander Fellow in pathology at the Thomson Yates laboratory in that city. Later he became joint investi-

gator on the Royal commission on tuberculosis at Stansted, where his brother was also working. Griffith joined the staff of the Local Government Board in 1910, and continued under the Ministry of Health when it took over the service in 1919. Imbued with the idea that progress in the bacteriology of infectious diseases could come only with more precise knowledge of the micro-organisms responsible for them, he devoted himself to the type-differentiation of the haemolytic streptococci. His work, and that of Mrs. Lancefield, laid the foundation for preventive measures based on accurate and detailed knowledge.

Men in the public health service will mourn the death of two men to whom they owed so much.

CHARLES WILLIAM LAIRD, M.D., D.P.H.

Dr. C. W. Laird, consultant tuberculosis officer to the Lancashire County Council, died on April 19th at Ormskirk, Lancashire, after a long illness.

Charles William Laird was born at Belfast in 1879. He has a distinguished career at Trinity College, Dublin, winning many first class honours and prizes in classics and modern literature. He obtained his B.A. with honours in classics in 1903, and first place at his final M.B. in 1908, with first class honours in surgery, hygiene, medical jurisprudence and toxicology, and in pathology. At the Royal City of Dublin Hospital in 1907 he also won the Wheeler Gold Medal for first place in the examination in clinical, theoretical, and practical medicine. He took his M.D. in 1911, and D.P.H. (University of Liverpool) in 1912. After acting as house-surgeon at the Bootle Borough Hospital, Lancashire, Laird started his career in tuberculosis at the Whiteabbey Sanatorium, Belfast, where he was for a time acting resident medical officer. He returned to Bootle and there held for over two years the posts of resident medical officer at the Corporation hospital and assistant medical officer of health. After a further spell of sanatorium work at the Westmorland Sanatorium, Grange-over-Sands, he was in 1913 appointed one of the first consultant tuberculosis officers on the Lancashire County staff, and for a time also undertook jointly the duties of tuberculosis officer for the County Borough of Bootle. For twenty-eight years Laird was in charge of Dispensary Area 5—north, east and south of Liverpool—containing some 200,000 acres and a population of 350,000, which included since 1924 the Rufford Pulmonary Hospital, of which he was the visiting medical superintendent. Here he did excellent work, especially with artificial pneumothorax and gold treatment.

Courteous and cultured, Laird set a very high standard, never spared himself, and had as a reward the esteem and affection of all his colleagues and the medical practitioners of his area. He was a keen and good golfer, winning many prizes, and, as one would expect from an Irishman, he was an easy and excellent speaker. He leaves a widow and two sons, one following in his father's profession: to them we extend our sympathy in their bereavement. Dr. Laird had been a member of the Society of Medical Officers of Health since 1930.

GERARD PATRICK McCLOSKEY, M.B., D.P.H.

We regret to record the death from enemy action of Dr. G. P. McCloskey, Medical Officer of Health for Havant and Waterlooville, U.D.C., and Petersfield U. and R.D.C. Gerard Patrick McCloskey qualified M.B., B.Ch., B.A.O., at Belfast in 1924, and took the D.P.H. in 1927. He joined the Society of Medical Officers of Health in 1930. In the public health service he had been assistant Medical Officer of Health, School Medical Officer, and Tuberculosis Officer to the County Borough of Derby, Deputy Medical Officer of Health and School Medical Officer to the County Borough of Bootle, and Medical Officer of Health, School Medical Officer, and Medical Superintendent to the Isolation Hospital at Darwen. He met his death when visiting his native town of Belfast.

The Minister of Health has appointed Miss M. E. Flambert and Miss M. G. Lawson to be Deputy Nursing Officers of the Ministry of Health. They will work under the Chief Nursing Officer, Miss K. C. Watt, in the new Nursing Division of the Ministry. Miss Flambert, State Registered Nurse, took her general training at the Nightingale School, St. Thomas's Hospital; midwifery at the Radcliffe Maternity Home, Oxford; and public health training at Bedford College for Women, where she held the scholarship awarded by the Nightingale Fund Council for the International Course in Public Health. She has gained distinction in preventive medicine and hygiene and holds seven certificates for health and nursing. She was formerly Sister-in-Charge of St. Thomas's Mothercraft Department; Superintendent of the Dalgarno Welfare Centre, Kensington; and Health Officer of the same borough from 1937 to 1938. For the last three years she has been a woman inspector of the Ministry of Health.

Miss Lawson, State Registered Nurse, also took her general training at the Nightingale Training School at St. Thomas's, and in 1934 gained the Gold Medal of the year, Honour Certificate, and Diploma of Nursing (with distinction), University of London. She has been Second Assistant Matron in the Nightingale Training School; examiner for various hospitals, for the General Nursing Council, and for the Diploma in Nursing, University of London; Supervisor of Training Schools for Nurses, London County Council, 1937, and was appointed acting Principal Matron, London County Council, 1939.

We have received from the Medical Supply Association Ltd. (167-173, Gray's Inn Road, W.C.1) the third edition of their publication, "Electro-Therapy Equipment," which will be sent on application to any reader of this journal. A number of pages are devoted to new equipments not hitherto listed. The Association will be glad to give additional information about any particular apparatus required for the equipment of hospitals, sanatoria, and clinics of local authorities.

DIAGNOSIS AND TREATMENT OF GAS CASUALTIES

The following memorandum on the diagnosis and treatment of gas casualties has been prepared by the Ministry of Health for the information of medical practitioners.

Of the poison gases likely to be used by the enemy there are two main types: (1) the vesicants (mustard group) and (2) the pulmonary irritants (phosgene group). A knowledge of the main clinical features of gas poisoning and of the essentials of treatment should be possessed by every medical man and woman in the country.*

VESICANTS

Of these mustard gas is considered the most important. It accounted for upwards of 70 per cent. of all our gas casualties in the last war. It can be employed in shells and bombs and sprayed from aeroplanes. Its dangers should not, however, be over-emphasised. Its mortality in the British Army in the last war was little more than 2 per cent., and 80 per cent. of cases were fit for active duty within a month. *To secure such low figures a high degree of gas-mask and other discipline is clearly necessary.*

The early symptoms (which develop in the course of a few hours) include skin burns varying from a slight erythema to severe blistering and affecting the softer skin and moist surfaces especially; blepharitis and conjunctivitis; laryngitis, tracheitis, and bronchitis; vomiting. The sequelae in the graver cases include corneal ulceration, broncho-pneumonia, and bronchiectasis.

The lesions may be caused by vapour or by actual droplets. The latter should be immediately removed from exposed skin by dabbing (not wiping) with handkerchief or linen, which should at once be discarded. When possible bleach ointment or paste or Anti-gas Ointment No. 2 should then be applied to the skin. The next indication is the earliest possible removal of contaminated clothes and footwear and free washing with soap and water. Treatment of the eyes, if affected, should always be given preference over treatment of the skin. It should include immediate and free irrigation with water. To prevent secondary conjunctival infection the instillation of albucid in a 2.5 per cent. solution four times daily is recommended. Later, atropine 1 per cent., in ointment or in drops, may be used to counteract the pain of ciliary spasm. Liquid paraffin drops to prevent sticking of the lids may be employed after twelve hours. Cocaine preparations and bandaging of the eyes must on no account be allowed. Eye-shades may be used in the early stages. Blisters should be aspirated with a hypodermic needle and syringe. For open skin lesions, after the stage of profuse exudation, the recognised surgical treatments for ordinary burns should be employed. Laryngitis

* A reprint of the 1940 edition of the War Office Medical Manual of Chemical Warfare (published by H.M. Stationery Office, price 2s. 6d.) is now in preparation. This 1941 edition will embody amendments covering recent recommendations for treatment.

and tracheitis should be treated with steam inhalations. Bronchitis and broncho-pneumonia should be treated on general principles; it is possible that sulphapyridine may prove valuable in preventing the latter.

In the last war there was a high incidence of functional sequelae, including photophobia and blepharospasm, aphonia, and vomiting. Early reassurance as to the unlikelihood of blindness, discountenancing a too prolonged use of eye-shades, etc., may play an important part in treatment. *Once the early essential treatment has been given, mustard gas casualties may be safely evacuated to a distance as stretcher or sitting cases according to their severity.* In the case of patients severely injured as well as contaminated with gas, elaborate washing, etc., will clearly be out of the question, but the clothes should be cut off as quickly as possible and local eye and skin contamination dealt with as effectively as the condition of the patient may allow. The order of urgency in such cases is: (1) removal of outer garments and shoes; (2) methods directed towards saving life and treating shock; (3) saving the eyes; (4) cleansing the skin.

Another vesicant gas is lewisite. It is also a lung irritant, a nose irritant, and a tear gas. It is the more readily recognised on account of its early effects on the upper respiratory tract. When present in large quantity on the skin it can be absorbed and cause severe general and visceral symptoms of arsenical poisoning. For removal from the skin hydrogen peroxide (20 vols.) or a 20 per cent. solution of hyperol (urea peroxide) is a most effective counter-agent. If blisters occur they should be opened and the raw surface irrigated to lessen the likelihood of absorption. Otherwise the treatment is as for mustard gas.

LUNG IRRITANTS

Of these phosgene is the most important. It can be employed in shells or bombs. When the gas is present in very high concentration early death from asphyxia may occur in the case of inadequately protected persons. With the more usual concentrations immediate symptoms may be slight or absent, but dangerous symptoms may follow up to several hours after exposure. The likelihood of such symptoms developing is much increased if the exposed subject remains physically active. Every person, therefore, who has been exposed to phosgene vapour without gas-mask protection should become a stretcher case as soon as possible.

On arriving in hospital or at a treatment centre cases should be grouped into mild, moderate, and severe categories and, if possible, treated separately. The "mild" cases show a reddish flush on the face, increased respiration rate, and pain in the chest aggravated by coughing. Absolute rest, fresh air, fluids, and nursing are the chief indications, together with careful watching lest any of them pass into one of the graver groups. The "moderate" cases show greater respiratory distress, with varying degrees of pulmonary oedema, "blue" cyanosis, distended neck veins, a full strong pulse without great increase in rate. The indications are continuous oxygen by nasal catheter or B.L.B. mask (or in the less severe cases intermittent pure oxygen from a nitrous oxide bag), venesection, and nursing care.

The "severe" cases show collapse, coldness, a weak rapid pulse, and pallor with leaden "grey" cyanosis and no distension of the neck veins. There is profuse pulmonary oedema, often with froth pouring from the mouth and nose, and great respiratory distress with shallow and largely diaphragmatic breathing and the chest in the inspiratory position. The indications are continuous oxygen in high concentration with the B.L.B. mask or double nasal catheter, the flowmeter delivering at a sufficient rate to maintain a pink colour in cheek and lips. Venesection should not be attempted. It may be necessary to lower the head and raise the feet to allow the oedema fluid to escape more freely. Morphine is contra-indicated. Atropine and adrenaline are not indicated. Although there are haemoconcentration and increased viscosity of the blood the use of all forms of intravenous fluid is at present considered inadvisable owing to the risk of increasing the pulmonary oedema. Warmth and the most attentive nursing are essential. Patients may be restored to health after as much as seventy-two hours of continuous oxygen administration. Pneumonia is an occasional complication. Late sequelae are rare. *It cannot be too much emphasised that oxygen properly administered is a life-saving therapeutic agent both in the "blue" and "grey" cases. Evacuation of phosgene cases to a distance until they have been pronounced out of danger should be prohibited. Even the slightest cases should be under observation and at rest for forty-eight hours.*

CARBON MONOXIDE

Poisoning by CO may result from leakage from gas mains after air raids or from the explosion of bombs in a confined space. Rest, restorative treatment, artificial respiration, and oxygen with carbon dioxide are the chief indications.

TEAR GASES AND NOSE IRRITANTS

These do not produce casualties requiring hospital treatment. The main symptoms are lachrymation, sneezing, intense frontal headache, burning mouth and throat, nausea, and tightness in the chest. In a gas-free atmosphere the symptoms usually pass off in an hour.

IMPORTANT NOTICE

The gas mask, if properly adjusted and in time, gives full protection to the lungs and eyes against these gases. It affords no protection against carbon monoxide and the poisonous effects that might result. In the event of gas attack the medical profession would have a most important part to play, not only in the recognition and the treatment of cases and the recording of any new phenomena, but also in the prevention of panic by constant reassurance, by insistence on gas-mask discipline, and by stressing the effectiveness of the protective and therapeutic measures at our disposal.

REGIONALISATION OF HOSPITALS

At the invitation of the Vice-Chancellor of Liverpool University and Dr. A. D. McNair, a conference was held on March 19th in Liverpool to discuss proposals of the Nuffield Provincial Hospitals Trust on the

Regionalisation of Hospital Services. In addition to representatives of the Trust there were present representatives of the Liverpool Hospitals Joint Advisory Committee and of local authorities and voluntary hospitals within the region. The Vice-Chancellor stated briefly that some months previously the Nuffield Provincial Hospitals Trust had asked the Liverpool Hospitals Joint Advisory Committee (representing the Municipal and Voluntary Hospitals of Liverpool) if it would take steps to initiate the Trust's proposals for a Hospital Region based on Liverpool and its University Medical School. The conference convened was not being asked to accept a cut-and-dried scheme, but to consider whether to accept the principle of the Trust's proposals.

Mr. W. M. Goodenough, Chairman of the Trust, began by referring to the chief recommendations of the Sankey Commission appointed by the British Hospitals Association in 1935—namely, that the voluntary hospitals should be regionalised, that is, should co-ordinate services in regional areas in order to attain maximum efficiency and economy. This was then confined to voluntary hospitals. During the past seven years in Oxford, as an outcome of Lord Nuffield's interest and financial help, a Joint Hospitals Board had attempted regionalisation on the basis of complete co-ordination between public health authorities and the voluntary hospitals. Encouraged by the success of this experiment, Lord Nuffield in 1939 endowed a Provincial Hospitals Trust with a million Morris Motors Ordinary Share units, with the object of promoting regionalisation of both voluntary and local authority hospitals in the provinces, and in Scotland and Northern Ireland. The income of the Trust was to be used for administrative expenses and grants in aid. The regional organisations would consist of (1) Divisional Councils, each covering a considerable area of population; (2) Regional Councils, with two or more divisions represented on each; and (3) a central hospitals regionalisation council. Both voluntary and statutory authorities would be represented on all of these bodies. The Trust's proposals had been supported by the last two and the present Ministers of Health, by Lord Sankey, and the Provisional Central Council of the British Hospitals Association. In spite of the war, progress had already been made in setting up Divisional Regions in various parts of the country. The objective was not a state but a national system based on liaison with the Minister of Health and on local self-government.

Sir Farquhar Buzzard, Chairman of the Medical Advisory Committee of the Trust, said that the primary object of any regional scheme would be to provide all classes of the public with easy access to the best which modern medicine and surgery had to offer. On economic grounds it would be necessary to centralise more expensive and specialised methods of investigation and treatment, which must at the same time be accessible to every patient and doctor in the region. The first task of a divisional or regional council would be to make a survey of existing accommodation and facilities. The region would have a medical advisory committee, an important function of which would be to arrange the best distribution of professional services.

Advances in medical knowledge had tended to outrun their application in practice because of lack of organised and centralised effort.

Mr. S. P. Richardson, Chairman of the Provincial Hospitals Regionalisation Committee, observed that his committee had incorporated among its members the provincial members of the Provisional Central Committees of the British Hospitals Association, and the interests of the voluntary hospitals were therefore safeguarded. There was no intention to interfere with local traditions, and the voluntary hospitals should realise the opportunity that was offered of entering into a partnership which would enable them to give a better health service to the public.

Discussion

Some of the points brought out in the discussion were as follows. Infectious diseases hospitals would not come within the scheme and it was doubtful whether local authorities had power to make contributions for administrative expenses to a regional council, but they could make grants to voluntary hospitals and this would release funds for administrative purposes. The need for co-operation between voluntary and local authority hospitals was stressed. One speaker foresaw the danger that the best medical staffs would be concentrated in the central hospitals to the detriment of others in the region. Another thought that lack of co-operation had hitherto been largely owing to the attitude adopted by the voluntary hospitals. Finally, the Vice-Chancellor said that it was obvious that another conference would have to be held and a more detailed resolution passed after deliberation of more considered views. The following resolution was accordingly passed.

"That this conference being anxious to explore sympathetically the principle of Regionalisation do adjourn and request the Vice-Chancellor to summon it to meet again not later than the end of June, 1941, and that in the meantime the local authorities and voluntary hospitals represented at the conference confer with their constituents with the object of obtaining a mandate concerning Regionalisation."

At the meeting of the Royal College of Nursing on May 15th the following revised scale of salaries was recommended: for a trained staff nurse, £100 p.a. rising by £5 to £150; for a ward sister, £150 rising by £10 to £250; for departmental sisters in charge of one department only, £20 more; for housekeeping sisters, £160 rising by £10 to £220. The recommended scale for night superintendents is £200 rising by £10 to £250; that of night sisters £150 to £200. For matrons of hospitals with fewer than 100 beds the recommended scale is £250 rising by increments of £25 to £400. For matrons of hospitals with 500 or more beds, the College figure is £600 rising by £50 to £1,000. The recommended minimum for assistant matrons is £175 rising by £25 to £250; the equivalent in the largest hospitals being £300 rising by £25 to £500. The recommended scale for home sisters begins at £140 in the smaller hospitals, rising to a maximum of £220 after five years' service in the larger.

THE SOCIETY: BRANCH AND GROUP MEETINGS

MATERNITY AND CHILD WELFARE GROUP

At a meeting of the Maternity and Child Welfare Group of the Society of Medical Officers of Health on May 10th, a discussion took place on the training of the health visitor, the question of future modifications in this training being considered to be of the greatest importance to maternity and child welfare. The President, Dr. Agnes Young, was in the chair. Thirty-two members and guests were present. The latter included Lady Cynthia Colville, President of the Women Public Health Officers' Association; Miss I. Charley, Chairman of the Public Health Section, Royal College of Nursing; Captain G. S. Elliston, M.P., accompanied by Lieut. G. L. C. Elliston, R.N.V.R.; and the Medical Officers of Health of Kensington, Hampstead and Cardiff.

The opening addresses were given by Miss D. M. Hayward, who represented the Women Public Health Officers' Association, and by Miss Margaret McEwan, tutor to the health visitor students, Royal College of Nursing. These interesting papers were followed by a discussion opened by Dr. James Fenton, and continued by Dr. Greenwood Wilson, Dr. Agnes Nicoll, Dr. Hirst and Dr. Saunders-Jacobs. After Miss McEwan and Miss Hayward had briefly replied to the points raised, the President proposed a warm vote of thanks to the two principal speakers and to those who had provided such an interesting discussion, a motion which was carried unanimously with acclamation.

It is hoped to report the papers and subsequent discussion in a future issue of PUBLIC HEALTH.

HOME COUNTIES BRANCH

President: Dr. E. W. Caryl Thomas (M.O.H., Harrow U.D.C.).

Hon. Secretary: Dr. Cecil Herington (M.O.H., Dagenham M.B.).

A meeting of the Branch was held at Tavistock House South, Tavistock Square, London, on April 25th, at 2.30 p.m. The President was in the chair and was supported by fourteen other members.

The minutes of the meeting held on February 7th were read, confirmed and signed.

It was unanimously agreed to recommend Dr. D. J. Thomas (Acton) for life membership of the Society.

THE RECRUITMENT OF NURSES

Miss M. Edwards, Head of the Nursing Recruitment Centre, said that in general she thought three main problems required attention—namely, improvement of conditions, of hours of duty, and of salaries. Nursing must be put before the public as a career, without emphasising the question of vocation. The financial inducement for girls to take up nursing was poor and needed considerable adjustment. It should be impressed on prospective candidates that nursing offered a wide choice of work and an assured future. It should

be stressed that in taking up nursing a girl was in the position of a student qualifying for a profession without the handicap of having to pay fees, and was entering on a career that offered a great deal of scope for her capabilities. School teachers should be impressed by the advantages of nursing in order that the profession should be brought to the notice of girls early on in their life. The preventive medicine aspect should be emphasised and the corresponding need for skilled nurse workers in this very important sphere. The status of the profession was most important, and it should be recognised as a service of outstanding national importance. The student nurse must get very thorough training, and to this end it was important that probationers should not be moved about but should be allowed to follow through their training.

A reasonable code of discipline should be imposed on nurses and the early Victorian standards would have to be modified. Frequently they did not get sufficient freedom off duty. Again, they required suitable accommodation for recreation and study, and an important practical point was good cooking intelligently planned. The high standard of education expected should be relaxed for the duration of the war. Age of entry should be standardised. Below the age of 18 a girl was not stabilised mentally or physically. The difficulty to be overcome was bridging the gap between 15 and 18. The best solution for this was pre-nursing courses. These gave a good groundwork and kept up the prospective nurse's interest. Such courses required approved centres, and education authorities should endeavour to give every facility for the establishment of such centres. Day nursery training was also a useful angle of approach. Hospitals should be prepared to book their candidates at pre-hospital age, as there was no doubt that girls looked forward to choosing their hospital early and preparing for entrance to it. The prospectus of the hospital was a great inducement, and if attractively drawn up it carried much weight. There was no need for these prospectuses to be expensively produced. Incidentally, the list of rules and regulations applying to individual hospitals should be kept up to date, as in many cases they were obsolete at the present time. Training should be on a much wider basis, and where necessary there should be inter-changing of hospitals for this purpose; there was no doubt that this gave much more comprehensive experience. There was much scope for improvement in salaries of trained nurses. The value of emoluments was often not sufficiently stressed. Again, more non-resident posts might be an inducement to certain types of girls. A suggested scale of salaries for health visitors would be £250 to £350 and for Superintendents £375 to £500 a year.

Many of the ideas expressed above have, after due consideration, been recommended by the Inter-Departmental Committee.

The King Edward Hospital Fund had done much towards improving hospital recruitment. It served as an advisory bureau, and its activities included the writing of articles for magazines and periodicals to bring forward acceptable candidates. Speakers were sent all over the country in order that the advantages of nursing

might be kept before girls due to leave school. Registers of prospective candidates of from 13 years upwards were kept, and the Fund gave advice and kept in touch with these girls until they arrived at the necessary age.

Dr. C. L. Williams advocated the organisation of nurses and trainees in order that their conditions of employment might be improved, and expressed his opinion that the crux of the whole problem of recruitment of nurses was a question of salaries.

Dr. Buchan thought that the three chief factors were (1) age of training; (2) condition of training; and (3) prospects after training. In his view training should start at the age of 16. Conditions should not be too arduous and menial work be curtailed to a minimum.

Dr. Ferguson stated that in his experience the shortage was found chiefly in special hospitals, such as those treating infectious diseases. There was no apparent shortage of candidates for appointments as health visitors and school nurses. He expressed his appreciation of the helpful remarks of Miss Edwards and congratulated her on the way she had presented the case.

Dr. Macaulay described a course of pre-training which had been instituted at Kilburn. Courses such as these were too long, and he suggested that one year should be sufficient. They were also regarded as being too extensive. In Middlesex the age of entry for nursing was 17 and training lasted for four years.

A vote of thanks to the speaker was proposed by Dr. Tannahill, and in the course of his remarks he suggested that the smaller hospitals could with advantage be amalgamated for training and other purposes.

Dr. Holden.—It was announced at the meeting that Dr. Holden (Croydon) had been awarded the George Medal. The members present were unanimous in asking the Hon. Secretary to convey to Dr. Holden their congratulations and pleasure that a member of the branch had been thus honoured. At the same time it was learned that he has been suffering from ill health, and best wishes for a speedy and complete recovery were expressed.

Stratford Local Medical War Committee.—Drs. Ball and Williams were re-elected as representatives of the branch on this committee.

NOTICES

DENTAL OFFICERS' GROUP

Metropolitan and Home Counties Sub-Group.

A General Meeting of the above Sub-group will be held at Tavistock House, Tavistock Square, on Saturday, June 14th, 1941, at 2.30 p.m., when J. F. Pilbeam, Esq. (Senior D.O., Middlesex C.C.), will read a paper on the work of "The Central Council for Health Education and Dental Propaganda."

A further meeting of the Sub-group will be held early in September.

The next General Meeting of the Group will be held at Tavistock House, on Saturday, July 19th, 1941, when Mr. F. Jones will sum up the discussion on his paper "The First Permanent Molar."

It is hoped to hold a further General Meeting at the end of September.

A. GORDON TAYLOR,
Hon. Secretary.

28, Battlefield Road,
St. Albans, Herts.

MATERNITY AND CHILD WELFARE GROUP

A meeting of the Committee of the above Group will be held on Friday, June 20th, 1941, at 5 p.m., at Tavistock House, Tavistock Square, W.C.1, to consider nominations for the election of officers for the coming session.

The Annual General Meeting will be held on Saturday, July 26th, 1941, in the afternoon, when an address will be given by the President, Dr. Agnes Young. Subject, time and place will be announced later.

K. M. HIRST,
Hon. Secretary.

Town Hall,
Upper Street, London, N.1.

The National Baby Welfare Council (29, Gordon Square, London, W.C.1), have issued a leaflet entitled "The Baby in an Air Raid," which gives short and practical instruction to the parent on what to do in circumstances indicated by the title of the leaflet. The instructions are written in simple language and contain practical hints that should be of great value to mothers. Leaflets can be obtained at the rate of 2s. per hundred.

RECENT APPOINTMENTS IN THE PUBLIC HEALTH SERVICE

The following are some recent appointments to the health departments of various local authorities.

The Editor will be grateful if members of the Society will notify him at once of any new appointments.

BURY C.B.: A.M.O.H. & Dep. Dir. Casualty Service A.R.P., Lt.-Col. F. Harvey, R.A.M.C. (Ret.) (Temp. A.C.M.O.H. Lincs. C.C., M.O.H., Horncastle U.D. & Dir. Casualty Services A.R.P.). Salary £550 p.a. plus bonus and car allowance.

FINSBURY MET. B.: Temp. A.M.O. M. & C.W., Dr. Rowena Woolf (A.M.O. M. & C.W., Birmingham C.B.).

HARROGATE M.B.: Dep. M.O.H. & Dep. S.M.O., Dr. E. H. Harte (A.M.O.H. & A.S.M.O., Croydon C.B.). Salary £600 p.a. rising by annual increments of £50 to £750 p.a. Car allowance £50 p.a.

NELSON M.B.: M.O.H. & S.M.O., Dr. G. J. Roberts (Dep. M.O.H. & Dep. S.M.O., Bottle C.B.).

PERTH C.C.: A.C.M.O.H., Dr. Fanny B. Chisholm. Salary £500 p.a. rising by annual increments of £25 to £700 p.a.

READING C.B.: Dep. M.O.H., Dr. S. L. Wright (Dep. M.O.H., Wembley U.D.).

WESTON-SUPER-MARE M.B.: M.O.H., Dr. C. G. Eastwood (Dep. M.O.H., Slap C.C.).

WOLVERHAMPTON C.B.: Senior A.M.O.H., Dr. L. R. L. Edwards (Senior A.M.O.H., West Bromwich C.B.).

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"Public Health" is the Official Organ of the Society of Medical Officers of Health and a suitable medium for the advertisement of official appointments vacant in the health service. Space is also available for a certain number of approved commercial advertisements. Application should be made to the Executive Secretary of the Society, at Tavistock House South, Tavistock Square, W.C.1.

Telephone: Euston 3923. Telegrams: Epidaurus, Westcent.

Editorial

Diphtheria Immunisation—A Warning

Dr. Guy Bousfield, whose insistence on a high standard of scientific work in the use of diphtheria prophylactics is well known, has returned to the subject in connection with the present drive for immunisation.* He points out that issues of alum-precipitated toxoid from the Emergency Laboratory Service are accompanied by the advice that the initial dose should be 0.1 c.c. followed by a final dose of 0.3 c.c. a month later. In his opinion this dosage is dangerously low for reasonable expectation of mass results of a satisfactory nature unless a complete system of Schick-testing at a later date is enforced. The discovery that some large batches of alum-precipitated toxoid have been weak in potency is adduced as an argument both for a larger dosage in all cases and also for frequent, if not universal, testing of those treated in order to confirm that a high proportion are being rendered Schick-negative. He fears that the present measures may result in a large proportion of failures and bring discredit on diphtheria immunisation generally. The Ministry of Health, in their recent memorandum,† seem to favour a slightly larger dosage than the Emergency Laboratory Service—namely, 0.2 c.c. and 0.5 c.c. at monthly intervals. Dr. Bousfield regards this as a minimum dosage and seems himself to favour two doses of 0.5 c.c. In Croydon, Dr. Tudor Lewis has worked out a scheme of dosage varying with the age of the child.‡ Children under eight years of age are given 0.5 to 1 c.c. as an initial dose followed by a similar amount not less than one month later, but older children, most of whom have already been subject to latent infection, are treated with doses of 0.1 to 0.25 c.c. and 0.5 c.c. at the same interval.

There may be good reasons for the policy favoured by the Emergency Laboratory Service, but its adoption generally strengthens the case for reasonably frequent Schick-testing of the treated, as Dr. Bousfield urges. With present staffing difficulties it cannot easily be arranged, but it ought to be done as far as possible. The not infrequent practice of abbreviating the interval between doses is now regarded as a still more dangerous error. There is perhaps less to be said for raising the dosage universally just because some batches of antigen may be feeble, for, as Dr. Bousfield himself shows, even two properly spaced doses of 0.5 c.c. of an im-

* *Med. Officer*, 1941, 65, 169.

† Memo. 170/Med., 1940.

‡ *The Principles and Practice of Diphtheria Immunisation*, By J. Tudor Lewis. Oxford University Press.

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tent prophylactic may fail to abolish the Schick-positive state in 50 per cent. of the children treated.

Dr. Bousfield may be unduly anxious about the ultimate effect on the community of imperfection in the immunisation of individual cases. No country has been more careful than ours in this respect, but it has not made immunisation go. In many parts of the U.S.A. campaigns have been launched and sustained without too much concentration on perfection, and in their practical way they have got the results. It may be possible to protect children by abolishing diphtheria as an epidemic disease, without attaining a very high degree of immunity in each individual child, just as plague went when there were probably still many rats and fleas infected with *P. pestis* and typhus was overcome by a measure of personal cleanliness falling far short of complete de-lousing. There appear to be factors in susceptibility or resistance to diphtheria not measured by the Schick state. The public mind, too, does not work in quite the same way as the scientist's. Their recent sudden acceptance of immunisation where they were formerly apathetic is not due to the discovery that it never goes wrong. They have become, in war-time, more receptive of guidance, and the result of imperfect immunisation in the mass may prove convincing. Nevertheless, an effort should be made to ascertain quickly if the dosage now widely used is too low.

The Expert in Government Departments

Lord Woolton's announcement of changes in the administrative organisation of the Ministry of Food is interesting. A year ago* we drew attention to a certain rigidity of mental outlook at the Ministry in matters requiring expert guidance and expressed the hope that Lord Woolton, who had then just taken office, would find means of overcoming it. On the whole our hopes have not been belied, although it would be an exaggeration to say that the Ministry's policy in all directions which affect us has met with unqualified approval. It has been slow in responding to suggestions about the national milk scheme and has followed the advice of a scientific rather than a practical body of advisers in preparing its list of diseases for which medical certificates for extra supplies of liquid milk are to be valid. And it thoughtlessly compels the patient to inform the milkman of the nature of the disease suffered, and makes the medical man signing the certificate break with the age-long tradition of professional secrecy. Like other Government departments, it seems to be more impressed by those who figure prominently before the public than by experts with practical experience and real competence. It is doubtful whether the recognition of the administrative ability of commercial men with experience in the food business now announced will materially alter the outlook of the Ministry in medical, public health and scientific matters, but it represents a departure from the hitherto accepted rule that administration is reserved for established civil servants with no technical knowledge of the subject to be administered.

The present Civil Service system ensures integrity and a fairly high average level of natural ability. Unfortunately the idea has been current in this Service

that the expert is fit only to advise and that decisions must be taken by officers who have no expert knowledge or by Ministers advised by them. This may have worked well, indeed it may have been the best arrangement, in the days of Samuel Pepys, but science has developed too far in the intervening centuries for its impact on the affairs of a community to be left to the guidance of officials, many of whom have had an unsuitable academic training and have spent the rest of their lives in an office chair. This comment applies especially to medical matters. Sometimes the apparent result of the system has been to make the inevitable differences of opinion in medical circles on most medical topics an excuse for avoiding administrative decisions. In his English Sanitary Institutions, Simon said: "To Medicine, therefore, belongs not an accidental, but an essential share in whatever supervisory function the Central Authority has to exercise in respect of local sanitary government." Since his time governmental medical responsibilities have been vastly extended. Sir George Newman has described the long struggle against odds to obtain due recognition of the status of the medical department of the Local Government Board,* a battle which was won, in theory at least, with the creation of the Ministry of Health in 1919. If the position in that department is now satisfactory, there are others in which it is not, where the head of the medical section has no access to the Minister in order to express his opinions in matters of paramount importance. It is an open secret that in one such department the medical officer was subjected, not long ago, to such petty tyranny by the civil servant at its head—a person who had the most tenuous experience of public health administration and methods—that the position became intolerable.

During the war of 1914-18 the same criticisms of the Civil Service were constantly voiced as are now being heard on all sides. Some of them were unfair, as they are now, but others were justified. In the period of readjustment which followed some improvements were made, such as the status granted to the medical section in the new Ministry of Health, but by giving way here and there the great Civil Service machine continued to move on its way substantially unchanged. Questions of the same kind will be debated in the course of the post-war reconstruction. In this connection the structure of the U.S.A. Public Health Service is worthy of examination, a Service which is essentially medical and headed by the Surgeon-General, himself a medical man. Not only will the status of medical men in Government departments continue to be of interest to us, but if the policy of placing Government servants out in regions, which began before the war, is to be continued, it will be necessary to ensure that such officers have a reasonable measure of autonomy, that their hands are not tied too much by rigid instructions from the central department and that decisions are not delayed by blockage in that bottle-neck. It is also worthy of consideration whether outside bodies or persons with intimate knowledge of public health work should not have some share in the selection of medical

* *The Building of a Nation's Health.* See PUBLIC HEALTH, 1939, 52, 317.

men for work of this kind. The high proportion of the younger medical men in the Ministry of Health appointed in the immediately pre-war years who are now doing public health work, but have no public health qualification, has caused some concern in the public health service.

Nursery Centres

What the Minister of Health has called the "social revolution of evacuation" contains within its major problem any number of relatively minor ones. One of the most pressing of these concerns the health, happiness, and occupation of the very small child, too old for the crèche and too young for school, the "under five," who can absorb almost the entire energies of one adult in looking after him, although in the group ten or twenty such small people can quite well be in the care of one person. Large numbers of these children have been evacuated, some with their mothers and some without. If they are with their mothers the difficulties of restricted domestic facilities are added to the ordinary difficulties of looking after the small child, and if they are with foster mothers the burden is correspondingly great. Owing to lack of accommodation it may well be impossible for them to be taken into the nursery classes at the public elementary schools in the reception areas. If the mother goes to the community centre she may take these children with her, but that is not a place designed to engage their interest. The problem of what to do with them is all the greater when the demand for woman-power in the national effort is considered, for the care of any one of these children may be to all intents and purposes immobilising a woman who would otherwise be rendering much needed service in the factory or the field.

A solution of the difficulty which is finding a welcome in many quarters is the establishment of nursery centres, which may one day fit as neatly into the scheme of social provision as any school or clinic. A scheme for the setting up of such nursery centres was put forward by the Board of Education and the Ministry of Health in a joint circular some eighteen months ago which contained some interesting observations on what may be called the psychology of play. Such centres might well be a useful feature of social life in England even in peace, although we can imagine that they would have to meet the criticism that this was the thin end of the wedge which would destroy parental responsibility and institute communal parentage. But in war-time, with its domestic strain and with two million or more children evacuated from their homes and districts and adjusting themselves to new environments, nursery centres have an obvious value and significance. The evacuated child of school age is provided for in the country school, but the "under fives" are in a less happy position. The nursery centre, however, places them under the care of those who understand young children, gives them occupations appropriate to their capacity, introduces them to the company of other children of their own age, and is likely to keep them happy and contented.

The nursery centre is something more ambitious than a crèche and something less than an infants' school. It is intended to provide for not too large a

group—say, of ten to twenty children. The smaller number has advantages from the point of view of limiting the spread of any infection, of ensuring personal attention to the individual, or finding suitable accommodation for such a centre, and of dispersal in the event of air-raids. Each group is intended to have a woman warden in charge, while an experienced infants' teacher supervises four or five such groups. Mr. H. V. Lanchester, the well-known architect, after planning many university and civic centres has not thought it too trivial to give his attention to the design of these public nurseries, and in a booklet entitled *Nursery Centre Equipment* (Sir Isaac Pitman & Sons, Ltd.) he describes in detail how such provision may be most economically made, how much of the equipment can be improvised from quite simple materials, and what such a centre should contain in the way of small furniture, educational apparatus, and material for play.

Ordinarily the centres are situated in a large empty room in a house, preferably adjoining a school. Ventilation, light, warmth, and washing facilities have to be considered. The desirable floor space is 15 sq. ft. per child. The Nursery Schools Association of Great Britain, which is doing all it can to further the idea, has recently been exhibiting at the Royal Institute of British Architects the model of the first pre-fabricated emergency nursery centre to be erected in this country. It is a hutment construction, nearly 70 ft. long and divided into three sections, two of which consist of large playrooms, while the third comprises entrance hall, cloak room, and staff room. The walls and roof are made in units so that the building can be quickly assembled, and the material covering the walls is waterproof, fireproof, and rotproof, and the floor is insulated. The model was visited by the Minister of Health who gave it his blessing and mentioned that seven or eight such constructions, one of them at Guildford, are already in operation. They represent an excellent piece of national service.

The Pathology of Boxing

At the present time, when physical fitness is being so much encouraged, it is necessary for those in authority to pay attention to any sound discussion of the subject. Such a work has just been received from South Africa.*

Dr. Jokl, who is Head of the Department of Physical Education at the Witwatersrand Technical College, Johannesburg, and Consultant on the Medical Aspect of Physical Education to the South Africa Defence Force, deals with his subject broadly under two main headings—namely, the immediate and the later effects of injuries received in the ring. Under each he has collected a great deal of information which is not readily accessible in other books. Many isolated cases have appeared in the medical journals since Rayer-Collard issued his first medical report on a fight in 1842. The immediate effects are of course mainly the result of knock-out blows. Of these, the blow to the chin is that which is best known. The sudden loss

* *The Medical Aspect of Boxing*, by Ernest Jokl, M.D. Pretoria: J. L. Van Schaik, Ltd., 1941, pp. 251.

of muscle power, followed by the fall to the boards and the possible loss of consciousness, provide the elements of drama. Yet for the boxer the chin blow may be a merciful relief, since pain does not always follow the receipt of the blow and some boxers have even described such knock-outs as pleasant experiences. Dr. Jokl examines the clinical and experimental evidence bearing on the mechanism of this knock-out, and concludes that the cause is localised concussion of the medulla and pons by the edges of the foramen magnum. He accepts Scott's experimental evidence that loss of consciousness occurs only when the intracranial pressure exceeds the systolic blood pressure. In contrast to the chin-blow, the solar plexus knock-out is accompanied by severe pain. The author describes fully Goltz's "Klopversuch"—an important physiological experiment on the frog—and instances other experiments which suggest that the effects may be the result of a substance in the blood which brings about a fall in blood pressure. He also discusses fully instances of pathological lesions caused by blows on the abdomen. Contrary to common belief, blows below the belt and on the testes are not usually followed by any serious consequences. The "hook to the heart" is regarded as producing its effects by a definite mechanism and not merely as a topographical extension of the solar plexus effect. Schlomka's experiments suggested that the subsequent fall of arterial pressure and the rise of venous pressure with dilatation of the heart are all due to paralysis of the nervous mechanism of the heart; that is, the condition is functional rather than the result of structural injury. But Anderson believes that such blows can sometimes be immediately fatal owing to ventricular fibrillation, or fatal at a later date as the result of the development of a cardiac aneurysm. Dr. Jokl also mentions the blow to the carotid sinus and the mechanism of its effects.

The delayed results of injuries in the ring are less spectacular but possibly more important. Dr. Jokl discusses the conditions of "grogginess," "punch-drunkenness," loss of muscle tone, "dementia pugilistica," effects on the peripheral nervous system, and unusual conditions such as the development of an arterio-venous aneurysm, haemothorax and other injuries to the lungs, and several forms of mental impairment. According to neurologists, signs of organic damage as a delayed result of chin-blows appear in from ten to twenty-four hours. Opinions collected by Carroll in 1936 suggested that 5 per cent. of men who remain in the professional ranks for five years or more become punch-drunk, and that of those who remain for this time about 60 per cent. develop mental and emotional changes.

These are serious findings. Forsythe states that various authorities in the United States have advocated the elimination of boxing from school athletics; inter-school competitions—in which emotions run high and knock-outs are expected—are especially harmful. It may be claimed that proper medical supervision of the boxers and of the fight itself might prevent many harmful results. As a palliative, Dr. Jokl suggests that the ring should be covered with thick mat or cork, that the ropes should have a faultless suspension mechanism, that there should be a space between the

ropes and the edge of the ring, that any move to reduce the size of gloves should be strenuously opposed, and that medical supervision should be exercised not only during the fight but also throughout the whole period of training.

At the present time when our young men must be kept in the pink of condition such facts as Dr. Jokl adduces should be borne in mind by those who have to advise on methods of physical training.

The author's final words are: "If this monograph will serve no other purpose than to immediately effect the elimination of boxing from the physical training programme of the Armed Forces, and more especially of the Air Force, it will have fulfilled an important task."

Steady progress in the fight against disease is being achieved among the Western Pacific Islands by native medical practitioners trained at the Central Medical School, Suva, Fiji. It is hoped that this school may eventually become the recognised medical training centre for the entire Pacific Islands area. Founded by the Government of Fiji as an integral part of the native medical practitioner service, the Suva Medical School became the Central Medical School in 1928, when it was enlarged and extended. This was made possible by assistance from the Government of Fiji and the International Health Division of the Rockefeller Foundation. Students come to the school from the Colony of Fiji, Western Samoa, the British Solomon Islands Protectorate, the Gilbert and Ellice Islands, Nauru, the Kingdom of Tonga, the Cook Islands, the Rotuma Dependency, the Anglo-French Condominium of the New Hebrides and American Samoa. It is hoped to bring Pitcairn Island within the scope of the school's activities.

The course of training extends over four years, the first six months of which are taken up with pre-medical studies. Graduates receive a diploma which entitles them to practise medicine and surgery in any of the territories sending students. The diploma is not recognised for practice outside these territories and is designed especially for their needs.

A most timely booklet, *Ration Dinners* (price 2d.), has just been issued by the Central Council for Health Education in collaboration with the British Medical Association, the Board of Education, and the Ministry of Health. It may be obtained in bulk supplies from the Central Council for Health Education, Tavistock House, Tavistock Square, London, W.C.1. It consists of simple recipes for dinners for fourteen days, keeping within the present meat, fat and sugar rations. Alternative recipes are detailed in each case for the household and for a canteen of a hundred people. It has been felt that the publication of such a booklet will fulfil an urgent public need at the present moment, and the Council has therefore prepared it in pursuance of its policy of health education, in which it is actively supported by the Government. The booklet has been approved by the Ministry of Food.

EMERGENCY MATERNITY HOMES

By A. LESLIE BANKS, M.D., M.R.C.P., D.P.H.,
and L. G. NORMAN, M.D., B.Sc., M.R.C.P.

Medical Officers, Ministry of Health

It may be of interest to record the expansion of emergency maternity accommodation in a civil defence region to meet the needs of expectant mothers evacuated from London and certain coastal towns.

In August, 1939, preliminary discussions were held with representatives of various local authorities and proposals invited for the setting up of emergency maternity accommodation in each reception county in the Region. These discussions revealed that existing accommodation would not be adequate to meet the anticipated demands. As at this time the expansion of the E.M.S. in existing hospitals and institutions was taking place, the possibility of using private nursing and maternity homes was considered, but the number of beds thus available was considered to be too small. It therefore became evident that the only way to meet the problem in a short time would be to equip and staff as maternity homes any premises found to be suitable, with or without adaptation. A survey was thereupon undertaken and many different types of premises were inspected. Many of these were found to be unsuitable for the proposed use, chiefly by reason of structural difficulties or inadequacy of essential services.

Evacuation Schemes

The outbreak of hostilities rendered the problem an urgent one, and from this moment the provision of maternity accommodation ran parallel with the demand. The evacuation of expectant mothers may be described under the following headings:—

INITIAL EVACUATION IN SEPTEMBER, 1939

Approximately 1,900 mothers in the last month of pregnancy were received into the Region at this time, and it became necessary to use all available accommodation, down to the smallest units, in existing and improvised homes. Types of accommodation used at this stage, apart from the examples described below, were a unit of two beds in an occupied private house, four beds in a midwife's house, and five beds in a private nursing home. As the number of mothers evacuated did not reach expectations it was possible to dispense with the more unsuitable units. A second and smaller evacuation of expectant mothers took place a month later. Consequent upon these two evacuations, a hundred units with 1,385 beds were provided in the Region.

THE "TRICKLE" SCHEME

In December, 1939, a scheme was evolved whereby mothers in the last month of pregnancy, registered in London, could be received at the various emergency homes in the reception areas. The response to this scheme, although steady, was not sufficient to justify the retention of all the homes then in use, and a number were placed on a care and maintenance basis and others were closed. As a result of this, in the early months

of 1940 six maternity homes with 227 beds were in actual use, but at this time plans were being made for a rapid expansion should the need once more arise.

COASTAL EVACUATION SCHEME

When certain coastal towns were declared evacuation areas similar arrangements were made for the evacuation of expectant mothers. This scheme, in spite of the difficulties inherent in the number of towns involved, has proved very successful, and a total of 276 mothers had been dealt with by December 31st, 1940.

PRESENT ARRANGEMENTS

In September, 1940, the onset of heavy bombing resulted in an increased evacuation of expectant mothers. In contrast to the 1939 evacuation the onset was gradual, and at first was merely a steady expansion of the existing "trickle" evacuation. It was therefore possible to reopen one by one over a period of three weeks the homes previously on a care and maintenance basis. The need for additional accommodation made it necessary to find still more homes, and as a temporary measure beds were set aside in E.M.S. Hospitals for this purpose.

By November, 1940, twenty-three maternity homes with 673 beds had been provided in the Region. A total of 5,439 mothers had been confined in emergency maternity homes in the Region by December 31st, 1940.

Expectant mothers wishing to be evacuated register through the London County Council (in the coastal towns with the Medical Officer of Health), and arrangements are then made for their evacuation when the last month of pregnancy is reached. The distribution of mothers to the various homes is controlled by the Regional Office, and in this way overcrowding of homes is avoided. Three of the homes are linked directly with London hospitals for the purposes of evacuation. Parties of mothers are sent to the homes in buses with one or more escorting midwives. On arrival the mothers are examined, and those whose confinement is imminent are admitted to the home. The remainder are sent to billets or to antenatal hostels.

Maternity Homes

Much of the work involved in setting up these homes had of necessity to be undertaken without previous experience, and it may be of value to set out the general lines along which the provision was planned, together with a note on any special difficulties encountered.

In general, the size of the units varied from fifteen to a hundred patient beds. The types of buildings utilised included private houses, country mansions, a boys' club, a disused hospital, a disused block in a public assistance institution, a farm house and residential and day schools. Some houses were loaned by the owners and a few were rented, but more commonly the property was requisitioned under the Civil Defence Regulations. On the whole it was found to be more satisfactory to take over the entire building rather than part only, but in one or two instances the owner remained in residence and assisted in the administration of the home.

The shortest time taken in setting up a home from preliminary inspection to readiness for use was five days for a home of thirty-five beds. By reason of the short time available it was not possible to carry out many structural alterations. Adaptations carried out included the installation of additional bathrooms, w.c.s, sinks and sluices. Additional cooking facilities were also sometimes provided. Other adaptations included the provision of air-raid refuge rooms and protection of windows against blast. Equipment was obtained either from the Central and Regional Stores set up by the Ministry of Health, or, in cases of urgency or difficulty of supply, was purchased locally. In some instances London hospitals loaned the majority of the equipment.

In spite of the fact that all homes were situated in reception areas it was found necessary to provide air-raid protection, as serious damage was done to one maternity home and a number of others suffered minor damage. Wherever possible lying-in patients were placed on the ground floor, and in addition attention was paid to the shatter-proofing of windows, provision of a refuge room and adequate fire precautions under the supervision of the local fire superintendent.

While the variation between homes did not allow of a rigid adherence to standards, the following were adopted wherever practicable:—(1) Ninety-six square feet of floor space per patient in lying-in wards. (2) Small lying-in wards of four to six beds each. (3) One labour bed to every ten lying-in beds. (4) One midwife to every four patients and, where untrained assistants were also employed, one member of nursing staff to every two patients. (5) One member of domestic staff to every three patients.

Selection of Suitable Buildings

This was governed by a number of points, chief among which were the following:—

SIZE OF THE UNIT

In this connection it was found to be difficult and uneconomical to run a unit of fewer than fifteen beds for any length of time.

ADEQUACY OF ESSENTIAL SERVICES

An important factor here was the water supply, as regards both quantity and quality. It was found that while the water supply of some country houses was adequate for peacetime purposes it was inadequate for the additional numbers. Sewage disposal gave surprisingly little trouble, bearing in mind the simple methods of disposal in use at some of the more isolated homes. In no instance was extension of the existing system necessary.

In every instance but one emergency maternity homes in the Region have electric light. The exception is lighted by gas, and, apart from the special care necessary in using inflammable anaesthetics, no disadvantage has been found. Electric power, although desirable, may be difficult to obtain in country houses. In some cases central heating was available, but in others the existing means of heating had to be supplemented by gas or electric radiators. As regards cooking facilities,

it was remarkable to see what could be done with skill and goodwill on old-fashioned domestic ranges. The problem was simpler where modern insulated cookers had been installed, but in other places it was sometimes necessary to supplement the existing arrangements by electric, gas, or oil cookers.

Laundry arrangements presented some difficulty; although the premises chosen sometimes had their own laundry, this was usually inadequate for the needs of a maternity home. In this event it was usually possible to send out the larger items either to a local laundry or to a nearby hospital or institution. The small items were dealt with at the home. For the latter purpose it was possible in some instances to convert garages or outhouses into washing and drying rooms. Facilities for the boiling and drying of napkins within the home are, of course, essential.

ACCOMMODATION FOR PATIENTS

Small wards of four to six beds were chosen wherever possible, and a floor space of at least 96 square feet per patient was provided. A point which had to be considered in arranging the lay-out was the relative accommodation to be allowed for antenatal and lying-in cases. As a general rule antenatal cases could be accommodated on the upper floors and lying-in cases on the ground or first floor. It is desirable that lying-in wards should be on the same floor as the labour wards, but at some homes this was not possible. Particular attention was paid to access to the upper floors, as regards both width of staircase and alternative means of escape in case of fire.

Labour Wards.—One labour ward to every ten beds was made available where possible. Where this was not found to be practicable two beds were provided in the one labour ward, or, alternatively, a first-stage room was sometimes equipped as an emergency labour ward. A plain bare room with good natural lighting and no elaborate cornices or ceilings was chosen, and the walls painted with light-coloured washable paint. The floor was covered with linoleum or other impervious and washable material. Adequate artificial lighting was also arranged for. The question of emergency lighting had also to be considered. For one or two of the largest homes it was possible to supply a stand-by battery set, but at most homes hurricane lamps and electric torches were supplied. Sufficient means of heating had to be provided, avoiding open fires on account of the danger from inflammable anaesthetics.

It was particularly important to ensure that there was an adequate exit for carrying patients by means of carrying-slugs or stretchers.

A labour bed and all accessory fittings were supplied. A sink or basin with running water for scrubbing-up purposes was regarded as essential in the labour ward, but elbow taps were not found to be necessary.

Isolation Room.—A room had to be set aside for isolation purposes even though cases of puerperal sepsis were removed elsewhere as soon as the diagnosis was confirmed. Two points considered in connection with the provision of an isolation room were, first, that it must be structurally separate from the wards, and, secondly that it should have its own sanitary

annexe. It was often found that a room otherwise awkwardly placed—e.g., up a few stairs or on a mezzanine floor—could be usefully adapted for this purpose.

Provision of Sluices.—At least one sluice on each floor on which lying-in beds were situated was provided wherever possible. The sluice took the form of a bedpan adaptor fitted to an existing w.c. where the flushing tank was sufficiently high to give a satisfactory flow, or, alternatively, sluices were provided in addition to existing w.c.s. The latter course was found to be preferable for the larger homes, and wherever possible a small room or housemaid's pantry was chosen as a sluice room and fitted with a sluice and deep sink. A draining board for scrubbing mackintoshes and arrangements for hanging these to dry were also supplied.

Bathrooms.—Adequate bathing facilities for both patients and staff had to be arranged for.

Nursery.—In improvised maternity homes it was found to be necessary to set aside a room for the babies to sleep, although this practice is not followed in some established maternity hospitals. The obvious requirements were that the nursery should be well lighted and ventilated, adequately heated, and large enough to give adequate spacing for the cots. As the nursery sometimes had to serve as the babies' bathroom, running water was an asset, but was not essential so long as the water had not to be carried too far.

Reception Room.—A room set aside for reception and examination purposes is desirable. A bathroom was sometimes used for this purpose.

Day-Room.—A day-room for "up cases" was particularly necessary for mothers evacuated to isolated country houses. Where space was limited the patients' dining room was used for this purpose.

ACCOMMODATION FOR STAFF

In some cases it was possible to billet staff, but often this was not practicable, and in any event a nucleus staff had to be resident. It was sometimes found possible to accommodate staff in annexes, cottages or outbuildings, but more usually provision was made on the upper floors of the home itself. In the latter case accommodation was sometimes restricted, and it was not always possible to arrange that each member of the nursing staff had a separate room. It was, however, considered to be essential to provide a separate dining- and sitting-room for the staff, and separate bath and sanitation. The sister-in-charge was given a separate room, which she could use as her office if necessary.

Sterilisation Arrangements

Instruments.—These were usually sterilised in the labour ward itself, but in one or two instances a sterilising room was equipped in an adjoining dressing room. As a rule instruments were sterilised by means of a fish kettle heated by electricity, gas, oil, or, in the early days of improvisation, on the kitchen range. Where electric power was available electric sterilisers were provided. Similar arrangements were also made for the sterilisation of bowls.

Dressings.—The efficient sterilisation of dressings in these improvised homes presented one of the greatest difficulties. At most homes arrangements were made for sterilisation of dressings in drums at a nearby

hospital. Some of the more isolated homes prepared dressings by baking them in biscuit tins in the oven. Dressings cannot be properly sterilised in this way, so purchased sterile packets were used until the homes could be linked up with hospitals or institutions where dressings could be sterilised. The Women's Voluntary Services have proved very helpful in conveying drums to and from the home. Where such arrangements were not practicable, a gas or electric autoclave was installed.

Bedpans.—Here again arrangements for sterilisation had to be improvised. A separate bedpan was provided for each patient, and reliance was at first placed on thorough cleansing and sterilisation by means of containers in which the bedpans could be immersed in disinfectant. Bedpan racks constructed of wood or metal tubing were also made available. As opportunity offered, boilers heated by gas or electricity (in one instance by cylinder gas) were installed.

Staffing Arrangements

Medical Staff.—The services of obstetric consultants were secured by an extension of the existing peacetime arrangements wherever possible, but in some areas special appointments were made. A resident medical officer was appointed to all homes having accommodation for forty or more patients. For the smaller homes an arrangement was made whereby local practitioners could be called in on the Medical Aid Form. The general supervision of the home was undertaken either by a member of the county medical staff or by a practitioner nominated for the purpose. The training of medical students was undertaken at some homes supervised by the medical staff of teaching hospitals, and staffed by sisters and midwives from these hospitals.

Midwives.—At the larger homes a matron was appointed usually by transfer from one of the London hospitals; for the remaining homes a sister-in-charge was appointed. The supply of midwives was arranged by the Central Midwives Board except in those homes where the midwifery staff was transferred as a unit from a London hospital. Owing to the shortage of midwives which resulted from the opening of a large number of new maternity homes a standard of one midwife to every four beds was adopted. Assistant nurses were also appointed to some homes, and here a standard of one nursing attendant to every two patients was adopted wherever possible. Certain of the homes which were staffed from peacetime training schools were approved by the Central Midwives Board for the training of pupil midwives. The staffing of the emergency maternity homes proved one of the most difficult problems, and it is largely due to the help and co-operation of the Central Midwives Board that it has been found possible to maintain an adequate staff of midwives.

Domestic Staff.—In some cases the owner's original domestic and outdoor staff were retained. Where possible a standard of one member of domestic staff to every three beds was adopted. This number included cook or cook-housekeeper, resident domestics and daily workers. A handyman who combined also

the functions of gardener and porter was found to be essential.

General Administration

This was placed in the hands of the County or County Borough Council. The arrangement had the double advantage of bringing the homes directly under the welfare authority and of utilising the central office machinery for co-ordinating all the homes within each county. The County or County Borough Medical Officer of Health was therefore in administrative charge of the homes in his area.

Antenatal care was provided at clinics held in hostels, emergency maternity homes or at local welfare centres. For those mothers billeted some distance from the centre arrangements were made for antenatal care to be carried out by the district midwife.

The duration of stay of patients in the maternity homes was not less than fourteen days. So far as could be foreseen only normal cases were admitted to the majority of the emergency maternity homes and the confinements were conducted by midwives. Gas-and-air analgesia was provided at homes where midwives with the necessary qualifications were available.

Complicated cases were not usually dealt with in the emergency maternity homes, but were admitted either to a hospital or to a central emergency maternity home especially equipped as a maternity hospital, where the patients could be under the direct care of a resident medical officer and the obstetric consultant. Cases of puerperal sepsis were dealt with under the peacetime arrangements—e.g., at an isolation hospital or a special unit in a general hospital. Each home, in addition, had an isolation room, the details of which are described above, in which cases of puerperal pyrexia could be segregated for observation. A factor helping to reduce the incidence of sepsis was the linking up of the various homes within the Region in order that no one home should at any time be overcrowded.

Antenatal Hostels

As billets were often not available near the maternity home, particularly when large numbers of people began to arrive in the reception areas as a result of intensification of bombing, it became necessary to set up antenatal hostels. The hostel had to be near the maternity home to which it was attached, and here local circumstances varied from district to district. In country districts a journey of even a few miles at night might prove a hazardous undertaking.

It had also to be borne in mind that such hostels were in general uneconomical if accommodating fewer than ten beds. In most cases a large dwelling house was chosen, since this supplied all the facilities required and needed little adaptation. It was, however, necessary to pay particular attention to fire precautions. Wherever possible a resident midwife was appointed, or, if no midwife was available, a competent housekeeper, and arrangements were made for a nearby midwife to be on call.

The hostels were run on communal lines, the mothers themselves doing light work and daily workers the heavier work. These hostels were under the control and supervision of the welfare authority.

Postnatal Hostels

After confinement every effort was made to retain the mother and her infant in a reception area, either in billets or in a postnatal hostel. The need for these hostels was not felt until the evacuation scheme had been running at full force for some time and the billeting position in the various reception areas had become difficult. In a number of instances these hostels were set up by the local billeting authority and subsequently brought under the control of the welfare authority.

The general arrangements made were similar to those at antenatal hostels, and staff experienced in infant care was appointed. Particular attention had to be paid to the provision of adequate washing and drying facilities, and food and milk storage.

Summary

From the outbreak of war to December 31st, 1940, 5,439 mothers were confined in emergency maternity homes set up in reception areas in a civil defence region. An account is given of the arrangements for evacuation of expectant mothers and the procedure followed in the setting up and administration of the emergency maternity homes and associated hostels.

Our thanks are due to Miss Nield and Miss Pearce for their help with this paper.

THE MANAGEMENT OF AIR-RAID CASUALTIES*

By W. H. GRAHAM JESSOP, M.D., M.CHIR., F.R.C.S.

May I begin by saying how much I appreciate the honour the Society has done me in asking me to deliver this lecture. I must confess to being rather puzzled when I received your Secretary's invitation to find a common topic of interest between surgery and public health. But on reflection the solution of the problem proved fairly easy, since we all may perhaps have a personal interest in the fate of at least one air-raid casualty. So I thought that a discussion of the management of air-raid casualties, mainly from the surgical aspect, must have points of interest for the M.O.H., and I have therefore chosen this title for my lecture to-night.

Analysis of Cases

Since last August I have seen some eighty air-raid casualties admitted to hospital and have detailed notes of some fifty-nine of these. It might be of value to give an analysis of these cases and subsequently to discuss more generally the whole problem of the management of the injuries sustained. The fifty-nine cases may be classified into the following four groups:

Group 1. Requiring immediate operation	2 cases.
Group 2 (a). Severe shock; resuscitation; major operations	12 cases.
Group 2 (b). Severe shock; resuscitation; no operation	1 case.
Group 3. Requiring major operation only	4 cases.
Group 4. Mild shock and injuries requiring no operation or minor surgery only	37 cases, and 3 cases of burns of hands and face.
TOTAL	59.

* An address to a Branch of the Society of Medical Officers of Health.

GROUP I

Of the two cases in Group I requiring immediate operation the first was a student who sustained a penetrating wound in the right side of the neck. On admission he was found to be deeply shocked and was unconscious. Air and frothy blood were blowing out of the wound in the neck, and it was clear that the air passages had been penetrated and opened and that blood was producing respiratory obstruction. Immediate operation was undertaken. The wound was explored, and it was found that the right thyroid ala had been shattered and the trachea opened below this level. The wound was excised, packed with sulphapyridine powder, and closed round a tracheotomy tube. The patient never rallied and death occurred a few hours later. It was noticed that he developed a distended abdomen with shifting dullness, and it was quite possible that he had a ruptured liver or spleen, in addition to the other injuries.

The second case was that of a young married woman who received a perforating wound of the left side of the thorax. A piece of light metal bomb casing about 4 in. by 2 in. entered the thorax below the left angle of the scapula, passed through the left lung obliquely upwards and forwards, and came to rest projecting from the front of the chest just below the clavicle. The wound of entry was somewhat oblique and a section of one rib was destroyed. The lung was collapsed and the pleural cavity partly filled with blood. There was a wound at the posterior surface of the lung about 1 in. by $\frac{1}{2}$ in., through which air blew and sucked during respiration, rushing in and out through the gap in the chest wall at the same time. The edges of the anterior wound were "baked" by the hot metal for a depth of $\frac{1}{2}$ in. or more. The patient was only moderately shocked and was sent straight to the theatre after sorting. The chest wounds were excised, the rent in the lung sutured, and the chest closed without drainage. The general condition rapidly improved after the first few days; an effusion into the pleural cavity cleared up completely in three weeks; and the patient was able to leave hospital some nine weeks after the incident.

Although these two cases were regarded as requiring urgent operation, I think we should have been a little more thorough in the examination of the whole patient in the first instance, as the discovery of other lesions likely to have caused death might have obviated a useless operation. In the second case early closure of the chest wall was very desirable to diminish both cardiovascular and respiratory distress. Had shock been severe the usual resuscitation activities could have been carried on at the same time.

GROUP 2A

The twelve patients in the second group who needed major surgery after resuscitation for severe shock form a very diverse collection. They were all deeply shocked on admission, lying very quietly in bed, and showing an ashy-grey pallor, a feeble pulse, a clammy skin, and, indeed, the whole classical picture of shock. Operation could not be undertaken in most of them for from two to ten hours after admission, but all

responded in due course to morphine, warmth, and, in most instances, transfusion of blood or plasma.

There was one case of severe head injury—a fissured depressed fracture of the vault in a boy of about 7 years of age. He seemed unlikely to survive on admission and operation was not at first contemplated. However, the following morning he had recovered very well, so the scalp wound was excised and the fissure bevelled off. Fortunately the dura had not been penetrated and he made a complete recovery. There were two cases of penetrating wounds of the abdomen sustained during the same raid, both in healthy adult men who were admitted almost simultaneously. In the first there was a wound of entry just below the left costal margin, about 1 in. in diameter, through which a tongue of omentum protruded. Shock was not marked and laparotomy was undertaken about an hour after admission. Two small perforations were found in the anterior wall of the stomach; these were closed and the wound in the abdominal wall was excised and a drain passed through it. Recovery was uneventful apart from a small incisional hernia. The second case was very similar, except that the wound in the abdominal wall was more extensive and was closed with some difficulty. In this case, too, there was a double gastric perforation. In neither case was a missile found although there was no wound of exit.

A rather bizarre case was that of a well-built young lad of 18 who came in shocked, vomiting, retching more than usual, and with some abdominal rigidity. We eventually found a small penetrating wound of the scrotum at the bottom of which was a small piece of bomb casing. Although it was a comparatively trivial injury, the general effects had had all the severity which might have been anticipated from this very unsporting blow. A much more serious injury in this region was sustained by a youth who was struck by two fragments, one of which, entering through the scrotum, completely divided the penile urethra, whilst the second, producing a small wound of entry on the buttock, extensively disrupted the gluteal region and just failed to penetrate the rectal mucosa.

With the exception of a single severe scalp wound with cerebral contusion, the remaining patients in this group were all cases of limb injuries. They all had extensive laceration of the soft parts, but in two there was considerable skin loss but no bony injury, and in two others a comparatively small skin defect and also a fracture.

Our treatment for all the cases, after resuscitation, was to carry out thorough wound excision, enlarging the skin defect when necessary, to pack the wound with a sulphonamide powder, and to apply an adequate plaster cast. Pre-operative X-ray films were always asked for, and we found them invaluable for determining the presence of a retained foreign body.

GROUP 2B

The single case which I have classified as having severe shock necessitating resuscitation but not requiring major surgery was that of a heavily built middle-aged man with an emphysematous chest who was found to have a pneumothorax and fractured ribs.

GROUP 3

Of the four patients for whom major surgery was necessary but who showed little shock, one had a non-penetrating wound of the abdominal wall and another a compound fracture of the tibia. The remaining two cases presented some features of special interest. As I have said we always ask for pre-operative X-ray examination, but during one raid the electric current was interrupted and the plant put out of action for several hours. During this time several patients were operated on, and in nearly every instance a small retained foreign body was missed. One man had a small penetrating wound on the outer side of the calf. In due course a radiograph showed a fracture of the fibular shaft with a piece of bomb casing embedded there. This was removed, but sepsis supervened owing to the delay. In a second case a small piece of metal was found embedded in the patella. Fortunately in this instance the wound remained clean. A secondary suture after removal of the fragment was successful.

GROUP 4

The fourth group, containing the greatest number of cases (forty in all), included mostly examples of mild shock and abrasions, small cuts and lacerations, closed fractures of the more peripheral limb bones, multiple small uncomplicated penetrating wounds, and so forth. There were also three cases of burns of the hands and face in which shock was not severe enough to require special resuscitation.

Such, then, are the fifty-nine cases of which I have detailed notes. They represent a fairly random selection of air-raid casualties, although of course the series is too small to be fully representative. It contains, for example, no cases of blast effect or of crushing injuries of the limbs with renal failure. The actual distribution of the injuries is rather instructive. Of the serious cases, there were but two head wounds, one chest wound, and two abdominal wounds; in the remainder the wounds were confined to the limbs. This has, of course, been frequently noted in war surgery and is to be expected.

Types of Wound

The wounds seemed to fall into three main types: (1) There was the extensive lacerated wound due to crushing, probably by falling masonry or possibly by the patient's being flung violently against a rough surface. (2) There was the penetrating wound made by a small high velocity projectile. This was the most interesting and in some ways the most important. The skin defect was usually about $\frac{1}{2}$ in. to 1 in. in diameter, sometimes less, and could easily have been passed over as trivial. The deeper structures, however, were very extensively lacerated, especially in the region of the shoulder or buttock, and were deeply contaminated. Alternatively some unsuspected complication such as a fracture was present (or, in the case of an abdominal wound not included in this series, seven perforations of the small gut). The extensive damage is due to the great energy available, since these particles, although very light, travel very fast and " $\frac{1}{2}$ m.v.²" is correspondingly great. The importance of these injuries lies in the possibility of

their seriousness being overlooked by anyone not familiar with them. (3) Lastly, the majority of cases present features similar to those seen in everyday traumatic surgery and require no special comment.

The subsequent course of most of the patients has been very satisfactory. Those with limb plasters have been free from pain and in good general health throughout, whilst all have picked up rapidly once the initial shock has been overcome. Sequelae have been few. So far we have had no cases of gas gangrene, which we prefer to attribute to the treatment rather than to the nature of the local dirt. Bone infection has developed in only one case and the main problem has been to cover the large clean granulating areas which develop under the casts.

One patient is, however, worthy of special mention. She was a young girl of good family and above average intelligence who was taking a course to become a physical training school-mistress. Her first experience of bombing was in a village when a nearby house was demolished. A few weeks later she came into town one evening to see the ballet, and being unable to get back home stayed the night with a girl friend. A single stick of bombs was dropped across the neighbourhood and she was in a badly damaged house. She sustained extensive lacerations of the soft parts of the left arm and forearm with wide skin loss but no fracture. After admission and resuscitation, wound excision was carried out and a cast applied. When she had settled down it was found that she had a complete ulnar and a partial median nerve palsy. In a few weeks attacks of severe burning pain in the median distribution with a progressive hyperaesthesia were diagnosed as being causalgia. This is a troublesome complication of partial lesions of the median and sciatic nerves, and was first recognised in the American Civil War. The symptoms are usually severe enough to demoralise the patient, and this occurred to some extent here. Matters were not helped by a further "incident" which took place whilst she was in the hospital. Some bombs were dropped close by and the windows of the ward were blown in. However, we got her safely away to the country for a couple of months (and incidentally remained raid-free here). She was brought back with the causalgia very much less severe and a shower of incendiaries were dropped in the grounds of the hospital the following night. The interesting surgical point is that the causalgia should have undergone a further striking spontaneous remission when the patient herself got a little peace and quiet. The great majority of patients cease to attend the out-patient department soon after discharge, and only half-a-dozen or so persist in coming up for their compensation papers to be signed. Certainly the compensation neurosis has not yet developed as freely as in civil practice, I think.

Principles of Casualty Service

Such then is the general nature and course of the cases we have had in hospital. I should like to turn now to the broader questions of the management of air-raid casualties in general and review some of them in the light of these findings. I can claim no practical experience of these aspects and merely put them forward rather tentatively for your comments.

I think we may take it that the general principles of treatment for each individual must be to save life, to preserve function, and to ensure the most rapid and painless return to a normal existence. It is desirable that every casualty should therefore have the best possible treatment right through from the moment of injury to the end. The problems which are involved as I see them are therefore fourfold: the management at the site of the incident; the transport to hospital; the procedure in hospital; and the after treatment.

The management at the site of the incident may be conveniently discussed first. There has been some controversy as to how much sorting should be done at this point, as to what is essential and what superfluous in the first-aid, and as to whether a doctor should be present at each incident site. As regards the question of sorting, it seems desirable to me that all patients should go to hospital, at all events on the scale of casualties we have so far experienced. If any are sent home or detained at a first-aid post, then a certain number will be wrongly disposed—mainly cases of wounds with small high velocity fragments, leaving small apertures in the skin but with serious damage in the depths; and cases of small lacerations, especially of the scalp, where an underlying fracture of the vault may have been easily overlooked. No doubt the risk would be minimised if an "incident doctor" were present, but I do not see how it could be overcome under the conditions likely to prevail at the site of an incident. I have already given two examples of apparently trivial wounds with underlying complications. Here is a third. The stoker of a tug boat had just come up on deck for a "breather" when a bomb struck the water close by. He felt an apparent blow in the chest and was dazed for a moment, but soon recovered and was apparently all right. However, he was brought to hospital and we found a tiny skin wound over the lower part of the back of the chest on the right side. A radiograph showed a small bomb fragment in the right lower lung and a rather extensive opacity in this lobe. The latter eventually cleared up and was probably due to haemorrhage, but was rather an unexpected finding in view of the apparently trivial nature of the injury.

The amount of first-aid treatment necessary in most cases is small; warmth and rest and the relief of pain are desirable for all. The arrest of haemorrhage, preferably by a pad and bandage, the covering of wounds and of burns by a sterile dressing, and the application of splints to the limbs, more or less exhaust the list. In our own series the laryngeal wound required a similar dressing to that advised for cut throats in the first-aid manuals. For the sucking pneumothorax a firm pad and bandage had to be applied over the wound, and the same was necessary for the abdominal and scrotal cases. The limbs required simple dressings and orthodox splinting. Nothing elaborate is practicable or should be attempted, and I must say I have been very favourably impressed by the efficiency of the first-aid on those cases which I have seen come in. As regards burns, my own view is that an ordinary sterile dressing is the best thing for cases that are sent to hospital, since cleansing and the application of coagulants will in any event have to be carried through from

the beginning again there.

The question arises whether anything more elaborate should ever be undertaken at the site of an incident. It would seem that the necessity could arise only in special circumstances, as, for example, where people are trapped and partially accessible, so that morphine, dressings, and even transfusions, are desirable. But such instances must be rare. Certainly the best thing is to get all cases needing wound surgery to hospital as rapidly as possible so that shock may be treated and wound excision performed within six hours of the incident.

This brings me to the question of the procedure in hospital. This is, I think, pretty generally standardised now. Admission should always be to a large, well-lit, and well-warmed sorting room, where somebody who knows the work—i.e., a fairly senior surgeon and/or physician with plenty of assistants—can go round and decide on the disposal of each case. This has been done at the hospital by the R.S.O. or someone of similar standing. The patients are given A.T.S. as a routine and morphine and A.G.S. where indicated. Casualties have been divided into the dead; the dying; those requiring urgent operation; those requiring resuscitation to be followed by major surgery or not; those requiring major surgery; and those mainly requiring rest and warmth with or without minor surgery when things get quieter.

Apart from the first two categories, about a third of the patients needed major surgery or half major and minor surgery. The average time taken by the wound excisions and laparotomies, exclusive of the application of casts, was about fifty minutes, so that seven cases represents the limiting number which can be dealt with by one surgeon within the optimum period, and also about the limit of personal endurance. The saturation point for the hospital is thus about fourteen to twenty cases per table and team, if half or one-third of the casualties need operative treatment. The number can be raised by about 25 per cent. if the plaster work is done by plaster nurses away from the operating table, each case being transferred for this purpose to a plaster room after wound excision has been completed. If the number of cases exceeds this quota the value of sending further mobile surgical teams may be considered. My only personal experience of this procedure was to go away once as a member of a surgical team. We had a rather lengthy and uncomfortable journey and arrived to find the local staff exhausted, as was to be expected. We took no equipment and found that available rather inadequate and, of course, unfamiliar. We did not know their theatre routine or arrangements, nor the position of the wards. We also made the mistake of not seeing our patients before they came to the theatre, which I now regard as an imperative duty on the part of a surgeon. So we treated about six cases rather inadequately, and I do not think our trip was of much value. No doubt we should have done better to take equipment and also sufficient dressers to act as porters and plasterers to relieve the local staff of all responsibility. But the alternative of moving patients to surgeons seems worthy of serious consideration.

Lastly, a word may be said about after treatment

and disposal. Most bombed patients are rather jumpy in subsequent alerts, and the early evacuation of as many as possible to peripheral hospitals appears to be good policy, both for the individual and the organisation of the initial hospital in the target area. The great majority are fit to travel in twenty-four to forty-eight hours or so, and only a few of the serious cases need to be left in the initial hospital under the direct care of the operating surgeon for a longer period.

Summary

1. Fifty-nine air-raid casualties seen personally have been analysed into four groups: (1) Requiring immediate operation (two cases); (2a) Severe shock requiring resuscitation followed by major operation (twelve cases); (2b) Severe shock requiring resuscitation but no operation (one case); (3) Requiring major operation only (four cases); (4) Mild shock and minor injuries (forty cases).

2. An account of these cases is given. Wound excision within six hours, a sulphonamide pack, and for limb cases a plaster cast, have given uniformly favourable results.

3. It is suggested from this experience that ideally all cases from an incident should go to hospital. First-aid treatment is confined to treatment of shock, wound dressing, and adequate splintage. The possible seriousness of small skin wounds due to high velocity fragments is emphasised.

4. Saturation point at hospital is fourteen to twenty cases per team. Beyond this limit it would be preferable to switch cases rather than to send out mobile surgical teams.

My thanks are due to my chief for permission to refer to cases under his care.

PRECAUTIONS TAKEN TO PROTECT LONDON'S WATER SUPPLY*

By LIEUT.-COLONEL E. F. W. MACKENZIE, M.B., D.P.H.,
Director of Water Examination, Metropolitan Water Board

The water supply of London is derived from the Thames, the Lea, and from wells. The well waters are, generally speaking, easily purified, and the only additional war measure which has been taken has been the application of chlorine treatment to all well supplies. It is most unlikely that gross pollution will gain access to a well unless the pumping machinery is put out of action.

Pollution of River Water Supply

The river waters are heavily polluted, and the main lines of defence against pollution before the war were: (a) Storage in reservoirs; (b) Filtration through slow sand filters; and (c) Terminal chlorination.

It was anticipated that the effects of aerial bombardment upon these processes might be:—

- (1) Damage to reservoirs or to machinery which pumps the water up to them, or to aqueducts which carry the stored water to the slow sand filters, any of which might result in the loss of

the important safeguard effected by storage.

(2) Damage to filter beds or to conduits which might permit unfiltered water or subsoil water to gain access to filtered water channels.

(3) Pollution in mains or service reservoirs from simultaneous damage to drains or sewers.

(4) The deliberate pollution of water supplies by chemical poisons or bacterial cultures introduced by enemy agents or dropped from aeroplanes.

Pre-Chlorination

Pollution by loss of storage or by damage to filter beds has been guarded against by chlorinating the water before it passes on to the filters. By this means it has been possible to bring the water supplied to the works to a state of high bacteriological purity before filtration. The high degree of protection which this procedure gives has already been amply demonstrated. This "pre-chlorination," as it has been termed, has also provided a safeguard against interconnection between raw water and filtered water channels, but it does not protect against the infiltration of ground water into broken filtered water channels. This has, however, been satisfactorily covered by increasing the terminal dose of chlorine which is administered to the water before it is passed into supply.

The increase in the residual chlorine passed into supply, which may at times be objected to on account of the taste which has been inseparable from this procedure, also provides a considerable degree of protection against the deliberate introduction of bacterial pollution by enemy agents directly into the mains or into service reservoirs, and against any failure to effect complete sterilisation of broken mains before they are put back into supply as a result either of physical difficulties, which often exist, or of failure on the part of the human element.

Protection of Works and Reservoirs

The introduction of chemical poison into the water has been countered by a system of guards at works and reservoirs, and by arrangements which have been made for immediate testing at the works for poisons should there be any suspicion that the water may have been tampered with. The results of these tests would be confirmed as rapidly as possible by samples analysed in the laboratories, where a staff of sample collectors and chemists are on duty day and night. In addition to this, a daily examination for poisons in the water is made on samples representative of the contents of every pipe passing water into supply from the filtration works. In order to minimise the possibility of the breakdown of chlorinating apparatus at the works the chlorination houses have been strongly protected against damage by blast, and in many cases new and specially designed chlorination houses have been constructed. Duplicate chlorinating points have also been provided by means of which it is possible to re-establish chlorination with the least possible delay should instruments in use be damaged.

The most serious danger is that which results from the fracture of mains in close proximity to sewers. Protection against this has been provided by laying down that no main shall be put back into supply after

repair unless and until it has been thoroughly disinfected by chlorine, and special apparatus has been provided for this purpose. Details of the methods used may be found in the *Medical Officer*, November 30th, 1940.

Despite the very elaborate precautions which have been taken it is fully realised that it is not practicable to cover every possible incident, and here again the high residual chlorine which is maintained throughout the whole system provides a very considerable safeguard. Even so, there are certain conditions, for example, in connection with the physical layout of mains and service reservoirs, which make it impossible to guarantee the safety of the supply in all the circumstances that may arise. Notices advising the public to boil their water have, therefore, been prepared and distributed for immediate issue by the A.R.P. organisation should there be any reason to believe that polluted water has gone into supply. To cover the possibility that people may be unable to boil their water owing to the interruption of gas supplies, a simple method for purifying it by chemicals obtainable at all chemists' shops has been printed on the back of these notices. This method was also broadcast to the public by the Director of Water Examination on August 13th, 1940, and the advice given then has recently been repeated in a broadcast by Mr. H. Berry, the Chairman of the Board.

Routine Sampling

In addition to these special precautions which have been taken as a war measure, routine samples are drawn and examined as follows:—

Raw river waters	...	...	...	daily
Stored reservoir waters	...	...	...	weekly
Chlorinated water before filtration	...	...	...	daily
Filtered water	...	...	...	daily
All mains carrying water from the works	...	...	...	daily
A small number of samples drawn at random from consumers' premises or from mains in the streets	...	...	...	daily
Widespread random sampling over the whole area of supply	...	...	...	once a week

In order that there may be no cessation in the examination of samples should the central laboratories be bombed, duplicate emergency laboratories have been prepared and are ready to be brought into action immediately.

Effectiveness of Protective Measures

It may be of interest to know what degree of protection was given during the period of concentrated air attacks upon London by the measures which have been outlined. Almost every conceivable form of damage which might affect the purity of the supply was inflicted upon the undertaking. Despite this, so far as it has been possible to ascertain by very widespread sampling (during 1940, 34,888 bacteriological analyses alone were performed) there has been no evidence whatever that the safety of the water supplied to London has been less than in peace-time, and in fact there is very substantial evidence to the effect that a considerably higher standard of bacteriological purity has been achieved.

Despite the reassuring nature of past experience, it must be borne in mind that whatever precautions may be taken to maintain the purity of the supply circum-

stances may be such as to render them of no avail. This has already been the experience of other cities, and it may at any time be ours. We should therefore be constantly on guard, and no efforts should be spared to hold in readiness the machinery which may be necessary to fill the breach should one be created in the defences erected by the Metropolitan Water Board.

A NEW DEAL FOR DENTISTRY*

By B. R. TOWNEND, L.D.S.

Senior Dental Officer, West Riding County Council

Dentistry is an unfortunate profession. In the middle of the last century a number of men who were practising ethical dentistry and who viewed with concern and alarm the steadily increasing growth of outrageous quackery attempted to found a college of dentistry and establish the profession on an autonomous and regulated basis. This attempt was—unfortunately, in my opinion—a failure, and dentistry was adopted by the Royal College of Surgeons, which body granted a licence to practise after prescribed examinations had been passed which is now familiar as the qualification L.D.S. The dental profession is the poor relation of medicine, the Cinderella sitting in the ashes. I am inclined to think that the conception that dentistry is a branch of medicine has been overstressed. It is true that the dentist of to-day must have a fairly extensive knowledge of medicine, but why is not the converse true? Dentistry must carve out a niche for itself. It must rid itself of its parasitic tendencies. An engineer is not a mechanic, neither is he a physicist; yet engineering stands on its own, and it is considered no degradation to do manual labour seasoned with scientific knowledge. Dentistry combines in its practice medicine, art, and mechanics, so blended to produce a profession individual and alone—a branch of neither—and the sooner it ceases to bow and cringe before medicine, the better.

Dental Education

It is essential that we should have in this country a very considerable number of dentists who are capable of carrying out in an efficient manner the basic repair work of their profession. In the present state of our knowledge this seems to be the most effective way of controlling dental disease because we do not know the specific factor which causes this disease. If and when this factor is discovered, dental disease will become a medical problem on a par with diphtheria, small pox, malaria and the like. The present training of a dentist takes too much account of the academic side and too little of the craft side of dentistry. It is very little use to be able to discourse upon the dentition of fishes or classify odontomes if you cannot extract, conserve and replace teeth efficiently.

To achieve its ends, dental education and the control of the profession should become more autonomous. This child of medicine is getting old enough to develop its own personality and destiny. That this autonomy

* An abridged version of a paper read at a joint meeting of the Yorkshire Branch and the Dental Sub-group of the Society of Medical Officers of Health.

* Abstract of an address delivered to the Metropolitan Branch of the Society of Medical Officers of Health.

is desirable was brought home to me very forcibly a few years ago when I had the honour to sit on a committee of the Public Dental Officers' Group of the British Dental Association which was considering the institution of a diploma in public dentistry analogous to the medical D.P.H. After putting in a considerable amount of work we were forced to abandon the scheme because it became very evident that the General Medical Council and the medical faculties of the Universities would not make such a diploma registrable unless it conformed to their requirements, which were very different from what we wanted. Our committee consisted of public dental officers of many years' experience, and I think I can honestly say that we knew what we wanted and we knew what the profession wanted—or at least what was good for them, which is perhaps a different thing. Anyway, with all respect to the powers that be, I am absolutely certain that they had not the vaguest idea of the practical requirements. Dental education, then, should have for its primary aim the production of a large number of men and women well trained and skilful enough to carry out the three basic functions of dentistry—removal, conservation, and restoration of teeth. The frills and furbelows of dentistry should be left to the individual's initiative, liberally assisted by postgraduate instruction and higher degrees and diplomas.

That—very briefly—is an outline of my idea of the new deal for dentistry so far as its own internal economy and its relations with the medical profession are concerned. We must now consider the social relationship of the profession.

Dentistry a Health Service

In the first place, whatever medico-dental relations may be, dentistry is very definitely a health service. The full realisation of this is slowly sinking into the minds of the medical and dental professions and, much more slowly, into the mind of the lay public. Only a few years have passed since it was fully recognised that dental disease was anything more than an unpleasant but strictly localised condition and that the restoration of the human dentition by prosthesis was of much more than aesthetic and cosmetic value. The work of Black in the end of last century and the beginning of the present one opened up a new picture of oral sepsis as a very common focus of organisms which might cause disease in any other part of the body, or so lower resistance that other diseases might readily invade other organs. Because of the almost universal incidence of dental disease, this conception puts its control in the very forefront of health services, and the dental profession becomes, or should become, a veritable vanguard of public health. I should like to repeat and emphasise that the significance of this conception is sinking very slowly into the minds of the medical and dental professions and the great general public has hardly begun to realise it. This realisation will come, and when it does the public health service of this country should be in a position to meet the demand in as efficient and economical way as possible. I do not intend to weary you with my ideas on the much discussed subject of regionalisation. Many of you probably know a great deal more about it than I do, but its theoretical

advantages seem so great that it would appear to be an inevitable development. If this happens it is obvious that dentistry must take its part and play its part in the new order.

Continuity of Dental Care

The problem as I see it is this. Having recognised from ample scientific evidence that dental health and general health are closely inter-related, and that an optimum state of the latter cannot be attained in the absence of the former, we must next consider how the highest degree of dental health can be maintained throughout the life of the individual. The technical side of this is very largely a dental problem and as such I do not propose to deal with it to any extent. In the present state of our knowledge one clear fact emerges. In a great proportion of cases, early, regular and systematic inspection of the mouth by a dental surgeon, with such aids as the use of X-rays, to detect early interstitial caries, followed of course by the appropriate treatment, can control dental disease and maintain the mouth in a state of health. I am not suggesting that we shall always have to tackle our problem in this way. I am sufficient of a scientific dreamer and optimist to believe that the time will come when we shall have the necessary knowledge to control dental disease in other and more scientific ways, and I think it is very essential that all the research we can command should be devoted to this end. The fact remains that at the moment the conservative method is the one which gives the best results, and so our task is to try to discover how this method can be used to the best effect.

I have said that inspection and treatment must begin early and be regular and systematic. If we made a tour through this country, or any other country for that matter, do we find this being done? Either we find the pre-school child completely neglected, or if anything is done at all the cases are usually referred to the dental surgeon by a doctor who from the dentist's experience seems to refer either cases so bad that one is at a loss where to start, or cases of arrested caries which require no treatment at all. As for the children of school age, things are a little better. We have here the school dental service of which I think we have some reason to be justly proud if by no means satisfied. After the child leaves school the rot in the teeth which has been going on since infancy still continues with unabated vigour, and rot also sets in in the machinery for dealing with it. Just at the age when it is most needed, regular, systematic treatment suddenly ceases in the great proportion of cases and is not taken advantage of again until the adolescent becomes eligible for dental benefit under National Health Insurance. If the individual is a woman who does not come within the scope of this service, her next opportunity for obtaining aided dental treatment is when she becomes pregnant, and the dental officer who has any experience of maternity and child welfare work knows only too well the average sort of neglected mouth which confronts him then. He has to make some attempt at cleaning things up at a time which is highly unsatisfactory to both patient and operator.

Few of our essentials are fulfilled, with the inevitable

sequels that follow when a job is half done—the end results are far from satisfactory, energy and money are wasted, and the prestige and reputation of the dental profession, and of the medical profession as a health service, suffer.

Outline for a Dental Service

The problem is clear cut and the answer is clear cut also if the problem is worth tackling at all. Some scheme must be devised that will put adequate dental treatment within the reach of everyone throughout his or her lifetime, not just at a few periods with large gaps between, during which more than half the ground that is gained during the active periods is not merely lost but deliberately thrown away. We must first of all forget all our old ideas of parochial parish pump local administration and place all our branches of public health work under the supervision and control of specialists, preferably committees or councils who would administer a nation-wide scheme having a flexible uniformity, a broad outlook, and an eye to economy in energy, time, and money.

Let me try to picture, so far as dentistry is concerned, how this would operate in an area like the West Riding of Yorkshire (the divisional areas might well be bigger than this). A senior, regional, divisional—call him what you will—dental officer would have charge of the area. He would be a member of the central dental council or committee that directed dental affairs in London and he would also be a member of the divisional committee, with its senior officers who ran the other specialist health services, such as tuberculosis, orthopaedics, maternity and child welfare, physical training and all other specialties sufficiently clear cut to require independent organisation and administration. All this would be under the general administration of the Ministry of Health. I can see no rhyme or reason in switching an individual's health destinies from Ministry of Health to Board of Education and back again; it is the same individual and the same health—or lack of it. To return to our divisional dental officer. We have every reason to expect that his membership of the two suggested committees would keep him broadminded and foster a due sense of perspective as to where his own specialty fitted in, and its relative proportion to the whole scheme. The bulk of his staff would consist of the rank and file of clinical officers whose fundamental training and professional equipment I have indicated, and in addition he would also have working under his supervision a number of specialist officers who would supplement the work of and assist the rank and file. He would have skilled anaesthetists with first-rate equipment to carry out that very important and necessary part of the work. He would have orthodontic specialists to advise on that very difficult subject, which I venture to prophesy will become more and more important in public opinion as time goes on. He would have dental laboratories for the construction of prosthetic and orthodontic appliances. He would have expert radiological advice. If a dental hospital was situated in his area, he would be in close touch with the more academic aspects of dentistry and both his service and the hospital would benefit. He would be in a position to organise research

work on a worth-while scale, and in addition to this there should be a central council to control and correlate research activities on a nation-wide basis, such a council having laboratory facilities, a well-organised library, and the services of such people as statisticians available.

Anaesthesia and Orthodontics

Let me consider in more detail two points—anaesthesia and orthodontics. Both these activities are, or should be, specialist jobs. Under present conditions in the public dental service general anaesthesia is usually administered either by a medical man, often a member of the staff of the local authority, or by another dental officer if there is more than one such on the staff. It is often whispered in my ear that the first of these alternatives is not always very satisfactory. I know that the apparatus in use in many small authorities is by no means adequate for the simple reason that the better types of such apparatus are too expensive for the returns they would give. It is possible in the West Riding to find half a dozen local authorities, each running its own dental scheme, and each struggling along with inadequate and out-of-date anaesthetic apparatus. In my Utopia, the general anaesthetic requirements would be dealt with by specialists with first-rate equipment. In the realm of orthodontics, while making no claim to be anything even approaching a specialist, I have seen appliances in children's mouths which under no possible circumstances could be expected to do the things that they were supposed to do. In my scheme all orthodontic cases of any complexity would be referred to a specialist for advice.

Here we have two very important branches of dentistry inefficient, nay, positively dangerous in many places, largely because of the absence of regionalisation and central administration.

Private Dental Practice

I must now face the great problem of private practice. If something approximating to my scheme ever comes into being, what place—if any—can be found for private practice? If it is true that some form of public dental service is the best solution of our dental difficulties; if it is true that the only way, or at least the best and most economical way, of producing optimum dental health is by means of a national public dental service incorporated into a national public health service, then I am afraid that the private practitioner will have for the most part to go. The most common argument in favour of private practice is that the elimination of private enterprise will lower the standard of work done. I don't believe it. I never have believed it and I hope I never shall. My experience has been that when a number of professional men and women are working together, there is a healthy spirit of rivalry which tends to produce the best efforts in an individual. It may be that some satisfactory scheme can be devised to utilise the services of private practitioners in a scheme which would be an extension of the existing National Health Insurance scheme. I do not know. I should be interested to hear the views of public health officers on the medical side on the similar state of affairs which faces the medical profession. Although not entirely comparable, the two problems have much in common.

I have left to the end any mention of the financial side of the matter. Frankly, it does not interest me very much because I firmly believe that any expenditure incurred in safeguarding and improving the health of the nation is money well spent and recoverable at interest, if not in kind, in national prosperity and happiness, two assets for which no price is too dear. I think, however, that some consideration and exploration of a scheme might be made by which contributions are made by the State or by the parents, and later the individual, from the day of birth throughout life. This would provide a sort of sinking fund which would accumulate in most cases during the early years of life and would form an insurance against later and increasingly expensive calls. I do not propose to elaborate this idea but merely submit it for consideration.

[The discussion on this paper is published in this issue at p. 197.]

OBITUARY

SIDNEY DAVIES, M.D., D.P.H.

Dr. Sidney Davies, for twenty-eight years Medical Officer of Health for Woolwich, died at his home in Worthing on May 18th.

Born in 1855 at Darwen, he was educated at Manchester Grammar School, Oxford University, St. Bartholomew's, and Paris. He graduated B.A. in 1887, gaining first-class honours in mathematics. He won the junior entrance scholarship at Bart's in 1878. He qualified M.R.C.S. in 1881 and M.B. in 1883, and took his M.D. in 1889. After holding a resident appointment at the Prince of Wales's Hospital, he went to Egypt, where he became principal medical officer to the Egyptian Police. In 1888 Dr. Davies settled in general practice and in 1891 he was appointed M.O.H. for Plumstead. In 1901, when Woolwich became a borough, he became its first M.O.H., and retired in 1919. During his period of service in Woolwich he introduced the first garden shelters for the treatment of tuberculosis, and was the first M.O.H. to employ women as sanitary inspectors. He was also the first M.O.H. to have notices put up in the public conveniences about venereal disease; and he began the first maternity and child welfare clinic in Woolwich.

An old friend writes:—

One of our veterans of the Public Health Services has now "joined the majority," and it falls to me, also an octogenarian, to write a few words of appreciation. I fear that many others, like myself, failed to realise how well informed Sidney Davies was and the admirable work in public health that he accomplished. He was not an advertiser of what he had done, and it may be said of him that he suffered from the rare complaint of modesty, perhaps to an excessive extent. But nevertheless his work was done and well done, without any fuss being made, and when the books come to be made up, his work in the ordinary sanitation of Woolwich, and in the special new developments of tuberculosis and maternity and child welfare work, of the treatment and prevention of venereal disease—all newly developed in Woolwich under his leadership—will make it clear that he left Woolwich a different and immensely better area than he had found it. In postscript to his biography, one specially original piece of work, carried out jointly

with Dr. J. C. Thomas of the L.C.C., is outstanding. This was on the experience of measles in the school population of Woolwich—a valuable early study of the epidemiology of that disease. Most of the original and specially important work of medical officers of health is interred in their annual reports, and it may be regarded as a major defect of our publicity work in public health that a special and often difficult process of disinterment is required for giving it the continued life that it deserves. That was especially so for Sidney Davies. But the good influence of such reports continues and increases with time, until what was individual becomes in time the possession of all.

ALFRED ERNEST WHITE, M.B., D.P.H.

Dr. A. E. White, who was Medical Officer of Health to the Ludlow Borough for twenty-seven years and to the Ludlow R.D.C. and Tenbury R.D.C. for about thirty-three years, died on May 8th at the age of 75.

Alfred Ernest White was educated at Owen's College and Edinburgh University. He qualified in 1894 and took the D.P.H. in 1907. He went to Ludlow in 1912, at the age of 46, having previously been assistant and deputy to the Medical Officer of Health for the counties of Denbigh and Montgomery and the borough of Rotherham. He had also spent one year as medical officer to the Baguley Fever Hospital, and for varying periods had been M.O.H. for eight districts in Shropshire and Worcestershire. In his youth Dr. White was an enthusiastic cricketer, and played for Edinburgh University.

JOHN EDWARD O'CONNOR, M.D., D.P.H.

Dr. J. E. O'Connor, whose death occurred recently, was Medical Officer of Health for the combined districts of Leicestershire and Rutland for nearly forty years. He qualified in 1893 in Dublin, took the D.P.H. Cambridge in 1898, and the M.D. at Belfast in 1926. He was also a Barrister-at-Law. Dr. O'Connor served in the R.A.M.C. in the South African War, and was appointed M.O.H. of Pretoria by Lord Roberts after its occupation by the British Forces. In the war of 1914-1918 he was a Major in the Second North Midland Field Ambulance. He joined the Society of Medical Officers of Health in 1899.

GEORGE HENRY DUPONT, M.B., D.P.H.

We regret to announce the death of Dr. G. H. Dupont, who was Medical Officer of Health for the Borough of Twickenham from 1910 to 1938. In 1912 he took the D.P.H., R.C.P.S. Dr. Dupont was consulting physician to St. John's Hospital, Twickenham, and also School Medical Officer to the Borough of Twickenham.

The National Association of Maternity and Child Welfare Centres and the National Association of Probation Officers, London and Home Counties Branch held a joint meeting on Monday, June 30th, at 2.30 p.m., at Carnegie House, 117, Piccadilly, London, W.1, when Miss J. E. R. Kennedy, probation officer, Willesden Police Court, and Dr. Leslie Housden spoke on "The Bearing of Mothercraft Teaching on the Prevention of Juvenile Delinquency."

BOOK REVIEW

Modern Diagnosis. Edited by Sir HUMPHRY ROLLESTON, B.C., G.C.V.O., K.C.B., M.D., D.S.C., F.R.C.P., and ALAN A. MONCRIEFF, M.D., F.R.C.P. 1940. (*The Practitioner Handbooks.*) London: *The Practitioner* in conjunction with Eyre and Spottiswoode. Pp. illustrations xxix + Index xxiv + 262. Price 12s. 6d. net.

In this, the latest of *The Practitioner* handbooks, the editors have collected contributions from a number of clinical and laboratory experts, who have combined to produce a most valuable publication. Although most of the material is based upon contributions to *The Practitioner* during the past few years, extensive revisions and additions have been made, and new articles have been included. The book is divided into two parts, the first dealing with clinical diagnosis, and the second with laboratory diagnosis and special methods.

Part one contains much clinical knowledge. Nearly all these essays are lucidly written, and the clinician will find in them many points of interest. The section on skin disease provides a useful scheme of diagnosis. The modern interpretation of abdominal pain is well discussed, and other interesting contributions are those dealing with facial diagnosis and changes in the nails. The section on cardiac murmurs in childhood is a rational exposition and well illustrated. The second part of the book contains chapters on laboratory aids in tuberculosis, gastro-intestinal disorders, liver disease, chronic rheumatism, renal disease, glycosuria, and other conditions. Only sufficient details are given concerning each test to enable the practitioner to appreciate its importance, and in general the emphasis is placed on the interpretation of the results of tests. The section on interpretation of the electrocardiogram is well done, but the electrocardiograms would have been improved by being printed on a slightly larger scale.

It would be invidious to single out chapters for special mention, and indeed it would be difficult to do so. Throughout the first part of the book the physiological bases for different symptoms are well described, and there is little to criticise in the sections on laboratory diagnosis. This book deserves a wide circulation.

In Circular 2404 issued by the Ministry of Health on June 11th, reference is made to Circular 1829 of June 3rd, 1939, with regard to the medical examination of men called up for service with the Armed Forces. It is now proposed to make use of the civilian Medical Boards for the examination of recruits for the women's auxiliary services. It is clearly desirable, the Circular states, that, as in the case of men presenting themselves for medical examination, the Chairman of the Boards should be able to consult the appropriate tuberculosis officer in order to obtain a specialist's opinion in the case of any woman recruit whose history or present condition suggests that she may be suffering from tuberculosis. The Minister trusts that local authorities will co-operate in the extension of these arrangements to women recruits as now proposed.

G.M.C. REPORT ON PUBLIC HEALTH EXAMINATIONS

Comment, by Society of Medical Officers of Health

In 1938 and 1939 members of the Public Health Committee of the General Medical Council visited examinations for diplomas or degrees in sanitary science, public health, or State medicine, and in May, 1940, a report of their findings and recommendations was published by the G.M.C. This report was the subject of comment in PUBLIC HEALTH of December, 1940, and was fully considered by the Council of the Society of Medical Officers of Health at its meeting on May 23rd, 1941. The following comment on the report was agreed on and is to be sent to the G.M.C.:—

The Society welcomes the opportunity of studying and commenting upon the Report forwarded to it by the General Medical Council. The public health service demands a high standard of knowledge and attainment on the part of those desiring to enter it, and the Society agrees that some of the defects revealed by the Visitors merit the comment which has been made upon them. While it is generally in accord with the desire of the Public Health Committee to remove such defects, it finds itself at variance with some of the views expressed in the Report:—

(a) The Society definitely disagrees with the suggestion contained in paras. 10-12 that the oral parts of these or any similar types of examination would be improved by each examiner separately and individually questioning and assessing the merits of each candidate. The proposal seems to overlook the function of an oral examination, as distinct from the scrutiny and assessment of written answers.

(b) The Society is at a loss to understand how the proposed extension of the practical examination in bacteriology to cover two days (para. 27) would materially improve this examination, and takes the view that to do so merely for the reason given would be to place undue emphasis on one aspect of a test which is intended to demonstrate a candidate's knowledge and understanding of the subject *in relation to the public health*, and not his competence as a bacteriologist.

(c) The Society agrees that there should be a reasonable number of examiners in Part II (para. 34), but cannot subscribe to the sweeping statement that "no two examiners can be expected to have a knowledge, adequate for examination purposes, of all these subjects." In their view a better sense of balance is kept in an examination upon all the closely inter-related subjects involved if as few examiners as possible are employed.

The Society makes the following further comments and suggestions:—

1. The quality of an examination depends more on the quality of the examiners than upon their number or the number of questions and tests which are set. The Society welcomes the opinion expressed that the combination of an internal and an external examiner is the ideal (para. 8). As a corollary to this view the Society is of opinion that no group of examiners should ever assess the merits of candidates for a public health qualification unless some of them have practical day-

to-day contact with the work of public health. Such circumstances are unlikely to arise in the examination for Part II, but the danger of academic dominance is real in connection with the Part I examination. The Society further suggests that where the multiplication of examiners is necessary in order to cover a variety of subjects, some of them should function as associate examiners and should not be responsible for the final assessment of the candidates' merits in the Part.

2. The Society is conscious of the need for improvement in the practical side of the examination for Part II. It agrees with the view that a clinician regularly in charge of patients suffering from infectious diseases should be associated with the examination (para. 38), and that the importance of this aspect of public health should be recognised by an adequate allotment of marks (para. 42). It deprecates, however, the emphasis on food inspection and inspection of premises, as representing practical public health work, which has repeatedly been made in the Rules of the General Medical Council governing examinations. The major part of the attention of a medical officer in a public health department is devoted to other matters, and proficiency in the subjects above mentioned is no guarantee of his competence in practical public health work generally. The whole question of practical tests in Part II requires very careful reconsideration.

3. The Society wishes to draw the attention of the General Medical Council to the point that postgraduate degrees or diplomas were originally designed as qualifications for the post of medical officer of health. It is still only for such posts that they are statutorily required, with the strange exception of medical supervisors of midwives. In effect, however, this type of qualification has become a portal of entry to the public health service, even for those who do not aspire to the position of medical officer of health, or have little prospect of attaining it. In addition, the Minister of Health and the Board of Education have prescribed other special qualifications which must be possessed by medical men or women appointed to several types of post within the public health service. These facts have a bearing on the nature and balance of curricula and examinations for public health qualifications, and raise a serious question as to the desirability, or otherwise, of their being so planned as to cultivate a broad conception of public health, rather than to promote proficiency in some of its practical aspects. Is it, for instance, more important that an entrant to the public health service should show competence in the clinical diagnosis of acute infectious diseases, in food inspection and in the inspection of premises, than in the diagnosis and treatment of tuberculosis and venereal diseases, the practice of midwifery and the care of infants and young children, or in the ascertainment of mental deficiency?

4. The Society notes that the Public Health Committee of the General Medical Council has recommended that new Rules for examinations should be made in due course with the object of raising the general level to that of those examinations which they consider most satisfactory (para. 17). It is suggested that a much wider survey of the problem is required before any such action is taken, involving not only examinations

but also the curriculum—or curricula. With great deference, the Society suggests that, if and when circumstances permit, the whole question should be remitted for report to a special committee which not merely should consist of members of the Council, but should broadly represent those who are concerned with teaching and examination for both Parts and also those who are engaged in the practical work of public health.

THE BIRTHDAY HONOURS LIST

Medical officers of health will have learnt with much satisfaction of the honour of Knighthood conferred on Dr. Alexander Stuart Murray MacGregor, O.B.E., Medical Officer of Health for Glasgow, who has been nominated as President of the Society of Medical Officers of Health for the next session. We also welcome the bestowal of the honour of K.C.M.G. on Dr. Henry Harold Scott, Director of the Bureau of Hygiene and Tropical Diseases, London, and of the K.C.I.E. on Lieut.-General Gordon Gray Jolly, Director General of the Indian Medical Service.

Holders of the D.P.H. and medical men in the public health services figure prominently in the honours list. They include:

C.M.G.

John Fearby Campbell Haslam, M.C., M.D., F.R.C.P., D.P.H., Colonial Medical Service. Director of Medical Services, Northern Rhodesia.

James Balfour Kirk, M.B., Ch.B., D.P.H., Colonial Medical Service. Director, Medical and Health Department, Mauritius.

C.I.E.

Codanda Madiah Ganapathy, M.C., M.B., Ch.B., Lieut.-Colonel, Indian Medical Service. Director of Public Health, Madras.

Mark Alleyne Nicholson, M.B., B.S., D.P.H., Lieut.-Colonel, Indian Medical Service. Chief Medical Officer in Central India and Residency Surgeon, Indore.

Cameron Macdonald Nicol, M.D., D.P.H., Lieut.-Colonel, Indian Medical Service. Lately Director of Public Health, Punjab.

Hugh Stott, O.B.E., M.D., F.R.C.P., D.P.H., Major-General, Indian Medical Service. Honorary Surgeon to the King. Surgeon-General with the Government of Madras and lately Inspector-General of Civil Hospitals, Bihar.

George Verghese, M.D., D.P.H., D.T.M. & H., Lieut.-Colonel, Indian Medical Service. Director of Health and Inspector-General of Prisons, Orissa.

C.B.E. (Civil Division)

Albert Victor Bernard, O.B.E., M.D., D.P.H., Chief Government Medical Officer, Malta.

James Alison Glover, O.B.E., M.D., F.R.C.P., Lately Senior Medical Officer, Board of Education.

John Crawford Knox, M.B., Ch.B., D.P.H., Honorary Consultant Adviser to the Secretary of State for Scotland in connection with the Emergency Hospitals Organisation.

Arthur Massey, M.D., D.P.H., Medical Officer of Health for Coventry.

Harris Munden Mosdell, M.D., Secretary for Public Health and Welfare, Newfoundland.

O.B.E. (Civil Division)

Mrs. Ethel Cassie, M.D., D.P.H., Senior Assistant Medical Officer of Health for Maternity and Child Welfare, Birmingham.

Nariman Munchershaw Hodiwalla, M.B., B.S., D.P.H., Medical Officer of Health, Aden.

John Alexander Scott, M.D., D.P.H., Medical Officer of Health for the Metropolitan Borough of Fulham. For Services to Civil Defence.

Hubert Cecil Maurice Williams, M.R.C.S., L.R.C.P., D.P.H., Medical Officer of Health for Southampton. For Services to Civil Defence.

M.B.E. (Civil Division)

Eustace Henry Taylor Cummings, M.D., D.P.H., Medical Officer, Sierra Leone.

Paul Thangasami Jesu Doss, M.B., Ch.B., D.T.M. & H., D.P.H., Medical Officer of Health, Secunderabad Cantonment, Hyderabad, Deccan.

EVACUATED TUBERCULOUS PERSONS

Representations have been made to the Minister of Health concerning the action to be taken with regard to notifications and case records of evacuated tuberculous persons, and it has been suggested that local authorities would welcome an expression of his views on these points. The following Circular (2962) has been sent to Medical Officers of Health, Local Authorities, and Joint Tuberculosis Boards:—

Notifications

As local authorities are aware, Article 10 (6) of the Public Health (Tuberculosis) Regulations, 1930, requires the transfer from the old to the new area of residence of notifications in respect of tuberculous persons who have changed their place of residence permanently. In the Minister's view, evacuation, or any other temporary change of residence as a consequence of the war, does not constitute a permanent change of residence within the meaning of the Regulations, and notifications in respect of evacuated persons should therefore not be transferred to the new area of residence. The Minister understands that in some areas the Medical Officer of Health has, in fact, transferred notifications in respect of such persons, and he would not suggest reversal of this action where it has already taken place. He would be glad, however, if in future the Medical Officer of Health, on finding that a notified tuberculous person has left the district, would take steps to satisfy himself that the change of residence is not merely temporary owing to war conditions, and transfer notifications only in respect of those persons who are shown to his satisfaction to have left the district permanently.

Case Records

Where tuberculous persons are evacuated or temporarily change their residence it is, of course, of first importance that continuity of treatment should be assured. From inquiries he has made the Minister understands that, generally, satisfactory co-operation has been established between the respective Local Authorities concerned, and that any necessary information has been freely supplied by the authority of the

area which tuberculous persons have temporarily left to the authority responsible for providing treatment in the area to which they have gone. To avoid interruption of treatment on removal, some authorities have adopted the practice of giving to each person under the care of a tuberculosis dispensary a special postcard addressed to the tuberculosis officer, on which the patient is asked, in the event of removal, to insert his or her new address, and to return the card to the tuberculosis officer, so that the latter may communicate with the tuberculosis officer of the area to which the patient has gone, and supply any necessary particulars of the case.

The Minister commends this practice to the attention of all Local Authorities responsible for the provision of treatment in urban areas liable to air attack, and would suggest that any such authority which has not already done so should consider adopting this plan. It is also suggested that tuberculosis officers should supply, in respect of every tuberculous person moving to another area, an adequate summary of the person's medical history and treatment; and, if so desired by the tuberculosis officer of the new area of residence, should lend for his information the full case record of any patient, including X-ray films, etc.

NOTIFICATION OF CASUALTIES

A circular (2982) on the notification of casualties has been sent by the Ministry to local authorities, all hospital authorities in the Emergency Scheme, and to all voluntary hospitals in the Scheme. It refers to Circular 2150 regarding the special arrangements for the notification to men serving in the Forces of casualties among their relatives. It has been represented to the Minister that, after receipt of such a notification, a man serving in the Forces at a station where he is unable readily to obtain any news of the injured relative is naturally anxious to be informed of any material change in his or her condition. The Minister is reluctant to trouble hospitals further in this matter, but he feels sure that it will be realised that considerable anxiety is occasioned where information cannot be obtained by a Service man in such cases.

Where practicable, therefore, in cases where it is known to the hospital that a postcard notification has been issued under the terms of Circular 2150 classifying the relative as "seriously ill" or "dangerously ill," any material change in the classification of the patient shown on the original card should also be notified subsequently to the Service Department concerned, on a postcard giving the necessary particulars of the patient and of the Service man in order to enable the Service Department to inform him of the change of condition of his relative. Such steps need not be taken in any case where it is known that the Service man is in this country and is in touch with the casualty.

Hospitals no doubt normally record in the papers of the case that the original card has been sent, but it is suggested that where this is not already done the practice should be adopted and future notifications of change of condition should also be recorded.

SOCIETY OF MEDICAL OFFICERS OF HEALTH

GENERAL PURPOSES COMMITTEE MEETING

1. A meeting of the General Purposes Committee was held at Tavistock House, Tavistock Square, W.C.1, on Friday, May 23rd, 1941, at 12 noon.

Present: Dr. Cyril Banks (Chairman), Drs. J. S. Anderson, Vynne Borland, G. F. Buchan, J. J. Buchan, James Fenton, R. H. H. Jolly, Catherine Morris Jones, Prof. R. M. F. Picken, Drs. J. A. Stirling, R. Sutherland, Ernest Ward and F. T. H. Wood.

Apologies for absence were received from Sir Wm. Savage and Dr. H. Gibbons Ward.

2. Minutes of the meeting held on November 15th, 1940, were confirmed and signed.

3. The Committee considered a letter from the Maternity and Child Welfare Group in reference to the National Milk Scheme. The Group submitted that the leaflet of directions enclosed with the tins of dried milk is unsatisfactory and contentious in several respects, and recommended that the packets be marked simply with directions as to how to convert the dried milk into the equivalent of liquid milk, together with an instruction that advice should be obtained from a private doctor, or a welfare centre, as to the exact dilutions, additions, and size of feed necessary for each child. After some discussion it was decided to ask the M. & C.W. Group to draft leaflets for distribution with the National Dried Milk and with Special Milks, and that subject to approval by the President and by the Chairman of the General Purposes Committee, copies of the drafts should be forwarded to the Ministry of Health.

4. Correspondence was considered from Dr. J. Walker and Dr. J. A. Charles in reference to the administration of school medical services in the county of Northumberland. It was agreed that a letter should be addressed by the Chairman to Sir Wilson Jameson in support of the principle that the Society should co-operate with the British Medical Association in bringing this matter to the notice of the Board of Education and the Ministry of Health, and that Dr. Charles be asked to follow up his action at the Ministry in support of Dr. Walker's case.

5. The President, the Editor and the Chairman of the General Purposes Committee were appointed to report on papers eligible for awards of the Neech Prize for the Sessions 1938-39 and 1939-40.

6. A letter was received from the Central Council for the Care of Cripples stating that it has recently become an incorporated company, limited by guarantee and asking the Society to become an "Associate Society" under the revised constitution. It was agreed to accept this change of category and to continue Drs. T. P. Puddicombe and Ernest Ward as the Society's representatives on the Central Council.

7. A letter was considered from a medical officer of health in reference to a resolution recently passed by his Council that all correspondence addressed to their officials shall be opened by the clerk, sorted and passed

to the various officials. The M.O.H. asked if his Council have power to insist upon his letters being opened without his consent; and what action, if any, he should take in the matter. It was agreed that the M.O.H. should appeal for reconsideration of this decision on the ground that much of his correspondence is of a confidential character, and that in certain connections, e.g., venereal diseases and tuberculosis, secrecy is a definite requirement.

8. The Association of Municipal Corporations asked for comment on the following letter from a Town Clerk:

"I am instructed by the Council to inquire if you can inform me what action other local authorities are adopting with regard to the fees payable to medical practitioners in respect of diphtheria immunisation?"

"I understand that the British Medical Association have fixed a fee of £1 11s. 6d. for a session of two hours, but that some medical practitioners are taking objection to this, and that other local authorities are paying a capitation fee per head and providing serum."

It was agreed to reply that the B.M.A. fee had been generally adopted, but that variations had been approved to meet special conditions in certain areas.

9. A letter was received from the Yorkshire Branch recommending that the Council of the Society should direct the attention of the Minister of Health to the fact that scabies is frequently introduced into households by members of the Services home on leave, and by imported labour from other areas; and that much could be done to prevent the spread of the disease if a careful examination were made of all members of the Services going on leave, and of all persons about to be transferred to other areas by the Ministry of Labour.

The Committee hesitated to make any suggestion that might be regarded as an unfair reflection on H.M. Forces, but it was agreed that the Ministry of Health should be asked to draw attention to the difficulties in connection with scabies, and to ask the co-operation of the naval, military, air force and labour authorities in measures necessary for its control.

10. A letter from Dr. N. Chadwick (Hove) drew attention to complaints regarding the present system of rationing milk. It was reported that this matter was receiving the attention of the B.M.A. and that any further action was unnecessary at present.

11. A letter from Dr. H. G. Trayer, drawing attention to Circular 2340, page 5, appendix 2, section 3, subsection 2, issued by the Ministry of Health under date April 11th, 1941 (Tuberculosis Nursing Services), was referred for consideration by the Tuberculosis Group.

12. Other matters having been deferred for further consideration, the Committee then adjourned.

COUNCIL MEETING

A meeting of the Council was held at Tavistock House, Tavistock Square, W.C.1, on Friday, May 23rd, 1941, at 2.30 p.m., with the President (Dr. F. T. H. Wood) in the chair.

There were present Drs. J. S. Anderson, Cyril Banks, H. Stanley Banks, Vynne Borland, G. F. Buchan, J. J. Buchan, H. W. Catto, James Fenton, J. M. Gibson, R. H. H. Jolly, Catherine Morris Jones, Gordon Lilico,

A. S. M. Macgregor, Prof. R. M. F. Picken, Drs. T. N. V. Potts, A. T. W. Powell, Maitland Radford, J. A. Stirling, R. Sutherland, E. W. Caryl Thomas, A. G. G. Thompson, H. G. Trayer, Ernest Ward and H. C. Maurice Williams.

Apologies for absence were received from Sir Francis Fremantle, Sir William Savage, Drs. J. W. Hunter, T. P. Puddicombe, J. E. Spence, P. H. Stirk and H. Gibbons Ward.

The minutes of the meeting held on February 21st, 1941 (see PUBLIC HEALTH, April, 1941, pp. 120-122) were approved and signed.

REPORT OF THE GENERAL PURPOSES COMMITTEE.—Dr. Cyril Banks presented the report of the General Purposes Committee (see p. 194) and their recommendations were approved and adopted.

PUBLIC HEALTH DIPLOMAS AND DEGREES SUB-COMMITTEE.—Professor R. M. F. Picken submitted the report of this Sub-Committee (see p. 191) which was approved and adopted for submission to the General Medical Council.

NOMINATION FOR PRESIDENT FOR SESSION 1941-42.—Dr. A. S. M. Macgregor having been nominated by the Scottish, Metropolitan, East Midland, Northern and Welsh Branches, it was decided to recommend him for election as President of the Society for the Session 1941-42 by the Ordinary Meeting to be held later in the day, in accordance with 17(a) of the Society's Articles of Association.

ELECTION OF VICE-PRESIDENTS AND HON. TREASURER.—Drs. F. T. H. Wood, James Fenton and Ernest Ward were unanimously elected as Vice-Presidents of the Society for the Session 1941-42. The retiring Hon. Treasurer, Dr. G. F. Buchan, was re-elected for the coming session. These elections were authorised by special resolution of the Council as required by Article 18.

LIFE MEMBERSHIP.—The following Fellows were elected to Life Membership under Article 12: Dr. G. H. Dupont, formerly M.O.H., Twickenham M.B. (joined Society 1912), Dr. W. Sisam, formerly M.O.H., West Berks C.D. (joined Society 1905), Dr. W. S. Stalker, formerly A.M.O.H., Hendon M.B. (joined Society 1905), and Dr. D. J. Thomas, formerly M.O.H., Acton M.B. (joined Society 1901).

HONORARY FELLOWSHIP.—Sir William Willcox, K.C.I.E., C.B., C.M.G., M.D., F.R.C.P., was nominated for election as an Honorary Fellow of the Society under Article 4(a) as a person "eminently distinguished in the advancement of Public Health."

CENTRAL MIDWIVES BOARD.—Dr. J. J. Buchan was re-elected as representative of the Society on this Board.

B.M.A. MEDICAL PLANNING COMMISSION.—Dr. G. F. Buchan reported that Drs. Ferguson, Massey and himself, representing the Society, had attended the first meeting of the Medical Planning Commission held on Wednesday, May 7th, 1941. An account of the meeting appeared in the *British Medical Journal* of May 17th, 1941.

The Commission formed five committees, namely, a General Practice Committee, a Special Practice Committee, a Public Health Committee, a Hospitals Committee and a Teaching Hospitals Committee. These committees were instructed to consider and report with appropriate recommendations on the principles of medical organisation and development within their

provinces as indicated by the titles of the respective committees. A Co-ordination Committee will subsequently be appointed to integrate the reports of the foregoing committees into one draft report. The draft report or reports of the Co-ordination Committee, before being approved by the Commission, are to be submitted to the bodies represented thereon and to the profession generally, and comments and criticisms received will be considered by the Co-ordination Committee, which will then submit a draft report to the Commission with such criticisms or recommendations as have not been included in the reports.

Dr. G. F. Buchan went on to make the following observations on the whole subject. He stated that he considered medical planning a matter of the highest importance to the profession and one in which the Society of Medical Officers of Health could and should take a prominent part.

Domiciliary Practice: Public Health Practice: Special Practice.—In his view medical planning was primarily concerned with domiciliary medical practice and out-patient practice, including surgeries and clinics, the work of the public health services and special practice in relation to the foregoing. He considered that these various types of practice required integration so that they might work harmoniously and unitedly together. Although much had been written and said to the effect that the general medical practitioner was the first line of defence in health matters he did not think that this was so in fact, but he thought that every endeavour should be made to convert this pleasant euphemism into practical politics. It was therefore necessary to consider how the general practitioner could be brought into the field of preventive medicine, including environmental, personal and industrial hygiene and mental health services. This, in his view, was a matter of extreme difficulty and would require careful thinking and planning by one committee on which general practitioners, public health medical officers and specialists would all be represented.

Hospitals.—The matter of hospitals and teaching hospitals had occupied a considerable portion of the time of the first meeting of the Medical Planning Commission. Dr. Buchan stated, however, that it seemed to him that hospital questions were secondary to those involved in the problem of unification of general practice, public health practice and special practice above mentioned and were more easy of solution. One of the main problems which arose was really—where does the general practitioner service end and the hospital service begin? Some direction in this respect was required so that some idea of the number of beds needed for the population could be obtained. The importance of early treatment has always been stressed by the medical profession and no doubt in certain conditions early treatment is essential. But exactly in what circumstances such treatment should be undertaken at home or in hospital was a matter for careful thought and consideration.

Other questions that arise in connection with hospitals are the minimum sizes of the various types of hospitals which can be regarded as effective and to what extent convalescent homes can relieve the pressure on hospitals.

Teaching Hospitals.—With regard to teaching hospitals, it appeared from the first meeting of the Medical Planning Commission that this was a problem which would be solved by some modifications of existing teaching hospitals.

The type of practitioner required in the future will depend on the plan ultimately decided upon and teaching will have to be adjusted to the new plan. It is a matter for consideration whether or not all suitable institutions, including clinics and the smaller hospitals, might not well be integrated into a scheme for the practical teaching of the future medical man.

Administration.—The question of administration was hardly touched upon at the first meeting of the Medical Planning Commission. Here the Society of Medical Officers of Health can be particularly useful. Regionalisation of hospitals was mentioned but no sort of conception emerged as to the relationship between such regionalisation and the domiciliary and public health practice and special practice to be undertaken in the area. It is a matter for serious consideration by the Society whether co-ordination or amalgamation of hospitals should be brought about over any area without at the same time co-ordination or amalgamation of the other medical services in that area.

Research.—Whatever new medical plan is evolved the need for research will continue. If the areas of administration are properly devised each area should be able to make its contribution to research in hospitals or in general practice or in laboratories or otherwise, and organised arrangements should be made accordingly.

Dr. Buchan suggested that as the subject of medical planning was one of vital importance to medicine it would be well worth while on the part of the Society—in spite of the fact that their members have so many other things to do at the present time—to give attention to it. He thought that the branches of the Society might convene meetings with practitioners in their area to endeavour to thrash out the principles on which a scheme could be framed. He also thought that perhaps some individual medical officers of health might deal with the subject from the point of view of their own areas and in consultation with their medical colleagues practising in those areas in an endeavour to frame a scheme which would help towards the solution of the problem.

Dr. Buchan stated that what he had said was not intended to be exhaustive but merely suggestive of some of the problems to be considered and difficulties to be overcome.

The Council of the Society, having heard the statement of Dr. Buchan, decided to circulate it to the branches of the Society and to include it in the journal for the information of all members, in the hope that some branches and some medical officers of health would be able to take up the matter and consider it and discuss it and report their conclusions to the Council, say, within the next 9 to 12 months.

RAID CASUALTIES.—The Council received with deep regret news of the death by enemy action of the following Fellows of the Society: Dr. Keridwen Armstrong (Brook Hospital, Shooters' Hill), Dr. David Diamond (Deputy M.O.H., Hull C.B.), Dr. G. P. McCloskey (M.O.H., Havant U.D.). It was agreed to forward

messages of sympathy to the relations of the deceased.

HONORARY PHYSICIANS TO THE KING.—The Acting Executive Secretary was directed to address letters of congratulation to Sir Weldon Dalrymple-Champneys, Bt., Drs. W. G. Clark, R. Veitch Clark and James Ferguson on their appointment as Hon. Physicians to the King.

The Council then adjourned.

ORDINARY MEETING.

An Ordinary Meeting was held at Tavistock House, Tavistock Square, on Friday, May 23rd, 1941.

The President (Dr. F. T. H. Wood) was in the chair and there was a large attendance of members.

The minutes of the last meeting were confirmed and signed by the President.

The first business of the meeting was the election of the President of the Society for the session 1941-42. The President announced that the Council had that afternoon selected the name of Dr. A. S. M. Macgregor, O.B.E. (M.O.H., City of Glasgow) for submission to the Society. This nomination was accepted with acclamation and Dr. Macgregor was thereupon elected to the office of President for the session 1941-42.

The meeting then proceeded to the election of fully-paid Life Fellows of the Society (see Council Minutes, May 23rd, 1941).

The following candidates, having been duly proposed and seconded, were then elected to membership:—

As Fellows: Angus, James, M.B., CH.B. (GLASG.), B.H.Y., D.P.H.; Bradshaw, Desmond Burton, M.B., B.Ch. (DUB.), D.P.H.; Burgess, John A., M.D. (EDIN.), D.P.H.; Cameron, John Spittal, M.B., CH.B. (GLASG.), D.P.H.; Clark, David Speer, M.B., CH.B. (EDIN.), D.P.H.; Cox, Gladys May, M.B., B.S. (LOND.); Draper, Arthur Philip, M.C., M.A., M.D., B.Ch., B.A.O., L.M. (ROT. DUB.); Fleming, Gerald Morris, M.B., B.Ch. (CANTAB.), D.P.H.; Good, C. F., M.R.C.S., L.R.C.P.; Lindsay, Thomas, M.B., CH.B. (ST. AND.); Mills, John, M.B., CH.B. (LIV.), M.R.C.S., L.R.C.P., D.P.H.; Rennie, James Little, M.B., CH.B. (GLASG.), D.P.H., F.R.F.P.S.; Taylor, Ellis, M.B., CH.B. (LIV.), D.P.H.; Warrack, John, M.B., CH.B. (ABERD.), D.P.H.; Worthington, Stanley, M.D. (DURH.), B.S., B.H.Y., D.P.H.

As Associate: Cooper, Mary Henrietta, L.D.S. (ST. AND.).

One nomination was postponed for further consideration.

Honorary Fellowship.—On the nomination of the Council Sir William Willcox, K.C.L.E., C.B., C.M.G., M.D., F.R.C.P., was elected an Honorary Fellow of the Society as a person "eminently distinguished in the advancement of Public Health."

THE SOCIETY: BRANCH AND GROUP MEETINGS

NORTHERN BRANCH

President: Dr. James Grant (M.O.H., Gateshead C.B.).
Hon. Secretary: Dr. J. A. Charles (M.O.H., Newcastle-upon-Tyne C.B.).

A meeting of the Branch was held in the Board Room at Elswick Grange, Newcastle-upon-Tyne, on March 22nd. The President was in the chair and was supported by fourteen other members.

The minutes of the meeting held on January 18th were read, confirmed, and signed by the chairman.

NORTH-EASTERN REGIONAL HOSPITALS ADVISORY COUNCIL

The Hon. Secretary read a letter which had been received from the Acting Chairman of the Medical Advisory Committee of the above Council, inviting the Northern Branch of the Society of Medical Officers of Health to nominate three members to serve on the Medical Advisory Committee. After discussion, it was agreed that a request be made to the Medical Advisory Committee that the representation of the Northern Branch of the Society on the Committee should be five members rather than three. The branch, in anticipation of the acceptance of this proposal, nominated as its five representatives Dr. J. A. Charles, Dr. J. Grant, Dr. A. S. Hebblethwaite, Dr. I. McCracken, Dr. J. Walker. It was agreed that, pending the decision of the Medical Advisory Committee as regards the representation of the branch, the five members nominated should agree among themselves as to the three who should attend the next meeting of the Committee.

Dr. F. J. Nattrass delivered an address on neuroses in war. After a short discussion, during which the speaker answered questions, Dr. Hebblethwaite proposed, on behalf of the Branch, a hearty vote of thanks to Dr. Nattrass for his most interesting and topical paper.

A meeting of the Branch was held in the Board Room at Elswick Grange, Newcastle-upon-Tyne, on Friday, April 25th. The President was in the chair and was supported by 15 other members.

The minutes of the meeting held on March 22nd were read, confirmed and signed by the President.

North Eastern Regional Hospitals Advisory Council

The Hon. Secretary informed the Branch that their request that the representation of the Branch on the Medical Advisory Committee should be five members rather than three had been accepted.

At a meeting of the Medical Advisory Committee held that afternoon, Dr. Hebblethwaite had been appointed Vice-Chairman of the committee. Also, Dr. Charles had been appointed as one of the representatives of the same committee on the chairman's advisory committee.

Presidency of the Society of Medical Officers of Health

The Hon. Secretary read a letter which had been received from the Hon. Secretary of the Scottish Branch requesting the support of the Northern Branch to the nomination of Dr. A. S. M. Macgregor for the Presidency of the Society for next session.

Dr. McCracken proposed that the Northern Branch support the nomination of Dr. Macgregor and Dr. John Walker seconded this proposal, which was carried unanimously.

Next Meeting

It was agreed that the next meeting should be held at Elswick Grange on the date to be arranged by the Chairman and Hon. Secretary, and that this meeting should be followed by an informal dinner.

Dr. T. H. Boon delivered an address on "Blood Transfusion and Resuscitation." The address was followed by a practical demonstration.

After a short discussion, during which Dr. Boon answered questions, Dr. Stokoe proposed, on behalf of the Branch, a hearty vote of thanks to Dr. Boon for his interesting address.

YORKSHIRE BRANCH

President: Dr. N. Gebbie, (M.O.H., Hull C.B.).
Hon. Secretary: Dr. R. Sutherland (M.O.H., Brighouse M.B.).

A joint meeting of the Branch with the Dental Sub-Group was held in the Civic Hall, Leeds, on April 25th. In the unavoidable absence of the President, Dr. McNaught, a vice-president, occupied the chair and was supported by 30 other members and associate members and two guests.

The minutes of the last meeting were taken as read, approved and signed.

On the recommendation of the Council, it was decided to elect Drs. Buchan, Gebbie, Gibson, and McNaught to serve as the four representatives of the branch in the Provincial Hospitals Regionalisation Scheme.

The Secretary was instructed to convey to the relatives of Dr. Diamond, Deputy Medical Officer of Health, of Hull, who was recently killed through enemy action, the sincere sympathy of the branch in the loss that they had sustained.

THE FUTURE OF DENTISTRY

Mr. B. R. Townend, the West Riding Senior Dental Officer, read a paper on "A New Deal for Dentistry." (see p. 187). In the discussion which followed, Dr. Bates referred to the difficulty experienced in getting the public to make use of the services provided and the necessity for educating the public to a proper appreciation of the importance of dental treatment. Dr. Hill thought that the dental profession was passing through the same stages as the medical profession some forty years earlier. It was at present carrying the unqualified, who would gradually disappear. Professor T. Talmage Read, of the Leeds Dental School, dealt with the importance of attracting the right type of man to the profession; their education must induce them to take a scientific outlook. While the mechanical part of the training was important, it was not all important. He was afraid that he could not agree with Mr. Townend that dentistry should be divorced from medicine. More attention must be paid to the causation of dental diseases. Miss Sclare, of the West Riding County Council, agreed that a change was necessary on the lines indicated by Mr. Townend, but she thought that this could only be brought about when representation in Parliament had been gained.

Mr. Lubner, of the West Riding County Council, considered that it would be for the good of the profession if a double medical and dental qualification were insisted upon. This would weed out the undesirable. It was, however, impossible to insist upon this at the present time owing to the scarcity of entrants. Even then craftsmanship and technique were, to a large extent, hereditary, and there should be some kind of examination to eliminate those who did not have these essentials. Dr. Weaver, of the Board of Education, referred to the constitution of the Dental Board,

and showed how many of the matters which one would expect to be dealt with by the Board were in fact dealt with by the General Medical Council. The low recruitment to the dental profession was a serious problem. Statistics showed that more than three-quarters of the members of the Dental Register were over 40 years of age. It was impossible, therefore, to improve the standard at the present time. Mr. Cubith, of Wakefield, mentioned the difficulty experienced in the School Dental Service in providing treatment for all who needed it. He thought that treatment should be confined to those who were willing to accept it when it was recommended, and not given to those who refused it until treatment was of little use.

On the proposal of Dr. Roe, a hearty vote of thanks was extended to Mr. Townend for his critical and constructive address.

The meeting of the Branch was preceded by a meeting of the Council, at which Dr. Sharpe, the senior vice-president, was supported by ten other members.

WELSH BRANCH

President: Dr. J. Greenwood Wilson (M.O.H., Cardiff).
Hon. Secretary: Dr. H. W. Catto (M.O.H., Newport C.B., Mon.).

A meeting of the Branch was held at the Institute of Preventive Medicine, Cardiff, on April 25th. The President was in the chair; twelve other members were present.

The minutes of the last meeting, held on November 16th, 1940, were read, approved and signed by the President.

Arising out of the minutes, the question was discussed of giving assistance to the Ministry of Food in connection with the education campaign they were undertaking. The President stated that there would be a food exhibition in the large Assembly Hall, at the City Hall, Cardiff, from July 14th to 19th, 1941, and the honorary secretary was instructed to inform the members of the Branch of these dates.

The honorary secretary reported that he had received a letter from Dr. Melville Hiley, secretary of the North Glamorgan and Brecknock division of the B.M.A., asking for a nominee from the branch to serve on the local Medical War Committee. As the present representative, Dr. D. J. Thomas had expressed his inability to serve, Dr. Severn, Pontypridd, whose assent had been obtained, was nominated by the branch. The branch also decided to nominate Dr. Colston Williams and Dr. H. W. Catto to serve on the local Medical War Committees of the Cardiff and Monmouthshire Divisions respectively.

The secretary submitted a letter he had received from the Scottish Branch asking for the support of the Welsh Branch for the nomination of Dr. A. S. M. McGregor, Medical Officer of Health for Glasgow, as President of the Society for the ensuing year. It was resolved that the Welsh Branch support the nomination of Dr. A. S. M. McGregor.

The secretary was instructed to approach certain other members of the branch for papers to be read during June, July and September.

The meeting then listened to a most interesting address from the President on "The Battle of the Peace—Wanted, a Ministry of Human Reconstruction." The vote of thanks was moved by Dr. D. Rocyn Jones, County Medical Officer for Monmouthshire, and seconded by Professor Ralph M. F. Picken.

EASTERN BRANCH

President: Dr. V. F. Soothill (M.O.H., Norwich C.B.).
Hon. Secretary: Dr. J. W. Hunter (M.O.H. and S.M.O., Ipswich C.B.).

A meeting of the Eastern Branch was held at Scole Inn, Scole, on Saturday, June 7th, 1941, at 4 p.m. The President was in the chair and was supported by eleven other members and one guest.

The Minutes of the previous meeting of the Ipswich Section were read, confirmed and signed.

Election of Officers.—The President explained that due to war conditions the names of those officers previously elected were sent in to continue for a further year of office, all having agreed to do so as no meeting could be called at the time.

It was proposed by Dr. Walker and seconded by Dr. Rogers, and unanimously resolved, that the officers should be requested to serve for a further period.

Dr. A. Leslie Banks, the Regional Medical Officer, gave an exceedingly interesting talk on the public health problems arising from war conditions.

Following this, practically all members participated in the discussion and as a result the following resolutions were passed:—

(1) There is evidence of a marked deterioration in the cleanliness obtaining for milk. This Branch requests the Council of the Society to bring this matter to the notice of the Ministry of Health.

(2) This Branch requests the Council of the Society to bring the following resolution to the notice of the Ministry of Health: "The employment of women with children under one year of age in any form of industry should be adopted only as a last resort."

(3) This Branch desires consideration by the Council of the question of compulsory powers for dealing with known sources of venereal disease.

METROPOLITAN BRANCH

This Branch has continued the useful series of discussions on subjects of current importance among the many public health aspects of civil defence. At the March meeting, Professor Major Greenwood gave an interesting talk on some of the epidemiological problems arising from war conditions in the Greater London area. Members of the Home Counties Branch were present. In April, Col. Whitworth Jones spoke on gas. The May (annual) meeting was mainly occupied with the receipt of reports of the past year's work of the Branch and the Borough Medical Officers' Committee, and with the election of officers for the year 1941-2, beginning on October 1st. The new officers will be: *President:* Dr. C. F. White; *Vice-Presidents:* Drs. Maitland Radford and A. G. G. Thompson; *Honorary Treasurer:*

Dr. J. Macmillan; *Honorary Secretary:* Dr. V. Borland; *Representatives on the Council of the Society* (in addition to the Honorary Secretary, *ex officio*): Drs. C. F. White and J. A. Struthers; *Branch Council:* the officers and Drs. J. Fenton, J. B. Howell, A. J. Shinnie, J. A. Struthers, C. P. Hay, E. C. McGregor, V. Russell and C. H. C. Toussaint; *Auditors:* Drs. C. O. S. B. Brooke and H. L. Oldershaw. The Branch decided to support the candidature of Dr. A. S. M. Macgregor for the Presidency of the Society next year.

DENTAL OFFICERS' GROUP

President: Lieut. Q. A. Davies (Asst. D.O., Glamorgan C.C.).
Hon. Secretary: A. Gordon Taylor (Dental Surgeon, L.C.C. Hospitals and Institutions).

The Annual General Meeting of the Group was held at Tavistock House on May 17th, at 2.30 p.m. In the absence of the President, whose military duties prevented his attendance, the chair was taken by the immediate past president, Mr. J. F. Pilbeam. The minutes of the previous Annual General Meeting held in October, 1939, were read and confirmed. The Hon. Secretary then read his report on the activities of the group since the last Annual General Meeting. A folio containing a paper on "The First Permanent Molar," by Mr. Frank Jones, A.D.O., Middlesex, had been prepared and circulated to all members who had previously expressed their desire to receive it. Blank sheets were provided at the end of the folio on which readers could write their comments.

The recent deaths under tragic circumstances of Mr. T. Helmer, Assistant Dental Secretary, British Dental Association, and of Mr. Sydney Smith, for many years a member of the group and until 1937 senior dental officer for the County of Middlesex, were referred to by the chairman, and those present stood in silence for a brief period as a token of respect for their memories. The Secretary was instructed to convey the sympathies of the group to their widows.

Mr. Pilbeam then spoke of his activities as one of the representatives of the Society on the Central Council for Health Education. He said that further dental representation on the Central Council was to be expected, and also direct representation of the British Dental Association. The Central Council had decided to produce a dental film, which would be leased for exhibition at cinemas throughout the country. The film would also be available for use with the smaller size projectors and would be a "sound" film. A sub-committee had been formed to assist Mr. Pilbeam in drawing up suggestions for this film.

A report by the representative of the Yorkshire Sub-group, Mr. F. C. Shenton, on the activities of the sub-group was then read. Six meetings had been held during the year, at which there had been an average attendance of sixteen members. Papers had been read by Mr. S. G. Cubitt, D.O., Wakefield, on "Identification by Means of Teeth"; by Mr. Cocker, Leeds Dental Hospital, on "Fractures"; by Mr. B. R. Townend, Senior D.O., Yorks, W.R., on "A New Deal for Dentistry"; and by Dr. R. Weaver, Medical Officer, Board of Education, on "Relationship of Dental Caries and Nutrition." The other two meetings

had been devoted to symposiums on "The Most Outstanding Incident in my Professional Career" and "The First Permanent Molar." During the coming session it had been decided to hold meetings in the autumn and spring in order to avoid the winter months.

The following officers were elected for the coming session:

President ... Lt. A. Quentin Davies.
Vice-Presidents ... Mr. R. Chase, Mr. J. Rhys-Herbert and Mr. George Thomson.

Hon. Secretary ... Mr. A. Gordon Taylor.
Asst. Hon. Secretary ... Mr. Frank Jones.
Hon. Treasurer ... Mr. R. Chase.
Hon. Editor of Transactions Mr. Jeffrey Fletcher.
Members of Council ... Maj.-General J. P. Helliwell, Mr. S. K. Donaldson, Mr. C. R. Wilshaw and Miss W. M. Hunt.

Representative on the Council of the Society ... Mr. A. Gordon Taylor.

The next general meeting of the group will be held at Tavistock House at 2.30 p.m. on Saturday, July 19th, 1941, when Mr. Frank Jones will recapitulate his paper on "The First Permanent Molar," sum up, and reply to readers' comments.

It is hoped to hold a further General Meeting at the end of September.

A. GORDON TAYLOR,
Hon. Secretary.
51, North End House,
Fitzjames Avenue,
London, W.14.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

(University of London)

INCORPORATING THE ROSS INSTITUTE

COURSES OF INSTRUCTION IN TROPICAL MEDICINE & HYGIENE

Arrangements have been made with the Liverpool School of Tropical Medicine and with the Colonial Office that for the duration of the war courses of instruction in Tropical Medicine and Hygiene will be held alternately in London and Liverpool. The first course, lasting five months, will be held in London and will commence on September 22nd, 1941. The next course will be held in Liverpool at a date to be fixed later.

The course given at the London School is designed primarily to prepare qualified medical practitioners for the examination of the Conjoint Board for the Diploma in Tropical Medicine and Hygiene, but members of the class may qualify for a School Certificate in Tropical Medicine and Hygiene at the end of four months.

The fee for the course is £40.

Arrangements can be made for admission of students to certain parts of the course separately. The fee for these short periods of instruction is 2 guineas per week.

Further information regarding the London Course may be obtained from the Secretary, London School of Hygiene and Tropical Medicine, Keppel Street (Gower Street), W.C.1. (MUSEUM 3041.)

MATERNITY AND CHILD WELFARE GROUP

The Annual General Meeting will be held on Saturday, July 26th, 1941, in the afternoon, when an address will be given by the President, Dr. Agnes Young. Subject, time and place will be announced later.

K. M. HIRST,
Town Hall, Upper Street, London, N.1.
Hon. Secretary.

RECENT APPOINTMENTS IN THE PUBLIC HEALTH SERVICE

The following are some recent appointments in the health departments of various local authorities.

The Editor will be grateful if members of the Society will notify him at once of any new appointments.

BARNESLEY C.B.: M.O.H., Dr. T. L. Hughes (M.O.H., Bebbington M.B.).

BERMONDSEY MET. B.: M.O. A.R.P., Dr. A. J. Moss-Blundell.

CHORLEY M.B.: M.O.H. & S.M.O., Dr. R. C. Gubbins (M.O.H., Beaconsfield U.D. & A.C.M.O.H., Bucks C.C.).

EALING M.B.: Dep. M.O.H., Dr. Cyril G. K. Thompson (Dep. M.O.H., Yarmouth C.B.). Salary £750, rising by annual increments of £25 to £900 p.a.

EAST KENT (No. 3) UNITED DISTRICT: Temp. M.O.H., Dr. W. W. Nuttall.

HOLLAND (LINGS) C.C.: A.C.M.O.H. & A.S.M.O., Dr. Iris M. Cullum (A.M.O.H., Ipswich C.B.).

MIRFIELD & HECKMONDWIKE U.D.s: M.O.H., Dr. C. G. MacMahon Nicol (M.O.H., Uttroter U. & R.D.s). Salary £800, rising by annual increments of £50 to £1,000, plus £50 p.a. travelling expenses.

MITCHAM M.B.: M.O.H., Dr. Alan Ashworth (Dep. M.O.H., Coventry M.B.). Salary £1,000, rising by annual increments of £50 to £1,250.

WESTON-SUPER-MARE M.B.: Consulting M.O. (for one year), Dr. A. E. Remmett Weaver (formerly M.O.H., Weston-Super-Mare). Salary £150 p.a.

WORTHING M.B.: Dep. M.O.H., Dr. J. C. Aitken (Senior A.S.M.O., Ealing M.B.). Salary £650, rising by annual increments of £25 to £700 p.a., plus car allowance of £50 p.a.

In his annual report for 1940, Dr. John Fenton, School Medical Officer to the County Borough of Eastbourne, records that in September, 1939, this town received 4,567 school children from Croydon and London, some 3,000 of whom were still in Eastbourne on January 1st, 1940. These children left Eastbourne on June 23rd, 1940, and just over 2,000 of the town children were evacuated on July 21st. During the year examination by school nurses showed that 562 children had dirty heads, 503 had nits, and 59 vermin; 60 cases of scabies were admitted to hospital for treatment. A very high proportion—3,473 out of 4,911 children inspected—were found to be suffering from dental defect requiring treatment. The response to the authority's scheme for diphtheria immunisation was "very disappointing." Twenty-three girls spent, in a special hostel for girls, 568 days for treatment for bed-wetting, and 58 boys spent 3,736 days in a boys' hostel. It may be noted that out of a total staff of nineteen in the department at the beginning of the year, there were only six left on December 31st, 1940.

The Ministry of Home Security has issued a reprint of "War Gases: Their Nature, Effects and First-aid Treatment." This is a chart embodying a full description of all war gases likely to be used by the enemy, together with their possible effects. A special feature is the inclusion for the first time of a short summary of the appropriate first-aid treatment. A.R.P. officers and others in large works who give gas instruction will find this chart of considerable value. Copies can be obtained from most booksellers, or direct from the Stationery Office, York House, Kingsway, London, W.C.2, price 8d. per copy post free, or 3s. 6d. per 25 copies post free.

Air Raid Precautions Training Bulletin No. 5 (price 3d.) has been published by the Ministry of Home Security. Copies will be sold on written application to H.M. Stationery Office, York House, Kingsway, London, W.C.2, by a clerk to a local authority, a chief constable, or the secretary of a public utility company or industrial or commercial concern, or by County Secretaries of the St. John Ambulance Brigade, British Red Cross Society, and St. Andrew's Ambulance Association.

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Editorial

Trichiniasis in Man

Part of the price of success in public health is eternal vigilance. Some diseases appear to fade away to rarity, and except in textbooks and as a burden to the student they cease to interest us. Trichiniasis in Great Britain seemed likely to pass into this category, but it has reappeared. In the U.S.A. the medical literature of 1937-41 contains article after article showing, if not the recrudescence of trichiniasis, a vivid recognition of its considerable prevalence. While in this country we noted the findings, most of us regarded the disease as academic for us, and harboured the pleasant conviction that, "It cannot happen here." The recent outbreaks in England have shattered our complacency, and trichiniasis has now become a problem of immediate public health significance. It is of value to consider the U.S.A. findings.

Queen in 1931 found trichinella in 27.6 per cent. of a series of diaphragms examined in Boston, and in 17 per cent. of 344 consecutive autopsies in Rochester. Other figures are Minnesota University anatomical laboratory, 17 per cent. (1932); Washington D.C., 13.6 per cent. (1937); Cleveland, Ohio, 36 per cent.; North Carolina, 2.8 per cent. (1936-37). Hall, in a comprehensive study in 1938, estimated the incidence in various groups in 1,000 post mortems; 174 were infected—i.e., 17.4 per cent. The peak of incidence increased with age, and in the series was highest in the decades 61-70 and 71-80. A map giving geographical distribution showed that prevalence was intimately related to the method of raising swine, and particularly to the practice of feeding them on garbage. Human trichiniasis, Hall concluded, is related to two factors: the food habits of individuals, and the frequency of occurrence of live trichinellae in the swine supplying the pork consumed. Kerr and Cuvillier* have recently given a very complete summary based upon the examination of 3,000 diaphragms obtained from ten hospitals in Washington D.C. and six hospitals in eastern seaboard cities. A total of 488, or 16.3 per cent., were found positive for trichinellae, the percentages in the two groups being respectively 15.5 and 18.8. All these various results were obtained by one or both of two methods—i.e., direct microscopical examination, and digestion examination. These figures suggest that one person in six in the U.S.A. suffers from trichinella infection. Obviously there is a wide difference between the number of infected cases and the number of cases with clinical signs of trichiniasis. Some light on this

*Publ. Hlth. Rep. Wash., April 18th, 1941, 58.

point is thrown by Kerr and Cu villier's statement that most of their diaphragms showed only light infections but that 1.6 per cent. of the positive cases contained more than 100 larvae per gramme, and it is reasonable to suppose that such persons suffered from clinical trichiniasis. This is equivalent to about 2.6 infected persons per 1,000 of population, and is more in accord with the recent statement (May, 1941) of Dr. Beeson, of Harvard, that the clinical cases in the U.S.A. numbered about 600 a year. As examples of U.S.A. clinical reports may be mentioned a paper of Murphy, James, and Rastetter (1940) giving details of twenty-three cases at the Milwaukee County Hospital over the previous eight years, while Hobmaier and Geiger give particulars of 212 cases of trichiniasis in San Francisco from 1927 to 1937 inclusive. Details of incidence in hogs are less complete, but McNaught and Zapata (1940) examined the diaphragms of 495 hogs from different ranches in San Francisco, and 4.04 per cent. were positive. They were all garbage-fed hogs. These figures are similar to earlier findings, when Hall and Schwartz found from 1 to 1.5 per cent. of grain-fed hogs and 4.8 to 5 per cent. of garbage-fed hogs harbouring live trichinellae. In Canada, where the garbage is cooked before it is given to pigs, Cameron found trichinellae in only two out of 995 garbage-fed hogs.

As regards this country, the most extensive recent outbreak at Wolverhampton and district, involving at least 98 cases, has been described in detail by Dr. Jolly in *PUBLIC HEALTH* (March, 1941, 54, 88), and other outbreaks have been described in Hertfordshire, Swansea, and elsewhere. These outbreaks need not be described, but the public health problems which they raise merit very careful consideration. The first practical point is the recognition of clinical cases. The various reports show four cardinal features: rise of temperature, muscle pains (often very severe and especially in the back of the neck, back, and calves), oedema of the eyelids, and marked eosinophilia. Removal of pieces of muscle for microscopical examination is not apparently a very helpful form of diagnosis, particularly as the muscles of primary selection by the parasite are not available for examination in the living subject. Several U.S.A. papers stress the diagnostic value of the use of an antigen prepared from embryos as either a skin-sensitivity test or a precipitin test.

There does not appear to be any extensive information as to the number of pigs in this country infected with trichinellae, and no information as to whether there is any relationship of incidence to garbage feeding. In U.S.A. recent experience inclines to minimize the rôle of the rat in spreading the disease, but it is of interest that in 1935 in San Francisco 129 out of 2,000 rats (6.4 per cent.) were infected, and of garbage-fed rats from ranches, 28.8 per cent. were infected. Professor Leiper, in the discussion at the Royal Society of Medicine on May 23rd of this year, reported that two out of 145 rats were infected at Wolverhampton, and 9 out of 164 at Penrith. The rat cannot be disregarded. The present Government slaughtering scheme probably increases the risks, and undoubtedly makes the tracing of sources of infestation more diffi-

cult. Efficient meat inspection is very difficult under many of the conditions which prevail in these premises. There is no evidence that a system of examination of pig carcasses either by the old microscopical method or by the more modern epidiascope method is required or worth while as a routine, but the latter would be valuable for investigation of suspected herds of animals on slaughter.

The essential line of protection is to eat pig in any form only after it is thoroughly cooked. According to the U.S.A. Ministry of Agriculture, 58°C. is the lowest lethal temperature, but the temperature in the centre of only lightly cooked meat is often surprisingly low. According to Ostertag the usual method of smoking is quite unreliable, while pickling takes some time to kill the parasite. It is of interest to note that in the comprehensive surveys in the U.S.A. the incidence on the Teutonic and Italian groups was relatively higher than for native Americans, and no doubt this finding can be associated with their food habits as regards raw and incompletely cooked foods.

At present trichiniasis is no more than a condition we cannot afford to neglect, but it may become much more widespread. It would be of great assistance to the public health service if the Ministry of Health would issue a memorandum on this condition dealing with diagnosis, methods of investigation, and the other problems raised in this note.

Influenza

The work of Stuart-Harris and his colleagues has shown that it is at present impossible to distinguish clinically between "influenza" of viral and non-viral origin. Even with a single virus differentiation was by no means clear-cut, and with a multiplication of viruses it becomes progressively more difficult. Some observations made in Hungary by Taylor and his co-workers suggested, however, that it might be possible broadly to differentiate on epidemiological evidence epidemics of disease of influenzal type. Their basis was a changing age distribution in the notifications of "complicated influenza" between epidemic and non-epidemic years. In the former, when virus can be isolated, incidence affects all ages but older persons more heavily; in the latter, when virus is relatively absent, the brunt falls on the first few years of life. A sudden change in the age curve of incidence might, therefore, be evidence of the onset of a true influenza epidemic. Notification of cases of influenza is not required in this country, and the age distribution of cases of influenzal pneumonia is not published, but, using the death rates attributed to influenza, Professor R. M. F. Picken (see page 206) is unable to find any such changes in age distribution between recent epidemic and non-epidemic years. Taking 1929, 1933, and 1937 as epidemic years, and 1930, 1934, 1935, and 1936 as non-epidemic, he shows, on the basis of total mortality, that the age distribution of mortality in the two series is virtually identical. On the other hand, in the pandemic of 1918-19 there was a profound change in the incidence of mortality, the death rate being exceptionally high in adolescents and young adults. Figures quoted by Professor Picken show that this

phenomenon was not peculiar to the war-fatigued countries, but was probably equally apparent in the U.S.A. Is it likely to recur in the present war? Past data are insufficient to allow a prognosis. It is difficult, in Professor Picken's view, to believe that the great virulence of that epidemic can be fully explained by a lowered resistance in a war-exhausted population, since its effects were no less in the U.S.A. and neutral countries where food shortages and fatigue must have been less acute. That explanation, too, is no sufficient answer to its peculiar age changes. In short we have no effective hypothesis to cover all the vagaries of that world-wide event. Professor Picken's opinion, it will be seen, is that it is more likely to have been due to a special strain of virus, not now persisting and, it may be hoped, unlikely to develop under present conditions. The age incidence of influenza mortality is, no doubt, closely watched by the central authority for evidence of any similar change to-day, but, if it should occur, there seems to be in the present state of knowledge no very effective means of preventing the development of a widespread epidemic.

Juvenile Offences

Offences by young persons, including serious crimes, have considerably increased during the war. This increase is mainly, if not entirely, due to war conditions, and the number of the offenders is still only a small proportion of the juvenile population in each age-group. Nevertheless, the Home Department and the Board of Education have recognised that this social problem must be dealt with and suitable measures taken to save these young delinquents from a criminal career, and also to avert much expense of work and money by the police and the courts. The departments concerned therefore convened a small conference which included justices and clerks, directors of education, and representatives of Government departments, the police, and voluntary organisations. On their report has been based a memorandum* which has been circulated to persons and bodies particularly concerned with juvenile delinquency. The Government emphasise the need for prompt action, and suggest that the best results can be obtained by close co-operation between official and voluntary effort, the first step in which may well be the holding of local conferences.

For the first four months of the war there was an increase of about 28 per cent. in the number of children under 14 found guilty of indictable offences, compared with the same months in the previous year. For the first twelve months of the war there was an increase of about 41 per cent. over the previous twelve months of peace. In the age group 14-17 the increase was about 22 per cent. for the first year, and in the age-group 17-21 there was an increase of about 5 per cent. For the population over 21 there was a decrease of about 12 per cent. As in the earlier war, the increase in delinquency is probably due to the absence of fathers on military service, but evacuation has broken up home life to a much larger extent than

in 1914-18. Many mothers leave their homes for war work during the day. The closing of schools early in the war was undoubtedly a major cause of delinquency; with the re-opening of schools, the increase declined. Many boys have found employment and substantial wages for the first time, but have not had proper facilities for healthy use of their leisure. The black-out provides opportunities for easy looting, and the war news arouses a spirit of adventure. The number of girl delinquents is much smaller, but their needs should not be overlooked.

The provision of schools has improved the position, but the disturbance of home conditions has produced a new crop of truancy. The need has therefore arisen for a stricter enforcement of school attendance, and local education authorities should take all possible measures to get children to school and should bring cases of persistent failure before the courts. The employment of school-children tends to be much greater in war-time, and local education authorities would be well advised to see that it does not exceed the limits of the law (the Children and Young Persons Act, 1933, and the local by-laws made under it). They should take care that the work is suited to the age and capacity of the children and that the hours are not excessive, so that neither education nor physical health is interfered with. The provision of organised centres where boys and girls can play games or carry on hobbies in their leisure time is very desirable. Supervision of the children is necessary: many school teachers, even under present conditions, will probably volunteer for this work, and voluntary workers can be enlisted. It is essential that a supervisor should know how to help children to play. Local youth committees are now in active operation in nearly all the higher education areas, and many new centres, clubs and units have been started. The Youth Service Corps, started in East Suffolk last summer, is spreading throughout the country and gives many boys and girls a sense of a place and function in the community.* The success so far achieved, however, emphasises the urgent need for further effort. As soon as a centre becomes "respectable" it ceases to be attractive; new centres should be started from time to time to keep the movement fresh. In a number of cities youth organisations co-operate with the civil defence authorities and provide older children with important work which brings them into early contact with the mechanism of local government. In short, one of the best means of checking delinquency in war-time, as in peace, is to provide more and more varied social and recreative facilities to meet the needs and tastes of all young persons and to challenge youthful exuberance to interest itself in useful service.

In the selection of justices to sit on juvenile court panels there is an evident need for younger men and women. In petty sessional divisions where difficulty arises from the absence of younger justices, representation should be made without delay to the Lord Chancellor. It is important that the court should give full consideration to the reports laid before it by the local education authority and the probation officers. The

* Home Office Circular 807624, Board of Education Circular, 1554. 1941, London, H.M. Stationery Office. pp. 15. 3d. net.

* Board of Education Circulars 1529, 1543.

parents of the offender should be made to realise their responsibility. The practice of bringing the father to court as well as the mother might be more commonly adopted, though essential war work should not be interrupted. In suitable cases the court may well require parents to give security for the behaviour of their children. If a lad earning money does damage or steals property, he may be taught a valuable lesson by being required to make restitution. Some courts have tended to resort to birching, and the Memorandum reminds justices that the Departmental Committee on Corporal Punishment which reported in 1938* unanimously concluded that corporal punishment as a court penalty is not a suitable or effective remedy for young offenders and that this opinion is supported by the most experienced juvenile courts.

Some young delinquents presenting difficult problems of behaviour need skilled advice, and every juvenile court ought to have available the services of mental specialists. The help of a child guidance clinic in the treatment of maladjusted children may be invaluable. The possibility of adopting probation should always be considered and the organisation of an adequate probation system is the responsibility of the justices. The probation officers must not be overburdened: casual supervision by a probation officer not only leads to failure but brings the system into disrepute. Every probation officer should have ample time to spend with his probationers, and should be free to make contacts with employers, churches, juvenile organisations, and clinics. He needs proper equipment, including a typewriter or, better still, the services of a typist. Properly furnished offices are not luxuries but necessities, and in country areas a car is a great help. In many areas there is need for a greater pooling of knowledge between probation officers and school teachers. A probation officer should be able to expect help, guidance, and advice from his probation case committee, which is responsible for the administration of the system.

Remand homes are necessary for the custody of boys and girls who cannot suitably be released on bail before trial, or be immediately sent to an approved school after trial. Although local authorities have the duty of providing remand homes, the lack of accommodation, serious before the war, is now acute. The immediate problem can often be solved by equipping an ordinary dwelling-house for a small number of boys and girls. Observation of offenders in remand homes, so as to provide information on which a court can decide the appropriate treatment, is valuable and needs much greater development. It depends especially on the personality of the staff. Offenders penally detained in remand homes should be separated from those on remand. The Memorandum strongly deprecates prison on remand for boys under 17, noting that courts have shown an unfortunate tendency to use this provision of the Act without sufficient reason and without realising the serious results which it may have for the offender. The work of the approved schools has been most valuable, but they all have long waiting-lists. Voluntary associations are building a number

of new schools with help from public funds, and more active assistance of the local authorities is greatly to be desired. In the meantime it has been found necessary to reduce substantially the period of training in the schools and thus, inevitably, the standard of their success. More short-term schools are also needed.

Ill-fed Families

The vague idea prevails that the poor are, on the whole, better off in consequence of the war, although the economic strata have undergone some shifting. A study undertaken by the Edinburgh Branch of the Children's Nutrition Council may prick any undue complacency on this subject. It is a study of the domestic finances of above a hundred families in Edinburgh—families of Service men, labourers, persons on public assistance, and others—with a view to determining whether their incomes afford the necessary money for the purchase of adequate diets as laid down in the report of the British Medical Association Committee on Nutrition, published in 1933. Admittedly the analysis of a small and localised section of the population, however fairly selected, may lead to as many erroneous deductions as, say, the polls of public opinion, expressed in percentages, which are now so popular. Quite different results might be obtained from a group of working-class families in a munitions town, a "restricted" seaport, and an agricultural district, or, again, in a "blitzed," an evacuation, and a reception area. But there is no reason to suppose that the low-income population of Edinburgh is not representative, and as far as it goes this study may reflect the conditions of families in some places far south of the Forth.

For the purpose of this study the "adequate diets" of the B.M.A. report were re-priced at the values obtaining in Edinburgh in November, 1940. Every one of the twenty-seven items, except barley, had risen in price since 1933—fourfold for fresh fruit and vegetables, more than twofold for beef and other fresh meat, bacon, and fish (cod), less steeply for milk and butter, and only slightly for flour and bread. But since November there has been another rise for almost all food commodities. We do not know the figures for Edinburgh, but, in London, bacon, fish, bread, jam, and many other articles of diet are at a higher level than they were nine months ago, and some are unobtainable. But the adult ration for one week suggested as adequate by the B.M.A., based on 50 grammes first-class protein, and giving a quarter-pint of milk daily, cost 12s. 6½d. last November in Edinburgh, as compared with 5s. 10½d. in 1933. On the other hand, of the more than seventy families whose budgets were examined, thirty-three had had a rise in income since the war (though in fully half of these the rise did not exceed ten shillings weekly), nineteen had suffered a reduction, and nineteen had their income unchanged. Over 50 per cent. of the families examined were spending more than their weekly income. A certain proportion of income is absorbed by fixed charges, such as rent, rates, and insurance, and non-essentials absorb another proportion—not a large one in these families, for only seven were spending more than 20 per cent. of

their income in that way. But even if all the money were spent on food after fixed charges had been met, nearly three-fourths of these families would not have money to purchase an adequate diet. Making allowance for certain inevitable, though strictly speaking non-essential expenditures, only 10 per cent. were found to have enough to feed themselves properly. The position, as might be expected, is worse than the money figures suggest. Out of 53 of the families who had accurate records of food consumed, only one had a diet of more than 70 per cent. adequacy.

It is a disquieting reflection that since this inquiry took place, even making the large assumption that the economic situation on balance has not been worsened, there has now been added the difficulty or impossibility of obtaining certain foodstuffs, though the housewife be a knowledgeable person and have the money in her purse. The stark fact is that the cost of living makes it impossible for some families of low or moderately low income level to have even the minimum diet prescribed by the British Medical Association, let alone the rather higher League of Nations standard.

The children, of course, suffer most, and children, including adolescents under 18, account for 70 per cent. of the individuals in the families covered by this study. To the adult other than the pregnant or nursing woman a temporary reduction in protective foodstuffs for economic reasons may bring no permanent harm. In children it is reflected in the stigmata of stunted growth, deficiency diseases, and lessened resistance to infection. The Children's Nutrition Council urge a development of communal feeding, extension of social services relating to food, including the distribution of certain vitamins, and the inclusion of children up to at least 16 in the National Milk Scheme. Nothing is said about family allowances, though this, or at least an extension of the system of allowances in kind to needy children, seems an obvious measure. While it is as well that those concerned with nutrition should be vigilant, there is nothing in the food situation at the moment to make us anticipate that nutritional problems are inevitable. Paradoxical though it may seem, the war has made it possible to remedy some of the social ills of peace. But those who seize the opportunity to do this must beware of blaming the war for conditions that preceded it.

Health and Housing

Improvement in the housing of the population has long been accepted, nationally and locally, as an urgent need, and though a good deal has been done to rectify the legacy of uncontrolled development in the past, much yet remains to be carried out. The indiscriminate bombing of urban centres may, indeed, increase the pace of improvement after the war, though meantime standards must deteriorate and overcrowding increase. That good housing makes a large contribution to happiness and comfort is obvious, and it cannot be seriously doubted that it is thereby a factor in national health. To measure its association with disease is, however, not easy, for poor houses naturally go hand in hand with poverty, a generally poor environment, and, often, with ignorance; it is not possible to separ-

ate these factors contributing to ill-health. The difficulties are not under-estimated in a recent study reported by Rollo Britten and Isodore Altman.* During the winter of 1935-36 the United States Public Health Service carried out a vast survey of sickness in relation to its social and economic setting, some 700,000 households in 83 cities with 2½ million inmates being interrogated, in addition to some similarly extensive inquiries in rural areas.

Britten and Altman confine attention to the data from the urban communities which tell them the amount and nature of illnesses experienced in each household over one year preceding the enumerator's visit, the annual family income and relief status, the composition of the family, the number of rooms and toilet facilities, and the rental or value of the property. A preliminary crude comparison shows, as would be expected, that illness rates go up as the degree of overcrowding increases. In households with one or fewer persons per room 13.2 per cent. of the inmates had been disabled for a week or longer during the previous year; with more than 1.5 persons per room the rate rose to 15.6, an increase of nearly 20 per cent. Subdivision by age shows that this association is most distinct in young adult life, and by income that it is mainly a function of the lowest groups. Of much interest is the observation that at specific income levels there is virtually no relation between crowding and chronic illness present on the day of the visit, but a striking relation between crowding and acute illness. That some of the excess in the latter is directly due to bad housing seems a reasonable conclusion. Turning to specific diseases that might well be expected to show a relation to housing conditions, the authors find a significant rise in pneumonia with increased overcrowding, the rate in houses with more than 1.5 persons per room being nearly 70 per cent. in excess of that in houses with one or less persons per room. Increased contact infection and the weakening of resistance through exposure to ill-heated and ill-ventilated habitations may well be contributory factors. The incidence of influenza also shows some rise, but to a less degree, which its wide prevalence under very varying conditions of life would lead one to expect. Contact infection would, again, be increased under conditions of overcrowding, but the general risks run in an urban community are probably such that housing is unlikely to be a factor of much additional importance. Overcrowding and tuberculosis are, it is well known, closely associated, and Britten and Altman's figures endorse previous observations. But though crowding must again aid the spread of infection, the associated effects of under-nutrition and a generally poor mode of life make it impossible to define the real importance of the former. A higher incidence of rheumatism is also apparent in this survey. Among children of pre-school age the common communicable diseases, with the odd exception of whooping-cough, all rise distinctly in association with overcrowding, but it is noticeable that at school ages there is usually the reverse association. This very clearly bears out the observations of earlier workers that

* *Publ. Hlth. Rep. Wash.*, 1941, 56, 609.

* Cmd. 5684, 2s. 6d. net.

where overcrowding exists such diseases attack, on the average, at an earlier age, with the consequently greater risks of complications and death. It is not unreasonable, too, to make directly attributable to poor housing the observation that the incidence of some digestive diseases was higher in households without inside flush toilets not shared by other households than in those which enjoyed such facilities, since the digestive diseases not thought to be associated with sanitation show no such trend.

Despite the impossibility of assessing the precise effect of housing conditions, there is no difficulty in accepting the authors' observation that an excess illness rate certainly occurs in the low-income, poorly-housed populations, or, in other words, in those least able to meet the burden of disease.

In view of proposed developments in the organisation of fracture treatment and of the recent extension of the classes of fracture cases admitted under the Emergency Hospital Scheme, the Minister of Health has had under review the need for increasing the number of trained occupational therapists whose services can be made available for patients treated under the Scheme. The new arrangements for training are set out in Circular 2889. The Dorset House School of Occupational Therapy, evacuated from Bristol, has arranged to provide special shortened courses of six months' training at Barnsley Hall Emergency Hospital, Bromsgrove, Worcestershire. These courses are designed for candidates who are qualified masseuses and, if successfully completed, will entitle the student to a special War Emergency Diploma of the Association of Occupational Therapists.

The masseuses accepted for the course will be transferred for the six months to Barnsley Hall, where they will be accommodated and boarded free of charge and will not be expected to pay any fees or other charges in connection with the training course or the taking of the Diploma. They will, in addition, receive a personal allowance of £25 for the six months' course. They will be required to undertake to serve in hospitals in the Emergency Hospital Scheme on the completion of training. The first course began on July 1st, 1941, and will continue until December 30th. The Minister is anxious that hospitals in the Scheme which are employing masseuses should bring these facilities to their early notice.

British Drug Houses, Ltd., have put on the market vitamin C in tablets containing 5, 25 and 50 mg. of ascorbic acid respectively, and also in a sterile solution for injection. Tablets for infants (5 mg.) dissolve readily in warm milk or in the infant's feed. It is pointed out that in solution vitamin C is not a stable substance. For this reason the tablets should not be dissolved in very hot liquids nor should they be added a long time before the feed is given.

THE VIRUSES OF INFLUENZA

By RALPH M. F. PICKEN, M.B., CH.B., B.S.C., D.P.H.,
*Mansel Talbot Professor of Preventive Medicine,
The University of Wales*

When medical interest in influenza was sharply awakened by the epidemics of 1918-19, the evolution of the disease in individual cases, the pathological findings in those patients who died, and the contrast between the summer outbreak of 1918 and the subsequent winter and spring phases, all pointed to a basic infection by an unknown pathogen of relatively slight lethal power, paving the way for secondary invasion by several known micro-organisms which might lead to death by setting up pneumonia or some other grave complication. The nature of the basic infection became clear later, when a virus was isolated from patients suffering from the disease (Smith *et al.*, 1933). Its identification made possible a study of the clinical symptoms in successive waves of influenza-like disease, in order to ascertain whether these symptoms differed sufficiently in cases harbouring and not harbouring the virus to justify the differentiation between true influenza and its mimics by clinical means alone. Stuart-Harris and his colleagues (1938) thought that they had partly succeeded in achieving this distinction after studying closely the behaviour of a number of outbreaks in 1936-37. They contrasted true influenza—a disease of sudden onset, severe constitutional symptoms, dry pharyngitis, and bronchiolitis with "febrile catarrh"—more gradual in onset, with less constitutional disturbance, pronounced exudative catarrh, and bronchitis. In the former, isolation of the virus and serological reaction to it were to be expected, but not so in the latter. When, however, similar enquiries were pursued by the same workers in 1939 (Stuart Harris *et al.*, 1940), there was far less success in isolating the virus from cases seeming to present the true clinical picture, and the clinical distinction between positive and negative cases could no longer be sustained. All along they had emphasised the difficulties which might be anticipated from the accumulating evidence that viruses varied in their response to laboratory tests, although overlapping antigenically, and several of those isolated in 1939 were anomalous in their unready adaptability to mice. The definite identification by Francis (1940) of a second strain, serologically quite unrelated to those already known, therefore came as no surprise, and now the slightly varying virus originally isolated has been styled Influenza virus A, while that recently identified by Francis is known as Influenza virus B. Possibly strains of this virus may come to be as numerous as those of *Streptococcus pyogenes* or the types of *Streptococcus pneumoniae*.

Age-Variations in Hungary

Some observations made in Hungary (Taylor *et al.*, 1941) suggest that there may be an epidemiological means of differentiating between outbreaks of disease of an influenzal type although the symptoms and signs are clinically indistinguishable. "Complicated influenza" is a notifiable disease in Hungary, the term no doubt covering cases the majority of which would correspond with our influenzal pneumonia. When the

age-grouping of such cases is studied from year to year in Hungary a material difference is observed in so-called epidemic years, when the virus can be isolated from cases, and in non-epidemic years, presenting few such cases. In the latter, ages under 5, and to a less extent under 10, bear the brunt of the incidence. In epidemic years, on the other hand, the incidence is far less concentrated upon these ages. If it be assumed that epidemic influenza in certain years—when widespread infection with the virus can be technically established—is something superimposed on the annual recurrence of influenza-like disease, and the average incidence at each age during a series of non-epidemic years is subtracted from the average of epidemic years, it is shown that the excess mortality in the latter varies comparatively little from age to age and affects old people to an unusual extent. It is in fact nearly as heavy at ages over 55 as it is under 5. A sudden change of age in persons notified as suffering from complicated influenza (or presumably from influenzal pneumonia) might therefore be a useful indication that an epidemic of true influenza had begun.

Age Variations in England and Wales

The age-distribution of notified cases of influenzal pneumonia for England and Wales is not given in any official returns. The Annual Report of the Department of Health for Scotland has included such a distribution of infectious diseases for a number of years, but influenzal pneumonia has been distinguished from acute primary pneumonias only since 1937. The annual reports of the medical officers of health of large towns also usually do not distinguish between different forms of pneumonia as regards age-distribution. Pneumonia is such a mixed group of infections that its study in mass would not be informative. The matter, therefore, can be examined only from death returns. When the death-rate from influenza at several ages in England and Wales is studied for each year from 1929 (when influenza was highly prevalent) to 1938 it is apparent that the age-distribution is very constant. The "epidemic" years, as judged by the mortality at all ages, were 1929, 1933, and 1937. Those in which the disease, by the same criterion, may be said to have been non-epidemic were 1930, 1934, 1935, and 1936. This was almost certainly true also of 1938, but as sulphonamides had come widely into use in the treatment of pneumonia, and as it is conceivable that the efficacy of these drugs varies from age to age, it is

perhaps safer to leave this year out of calculation. The years 1931 and 1932 had an intermediate position as regards mortality and may also be disregarded in the search for contrasts. If there is any contrast it should be shown by the epidemic and non-epidemic years as defined above. The average mortality from influenza at certain ages for these two groups of years is shown in Table I.

It is quite obvious that the form of distribution is the same whether we consider epidemic years, or non-epidemic years, or the excess mortality in epidemic years over expectation based on non-epidemic years. If anything, this excess falls more heavily at the extremes of life than the usual mortality in non-epidemic years; but the difference is negligible. There is no confirmation whatever that influenza of the modern type in England and Wales differs from year to year in its power to kill at different periods of life, in the way in which the incidence of "complicated" influenza varies in Hungary. The comparison, of course, between notification-rates and death-rates is not a good one, but as most cases of influenza die of complications there should be a fairly close association, changes in the age of incidence of complicated influenza, if they occurred, being reflected in some change in the ages at death.

The Influenza of 1918-19

It is generally recognised that the pandemic of 1918-19 presented unique features apart from its grave fatality. It came in three waves, first in the summer of 1918, disorganising works and schools by its sudden and widespread occurrence, and yet the death returns showed comparatively little sign of its presence; the succeeding waves in early winter and early spring were characterised by a high mortality from respiratory and other complications, especially the earlier of these two exacerbations. The age-distribution of the death-rate was unusual. The exceptionally high mortality in adolescents and young adults is well exhibited in a table compiled by the Registrar-General to compare 1918 with earlier and subsequent years (Registrar-General's Review, 1929), and the whole subject of age-incidence and mortality is exhaustively dealt with in a Special Report on the pandemic (Ministry of Health, 1920). Not so widely known are the epidemiological investigations in America of the 1918-19 epidemic by Britten (1932) and of the 1928-29 epidemic by Collins (1934). These were carried out by means of special surveys by canvassers, a method which has become highly organised in the U.S.A. From these reports Table II has been prepared.

The actual rates are not

TABLE I.—ENGLAND AND WALES
Average Death-Rate from Influenza per Million

	Age							
	All Ages	0—	5—	15—	25—	35—	45—	55—
(1) Epidemic years ...	584	448	57	117	177	359	617	2112
(2) Non-epidemic years ...	149	109	20	35	51	93	165	511
Excess of (1) over (2) ...	435	339	37	82	126	266	452	1601

Death Rate at Each Age compared with Death-Rate at All Ages, taken as 100

Non-epidemic years ...	100	73	13	23	34	62	111	343
Excess of (1) over (2) ...	100	78	8	19	29	61	104	368

comparable with those given for England and Wales in Table I, since they refer to town populations only and include all deaths from pneumonia whether due to influenza or not. The comparison

between the American experience of 1928-29, which might be called a normal influenza epidemic period, and the exceptional epidemic of 1918-19 is not so vitiated, and the difference in age-distribution is very striking. Whereas in 1928-29 the extremes of life were chiefly affected, in 1918-19 an exceptional mortality was suffered in adolescence and young adult life. The American data enable the age-specific incidence rates for influenza and pneumonia in the surveyed cities to be compared, as in Table III.

If the age-distribution of the incidence for 1928-29 be taken as representing the usual experience, that for 1918-19 was obviously abnormal. Ages from 10 to 24, which are usually least affected, were specially hit in 1918-19, and the relative incidence over 40 was exceptionally low. This is a different picture from that presented by the contrast between recent epidemic and non-epidemic years in Hungary. Moreover, the 1918-19 age-incidence does not entirely account for the age-distribution of the mortality in that epidemic, which showed a marked excess at somewhat later ages—namely from 20 to 39. This was mainly due, as shown by the American reports, to heavy complication with pneumonia at these ages, which was absent in 1928-29. Although the British figures are not presented in quite the same way, their general form suggests that the behaviour of the epidemic here resembled generally that in America (Ministry of Health, 1929).

The contrast in age-distribution of the 1918-19 epidemic with ordinary recurrent outbreaks, together with its extreme virulence throughout the world, has promoted speculation as to its cause. Coming as it did at the end of an exhausting world war, its virulence has naturally been attributed to the lowered resistance induced by that prolonged ordeal. It is unlikely, however, that people in the U.S.A., or in neutral lands, where deprivation and exhaustion were far less experienced than here, were rendered susceptible in this way. It is conceivable that the same circumstances which light up in war-time that other air-borne infection, cerebrospinal fever, might have had the same effect on influenza, but in that case the epidemics would have been expected at the beginning, not at the end, of the Four Years War and again at the beginning of the present one. It

TABLE II.—U.S.A. SURVEYED CITIES
Death Rate from Influenza and Pneumonia per 1,000

	Age													
	All ages	0—	5—	10—	15—	20—	25—	30—	35—	40—	45—	50—	60—	70—
1928-29 ...	0.98	2.52	0.17	0.13	0.25	0.35	0.55	0.82	1.17	4.20				
	100	257	17	13	25	36	56	81	119	429				
1918-19 ...	5.0	7.9	2.2	2.1	3.4	6.2	9.9	7.9	6.3	4.0	2.9	2.6	1.3	5.1
	100	158	44	42	68	124	198	158	126	80	58	52	86	102

is also improbable that lowered resistance would have accounted for the sudden changes in age-incidence and age-fatality which characterised this outbreak, even though it may be admitted that an important part of the gradual changes in the age-mortality during and after the war from a chronic infectious disease, tuberculosis, was attributable to this cause. On the whole, it is most likely that the 1918-19 epidemic was due to the dissemination of an infection of exceptional virulence. This may have been an unusual influenza virus or one or other of the micro-organisms which give rise to the grave complications and most of the deaths. The secondary infections were due to several bacteria, of which *H. influenzae* and *S. pyogenes* were predominant (Ministry of Health, 1920). If the cause of the exceptional nature of the epidemics of 1918-19 was an unfamiliar micro-organism, it is, on the whole, more likely to have been the virus than one or more of the secondary invaders, and this is in consonance with the large and seasonally unusual, but comparatively non-fatal, first wave in the summer of 1918. In this connection it is interesting to note that Shope (1936) concluded from serological tests on human beings that a strain of virus which he isolated from cases of swine influenza, a disease appearing in America contemporaneously with the 1918-19 epidemic, and which has persisted since then, was possibly the survivor of the virus peculiar to that human epidemic.

Burnet (1940) has given reasons in support of the view, which has occurred to many others, that a new antigenic strain of virus cropped up during the Four Years War, its dissemination pandemically being favoured by the crowding in Europe of men from many parts of the world. Its exuberant multiplication may have been accompanied by mutations in such a way that those dominant in the earlier of the three waves left no immunity to those responsible for the later, and, like other new infections, it caused no specially selective mortality among children, but rather in young adults. It has always

TABLE III.—U.S.A. SURVEYED CITIES
Incidence-Rate of Influenza and Pneumonia
(Rate for All Ages taken as 100)

	Age													
	All Ages	0—	5—	10—	15—	20—	25—	30—	35—	40—	45—	50—	60—	70—
1928-29 ...	...	100	118	122	90	78	87	102	113	111	105	93	90	106
1918-19 ...	...	100	104	142	134	118	108	116	111	102	80	70	55	31

seemed to me that this theory leaves unexplained the absence of as great an increase of mortality in the elderly as among young adults. Otherwise it fits the picture well.

The question has been discussed at some length because influenza is among the war diseases against which we are being warned to be on our guard. It is right that we should be, but it would also be unwise to assume that because the Four Years War was followed by such a devastating pandemic the one was the cause of the other, and that deprivation and fatigue were the factors underlying it.

Summary

- (1) The viruses of influenza have been shown by laboratory workers to vary.
- (2) In Hungary it has been suggested that this variation is accompanied by changes in the age-incidence of the disease in recent years.
- (3) No statistical confirmation of this can be found in England and Wales.
- (4) On the other hand the age-incidence of the disease in 1918-19, and of the complications which caused death, was most unusual.
- (5) This and other evidence points to a special strain of virus, not now persisting, as the cause of that epidemic, rather than special susceptibility of the population due to war conditions.

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AN OUTBREAK OF ACUTE
POLIOMYELITIS IN HARROGATE
DURING 1940
By D. D. PAYNE, M.D., D.P.H.,
Medical Officer of Health and School Medical Officer,
Harrogate.

Epidemics of acute poliomyelitis have fortunately been uncommon in this country, and those which have occurred in England and Wales have usually been in the nature of small localised outbreaks. The year 1926 stands out prominently in the history of poliomyelitis in this country, no fewer than 1,397 cases being notified, with 176 deaths; the chief outbreaks were in the County Borough of Leicester (81 cases), Grays in Essex (58 cases), and Broadstairs in Kent (74 cases). A full description and discussion of the epidemiology of these outbreaks is given in the *Annual Report* of the Chief Medical Officer of the Ministry of Health for 1926 (pp. 84-108); in the same report there is also a summary of the chief epidemics of poliomyelitis in

England and Wales between the years 1897 and 1926. The U.S.A., Australia, and Scandinavia have been the centres of major epidemics. In 1937, in Victoria, Australia, there was a total of 38,250 cases, and in 1916 in New York State alone there were 13,164 cases with 3,331 deaths. Fortunately we have had nothing comparable in this country.

Acute poliomyelitis as a clearly differentiated epidemic disease has a short history. With its accompanying disabilities it appears to have been recognised clinically towards the end of the eighteenth century. The first epidemic to be carefully studied was that occurring in Sweden in 1887, and described by Medin (1890) of Stockholm. Sir Walter Scott, born in 1771, was undoubtedly a victim of the disease at the age of 18 months. He states, "In the morning I was discovered to be affected with the fever which often accompanies the cutting of large teeth. It held me three days. On the fourth, when they went to bathe me as usual, they discovered that I had lost the power of my right leg;" and later he goes on to state that "the limb affected was much shrunk and contracted" (Lockhart, 1837). Acute poliomyelitis was made notifiable in 1912, and polio-encephalitis was made separately notifiable in 1919.

Bacteriology and Transmission of Infection

The infective agent is a neurotropic virus and can be identified only by injecting and reproducing the disease in monkeys. Owing to war-time conditions it was not deemed possible to attempt any such identification or experimental work in the Harrogate outbreak.

A brief survey of the recent work on the poliomyelitic group of viruses was given in the *Lancet* of November 16th, 1940. A mouse virus has been isolated from the brains of mice that had developed a flaccid paralysis of the hind legs. In America the same virus has now been found in the intestines of a high percentage of normal mice, although few develop symptoms. There is no serological relationship between the mouse virus and the human poliomyelitic virus. Two human strains, the Lansing and SK strain of virus, have, however, been isolated, and are pathogenic for cotton-rats and mice. Most mouse poliomyelitic viruses are pathogenic only for mice, but one strain is pathogenic also for cotton-rats. The *Lancet* makes the following comment: "The crucial question is the exact status of the Lansing and SK strains of poliomyelitic viruses. Are they human viruses that have become pathogenic for mice, or mouse viruses that have become pathogenic for man?"

The virus of poliomyelitis has been isolated from the stools of human cases on numerous occasions, even as long as 123 days after a mild abortive attack (Lépine, Sédallian, and Sauter, 1939), also from the stools of healthy human contacts who remained well during the period of exposure (Trask, Paul, and Vignec, 1940). In two out of three urban epidemics of poliomyelitis in 1939 the virus was isolated from samples of sewage, and could not be isolated when the epidemics were over. From the results obtained, the following conclusions were drawn: (1) Poliomyelitis virus can be isolated occasionally from urban sewage during the course of an epidemic. (2) It cannot be

demonstrated in urban sewers at all times. (3) Isolation of virus from sewers in the vicinity of an isolation hospital is easier than in sewers elsewhere. (4) The total virus content of sewage may occasionally be very large (Paul, Trask, and Gard, 1940). Similar findings regarding sewage were also noted in epidemics in South Carolina and in Stockholm in 1939. Bearing in mind these facts, and the theoretically possible risk of infection of water supplies, it is of interest that laboratory experiments have shown that as high a concentration as 0.5 parts per million of chlorine did not inactivate the virus of poliomyelitis in one-and-a-half hours, whereas the residual chlorine content of from 0.1 to 0.2 parts per million for half to two hours is normally considered adequate for producing a safe water (Kempf and Soule, 1940).

The portal of entry of infection is generally considered to be the nasopharynx and the spread of infection to be caused by droplet infection from active carriers—that is from the persons either suffering from a subclinical infection or in the early and possibly symptomless stages of incubating the disease.

Some Facts of the Outbreak

The outbreak in the Borough of Harrogate started during the first week in June, and by the end of August had largely subsided, though sporadic cases still continued until the middle of November. The total number of cases notified from within the borough was 76, and in the surrounding districts a further 21 cases were noted from the weekly returns of infectious

diseases circulated by the Registrar General. There were a further 19 children in the borough who had suspected abortive attacks in which the diagnosis was too indefinite to warrant notification.

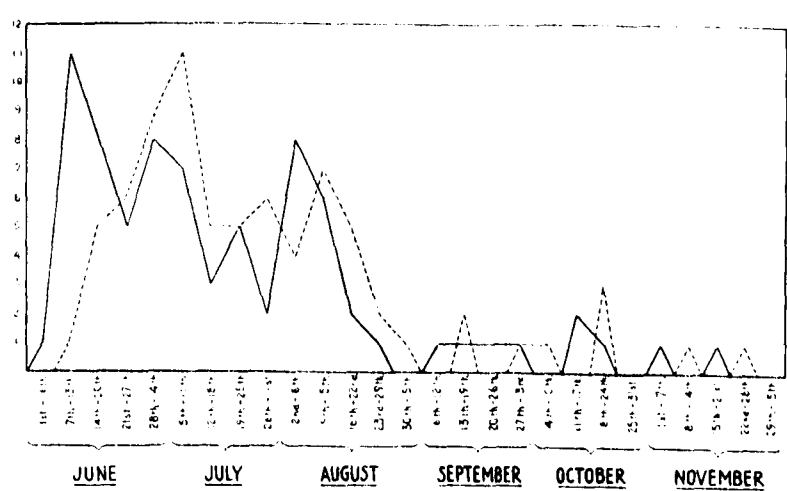
Age Incidence. The age incidence is shown by the table. It may be noted that 44 of the 76 cases occurred in children of elementary school age (5 to 14), and, of those, 40 were between the ages of 7 and 13. This shift of the age incidence towards the older

age group is of interest. In epidemics before 1910, 60 to 90 per cent. fell in the age group of 1 to 5, hence the name infantile paralysis; but in more recent epidemics it has been frequently observed that the incidence is greatest in older children. It has been noted that the greater the degree of density of population the younger will be the age of those affected, and it is not improbable that with improved social conditions and smaller families there is less likelihood of the spread of droplet infection and of consequent subclinical infection. Therefore a larger number of older children are non-immune than formerly, hence causing the age incidence to rise (Burnet, 1940).

Sex Incidence.—Forty-one cases (54 per cent.) were in males and 35 in females; this slight but definite excess of males is seen consistently in outbreaks large or small.

Predisposing Factors.—The cases as shown by a spot map of the borough, and also from my experience in

INCIDENCE OF ACUTE POLIOMYELITIS, HARROGATE, 1940



AGE INCIDENCE					
Age.	No. of Cases.	Age.	No. of Cases.	Age.	No. of Cases.
Under 1 year	2	11 years	10	21 years	1
1 "	2	12 "	4	22 "	0
2 years	6	13 "	3	23 "	0
3 "	3	14 "	0	24 "	0
4 "	5	15 "	5	25 "	0
5 "	2	16 "	1	26 "	0
6 "	2	17 "	2	27 "	0
7 "	10	18 "	2	28 "	0
8 "	7	19 "	1	29 "	1
9 "	3	20 "	0	30 "	1
10 "	3				
Total		76			

AGE INCIDENCE IN FIVE-YEAR AGE GROUPS									
Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34	Total	
Number	18	24	20	11	1	1	1	76	

making home enquiries, were drawn equally from both well-to-do and poor homes; social status and the previous state of health of the patient made no observable difference in the resistance to infection.

Seasonal Prevalence.—Epidemic poliomyelitis tends to appear during the summer and early autumn after a period of unusually dry and hot weather, such as we experienced last summer at the time of the outbreak.

Water Supply.—Owing to the fact that the virus may be found in urine and excreta, it is necessary to consider if such an outbreak as that under consideration could have been transmitted by water-borne in-

fection or through the medium of the milk supply. The water supply of Harrogate comes from an upland moorland source and is filtered but not chlorinated. There are two service reservoirs which supply the southern and the northern portion of the town respectively. The notifications were distributed evenly over the areas covered by these two water supplies, 29 cases occurring in one area and 47 in the other. There were, in addition, 21 cases in the surrounding districts, which had different water supplies. It therefore seems a safe assumption that water can be excluded as the vector of infection.

Milk Supplies.—It is known that the virus of the disease will live, though not multiply, in milk for a month or longer (Landsteiner *et al.*, 1911).

In the Broadstairs outbreak of epidemic poliomyelitis in 1926, whilst the local health department and the Ministry of Health medical officers regarded the transmission of the infection to be due to healthy carriers, Dr. W. L. Aycock, of Harvard, U.S.A., analysed the outbreak in an article in the *American Journal of Hygiene*, contending that the epidemic was transmitted by milk-borne infection. The matter was fully discussed in the *Lancet* of December 3, 1927.

In Harrogate all the cases recorded received their milk from no fewer than eleven supplies. One case did occur at a milk farm, but this was towards the end of the epidemic and could have no bearing on the spread of infection.

Population of the Borough.—The population of the Borough of Harrogate in June, 1940, was approximately 53,000, and by November, 1940, had risen to 57,500.

Cases Before the Outbreak.—During 1939 only two cases of poliomyelitis had been notified, one on January 2nd and the other on October 24th.

History of the Outbreak.—On June 10th, 1940, a severe case of acute poliomyelitis with respiratory paralysis was notified. This was in a girl aged 15 who was a scholar at the Harrogate Grammar School; she had been admitted to the Harrogate General Hospital the previous day. The onset of her illness was on June 7th. The second notification reached me on June 17th—a boy aged 11 attending an elementary school, whose onset of illness was also on June 7th. On June 19th, in addition to the two cases notified, there were a further six suspicious cases in the hospital. On that date I notified the Regional Office of the Ministry of Health of the outbreak. The same day I sent to all practitioners in the borough a letter informing them of the outbreak, the type of case to be on the look-out for, with the commoner early signs and symptoms, and also offering my assistance where desired. I would here mention that I received full and valued co-operation from the general practitioners throughout the epidemic.

HOSPITAL ACCOMMODATION

That same afternoon I visited the Harrogate General Hospital, which is a voluntary hospital, with a medical officer of the Ministry of Health, and arranged for the cases to be treated in the isolation cubicles; the cases had up to that time been admitted to the general wards. This isolation accommodation was available for only eight cases, and arrangements were made for further

cases to be treated at the Wharfedale Joint Isolation Hospital, the services of an orthopaedic specialist to be available as required.

By the first week in July, 21 cases had been notified in Harrogate, and the isolation accommodation so far provided was becoming severely taxed. In consultation with the medical staff and Chairman of the Harrogate General Hospital, the Senior Regional Medical Officer of the Ministry of Health was approached and consented to the opening of a hutment ward in the grounds of the hospital. The ward was one of five previously intended for the treatment of military cases and of civilian casualties due to air-raids, and was erected by the Ministry of Health under the Emergency Medical Scheme.

On July 4th, the hutment ward was opened and the cases at the Wharfedale Isolation Hospital were transferred to it. On July 11th, a second hutment ward at the Harrogate General Hospital was opened. With the exception of one abortive case treated at the Harrogate and Knaresborough Joint Isolation Hospital, all further cases during the epidemic requiring hospital treatment were admitted to these two wards. A Nuffield iron lung was provided in each ward, and was undoubtedly instrumental in saving two lives.

The advantages of the cases being treated and centralised at the Harrogate General Hospital were as follows: (1) Resident medical officers were available at all times for the reception of cases and for any medical emergency which might arise; (2) The services of an orthopaedic surgeon were readily available; (3) There were facilities for massage and electrical treatment through the massage department of the hospital; (4) Laboratory facilities were available at the hospital; (5) The parents of patients were able to visit the hospital and make enquiries as to the progress of their children more readily than at a hospital situated at a distance outside the borough.

CASES AT HARROGATE GRAMMAR SCHOOL

This school is a secondary day school maintained by the West Riding County Council, having between 600 and 700 pupils between the ages of 10 and 18, both girls and boys being admitted. As already mentioned, the first notified case of the epidemic was that of a girl aged 15 attending the school, the onset of her illness being on June 7th. In a different class at the school from that of the girl three boys (all in the same class) were taken ill on June 7th, 12th, and 15th; there was no history of contact between the pupils of these two classes. The three boys were admitted to the Harrogate General Hospital on June 14th, 13th and 19th respectively; they were very mild cases and subsequently recovered without residual paralysis. The diagnosis of these boys after admission to hospital was not confirmed for a week, the notifications reaching me on June 20th, 21st and 25th.

On June 21st the position at the school was as follows: Two boys and one girl had been notified and one boy was suspected of suffering from the disease, the three boys coming from the same class. I visited the school on this date with a medical officer on the West Riding County Council School Medical Staff, and attended a meeting of the Board of Governors.

I advised the closure of the affected boys' class for two weeks, the boys from the class being placed in strict quarantine at home during that time; they were instructed to gargle at home with a solution of permanganate of potash, 1 in 5,000 in 0.8 solution of chloride of sodium as recommended in Memorandum 166/Med. issued by the Ministry of Health in December, 1936. The whole school was put on to daily gargling with the above mixture for two weeks, advice as to spacing of desks and avoidance of overcrowding was given, and the class room in which the three cases had arisen was disinfected. A list of absentees was obtained from the headmaster and all were visited by my health visitors in an endeavour to track down any missed or abortive cases. Of twenty-five children so visited eight were possibly mild abortive cases of poliomyelitis; in none of them was the onset of illness before June 10th and in none did any paralysis subsequently develop. The symptoms in these suspected cases were very indefinite and comprised mainly a feeling of malaise with headache and slight stiffness of the neck.

On July 1st a further case occurred in a boy who was a member of the same class which had closed on June 21st; he had been isolated at home since that date, thus the incubation period would appear to have been at least eleven days in this case. The boy was a severe case of polio-encephalitis, dying in hospital on July 9th. The school closed for its summer vacation on July 19th. During the holidays the last case arising among the pupils of this school was in a girl notified on August 7th, the onset of illness being on August 2nd. I have little doubt that here the infection was contracted from an abortive home case, which she had visited during the last week in July; this home case had contracted the illness four-and-a-half weeks previously, and suggests that mild cases which may not have developed any signs of paralysis may be a source of infection for many weeks.

In the Harrogate Grammar School there were, therefore, 6 notified cases in all, of which 4 were due to direct spread in one boys' class.

CASES OCCURRING AT A PRIVATE SCHOOL

In a mixed day- and boarding-school comprising twenty-six boarders and fifty day-boys, a boarder was taken ill on July 6th with malaise and backache; I was informed of this on July 8th, and visited the school with a medical officer of the Ministry of Health. The boy had a slight stiffness of neck with a positive Kernig sign and a temperature of 100.2° F., and he was admitted to hospital the same day: he was an abortive case, never developing paralysis. All children were placed on routine gargling and the usual disinfection and fumigation were carried out. Advice was given regarding spacing of desks and beds at the school, and parents of all the scholars were notified of the occurrence of the case. The next day a second case developed, which had undoubtedly been incubating the disease at the time of my visit. This case, also abortive, was removed to hospital and the school holidays were advanced by a week, the school breaking up on July 15th. The school re-assembled on September 20th; on October 17th two further cases developed,

and a third on October 20th; the same precautions were adopted and no further cases appeared in the school. The five patients at this school all made complete recoveries. It would seem improbable that the first two cases which occurred three-and-a-half months previously should on returning to school after the holidays still have been carrying the virus and so infected the subsequent three cases. Experimental work to determine if either of the first two cases was still a carrier would have been of great interest.

A most valuable article entitled "Anterior Poliomyelitis, with Special Reference to its Effects on Schools" has been written by Dr. R. E. Smith (1939), the medical officer of Rugby School, dealing in particular with the steps to be taken in connection with epidemics in boarding schools. In considering the policy to be adopted towards school closure he states, "A school should not disband on the appearance of a single case or of more than one case occurring simultaneously, except under exceptional circumstances. On the appearance of the second case, parents may remove their sons or daughters, provided they can be isolated at home for three weeks."

ELEMENTARY SCHOOLS

Twenty-six children who were attending elementary schools in Harrogate contracted the disease. The fact that cases appeared in twelve of the thirteen elementary schools shows the widespread infection in the town and also the low attack rate, in that, on average, only two children per school were attacked.

SECONDARY CASES

Secondary cases arising in the same household were uncommon; in only three instances did this occur:

Case 1. A boy aged 11 began on June 9th with an attack of malaise and fever; two days later there were stiffness of the neck, dizziness, diplopia, and, later, pain in the right leg—this lasted only two days. The doctor was called in, attended once, and treated him for rheumatism; the patient was not isolated. On June 27th a "billettee" aged 19 developed signs of poliomyelitis, with paralysis of the left leg the following day. Enquiries at the house brought to light the history of the boy's illness, and I found definite wasting of the adductor muscles of his right leg; though the boy was then perfectly well, there could be no doubt of the nature of his recent illness. Since he had not been isolated during his illness, the incubation period in the case of the "billettee" was indeterminate.

Case 2. On June 17th a boy aged 13½ was taken ill with a sore throat and fever. Eight days later there were stiffness and pain in the neck and pain in both lower limbs; the following day paresis of both legs developed. This boy was being treated by his doctor for juvenile rheumatism, the diagnosis not being arrived at until paresis appeared. On June 23rd, his sister, aged 12, had a sore throat five days after the onset of her brother's illness; later there was pain in the neck and spine, with weakness of the erector spinae.

Case 3. A boy aged 2½ became ill on June 26th with a high temperature; stiffness of the neck and weakness of the right leg appeared three days later, and he was admitted to hospital on June 29th. On July 15th a girl aged 15 living in the same house had catarrhal symptoms with malaise; later she complained of her legs aching and her limbs feeling heavy. Her gait was unsteady and her knee jerks were absent. After admission to hospital her knee jerks returned, and no paralysis occurred, but there is no doubt that she was an abortive case of poliomyelitis. There was an interval of sixteen days between these two cases, and either the incubation period was unduly prolonged or there may have been an unknown source of infection.

Infectivity.—Apart from the above three instances of secondary cases in the same houses, and the limited spread of infection in the two schools, there was very little evidence of the direct spread of infection from active cases. That the attack rate of the disease is low is further borne out by the fact that none of the forty or so nurses who cared for the patients in hospital contracted the disease, nor was there any spread of infection in the general wards of the hospital to which suspected cases were admitted during the first few days of the epidemic.

As mentioned previously, 19 children, including the 8 scholars at the Grammar School, were traced who had vague inconclusive signs of the infection such as malaise, headache, and slight stiffness of the neck, often lasting only twenty-four to forty-eight hours. I am of the opinion that such cases were far more numerous than those that came to light. Such cases by the very nature of their symptoms, lacking in any salient clinical feature, must often remain undetected; they may have played an important part in the spread of infection. Of the 76 notified cases 55 were admitted to hospital, one to a nursing home, and 20 were satisfactorily isolated and nursed at home.

Incubation Period.—Many different estimates have been published, varying from two to twenty days, probably four to eight days is the commonest time of incubation.

Clinical Features

Before giving particulars relating to the clinical character of the cases, I must make it clear that physicians of the Harrogate General Hospital are at present analysing the records of the patients under their care, and that their investigations will form the subject of future communications to the medical journals.* Thus the few remarks I intend making on the clinical aspect are tentative only; the classification of clinical types, treatment and its results, pathological findings, and the after-effects of the disease on the patients, can be dealt with more properly and in much greater detail by the hospital physicians than in my present paper. On being notified of a case or suspected case I made a personal visit in every instance to the home address, giving advice as to the steps to be taken to prevent further spread of infection, and my remarks on the clinical aspect are mainly based on the notes I made at these visits.

The clinical course of the disease may be divided into: (a) An invasive or preparalytic stage, which may or may not proceed to, (b) the paralytic stage, (c) the convalescent stage, (d) the residual stage.

Preparalytic Stage. The duration of the preparalytic stage in this epidemic was commonly from three to six days, but varied from twenty-four hours to as long as eleven and in one case twelve days. During the later part of this stage the signs of meningeal irritation became evident. The signs and symptoms in order of frequency were pyrexia, usually from 100° to 102° F., headache, vomiting, malaise, irritability of temper, and sore throat; and towards the end of this preparalytic stage, pain and stiffness of neck and spine, pains in the muscles later to be paralysed, mild head

retraction with a positive Kernig sign, drowsiness, diminution or loss of tendon jerks, and nystagmus. No fewer than eleven cases in the series had periods of remission during the preparalytic stage, with later recrudescence—the so-called "dromedary type" of onset of symptoms. This period of remission lasted three or four days in several cases, and is a danger in the spread of the disease since such cases often return to work or school when the symptoms have so diminished. A typical history will serve as an example:—

A girl, aged 21, on August 9th complained of headache, feverishness, and general malaise. This lasted for two days, and on August 11th she felt better and returned to work; four days later she had pain in the back, and the next day, August 16th, she was feverish with stiffness of her neck and back, and vomited in the evening; she had been at work that day. She stayed at home the following day and I was called in to see her at noon. She had then a temperature of 101° F. with backache; she complained of stiffness of her neck, and said she felt unsteady in her legs; her knee-jerks were present and there was no nystagmus. She was admitted to hospital; her knee-jerks and ankle-jerks were lost, and nystagmus developed, together with paresis of her right arm and leg.

Paralytic Stage.—Of the 76 cases 19 did not progress beyond the preparalytic stage and were abortive. Among the 57 paralytic cases, in 75 per cent. one or both legs were affected, in 25 per cent. one or both arms, in 17 per cent. the spinal muscles, and in 16 per cent. a cranial nerve. The clinical types can be roughly allocated as follows:—

Abortive	...	...	...	...	19	25%
Spinal form	...	...	...	...	44	58%
Brain-stem form	...	...	...	...	6	8%
Combination of spinal and brain-stem forms	...	...	...	...	7	9%

Brain-stem involvement was more frequent in the higher age groups.

Mortality.—There were four fatal cases—a case fatality of 5.3 per cent., a lower rate than in most recorded epidemics. The risk of death is increased in patients over the age of 10 years. The fatal cases were in patients aged 10, 15, 15, and 30 years respectively. One of these died of bronchopneumonia supervening on respiratory paralysis; the other three, from medullary involvement.

The Residual Stage.—The following is a tentative estimate of the after-results in the 53 patients who developed paralysis (excluding the 4 fatal cases); this estimate may well have to be modified later:—

Incurable and total invalidity	...	...	1 case.
Crippling likely to handicap seriously the individual and his capability for work in later life	...	...	6 cases.
Residual paralysis causing some impairment in later life	...	...	12 "
Very slight paralysis that will probably recover or cause no handicap	...	...	9 "
Cases already completely recovered	...	...	25 "

The average period of in-patient hospital treatment was six weeks. In-patient cases discharged from the hospital requiring further orthopaedic treatment have received such treatment in the out-patient and massage departments of the Harrogate General Hospital.

Source of Infection.—The original source of the outbreak has not been found. None of the early cases occurred in persons who had recently become residents in Harrogate; only two cases in the epidemic arose

*MILLER, S. and WRAY, S. (1941). *Lancet*, 1, 753.

in persons who took up residence in Harrogate after the onset of the epidemic; thus the introduction of fresh susceptibles into the town during the outbreak does not appear to have played any major part in the maintenance of the epidemic.

Conclusion

(1) A brief outline of the history and epidemiology of acute poliomyelitis has been given with special reference to the Harrogate epidemic in 1940.

(2) An account of the outbreak is given, together with the steps taken to secure suitable hospital accommodation for the patients.

(3) Special mention is made of cases arising in a secondary day-school and in a private day- and boarding-school, and also of the occurrence of secondary cases in the same household.

(4) A few details are given of the clinical character of the outbreak, together with a tentative estimate of the residual results in cases affected by the disease.

Finally I would express my warmest thanks to the medical staff of the Harrogate General Hospital for their willing and ready co-operation and also to the Regional Office of the Ministry of Health, which constantly advised and assisted me in dealing with this outbreak.

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POLIOMYELITIS: A NOTE ON TREATMENT

By SINCLAIR MILLER, D.S.O., M.C., M.D., M.R.C.P.,
 Senior Physician, Duchy House Clinic, Harrogate

It is generally accepted that the causative organism of poliomyelitis is a filterable virus and that the portal of entry into the body is probably the nasopharynx, though some authorities maintain the infection can occur via the alimentary tract. After entry the route of spread of the virus in man has not yet been fully demonstrated, the generally accepted opinion being in favour of a strictly neurotropic spread via the olfactory lobes, hypothalamus, mid-brain, and descending neurones. I myself do not subscribe to this method of spread. The sudden onset of the illness, its toxæmia and pyrexia, appear to me to resemble closely the early stages of other recognised acute systemic infections, and post-mortem examinations of fatal cases show evidence to support this. Involvement of the lymphoid tissue is common, including tonsils and spleen as well as the lymph glands. Flexner and Lewis have demonstrated the presence of the virus in human mesenteric lymph glands. I hold that the infection is systemic from the beginning, with, perhaps, some selective affinity of the virus for the anterior horn cells.

There are many points in favour of a generalised infection, but space does not allow me to discuss these in further detail. Increased knowledge of the distribution of the virus, with the greater range of experimentation now that certain strains of rats and mice have been shown to be susceptible to the disease, will no doubt throw much light upon the mode of spread of the virus and methods of prevention.

Treatment

During the recent outbreak of acute poliomyelitis in Harrogate I had an opportunity of treating a limited number of cases. In papers in the *Lancet* (Miller and Wray, 1940 and 1941) I have described the use of sulphapyridine given in large doses intravenously combined with intramuscular injections of convalescent poliomyelitis serum. The results were most promising in several cases in which the severity of the attack was such that little hope of survival could be entertained. The following is an example of the response obtained in a series of sixteen cases treated by sulphapyridine and serum:

CASE HISTORY

A male, aged five years, was seen on the evening of the fourth day of illness. The child had returned home from school three days before with headache and had been unable to go to school on the following day; he was off food and restless. He was worse on the next day; fever was slight and he passed a very restless night, with repeated attacks of vomiting. On the morning of the fourth day the temperature was 99.6° F. and the child very toxic, but no diagnostic signs were present. Late in the afternoon he became worse, and in the evening the temperature was 102° F.; he was stuporous and irritable, severe frontal headache was present, head retraction was obvious, and there was pain at back of neck. He was unable to support his head when asked to sit up in bed; there was a moderate amount of paresis of the right arm and left leg; superficial reflexes were present, the left knee-jerk being very active; Kernig's sign was positive in both legs. Though only five years old, the child was given 1 gramme of sulphapyridine soluble intravenously in 20 c.cm. of saline with 15 c.cm. of convalescent poliomyelitis serum intramuscularly, followed by one sulphapyridine tablet (0.5 gramme) four-hourly and fluids freely. On the next day the child was much better; temperature was 99° F., both morning and evening. On the day after this, the temperature became normal and his condition was satisfactory; the left knee-jerk was now elicited only with great difficulty, the right being the same as when first examined. There was no further extension of the paralysis. Further progress was uneventful, the child being left for a time with slight residual weakness of the right arm and left leg. When he was examined two months later it was almost impossible to detect any evidence of residual paralysis and the reflexes had returned.

In none of the cases treated with sulphapyridine and serum has there been any serious constitutional upset. A careful watch has been kept on the cytology of the blood and nothing untoward has been noted; there has been little gastric disturbance and the serum gave rise to no reactions.

Routine of Treatment

The following is the routine I am adopting at present:—

(1) Patients showing malaise or indefinite pyrexia without apparent cause are given sulphapyridine by mouth in appropriate doses and kept under close observation.

(2) Patients with earlier manifestations of the infection receive in addition convalescent poliomyelitis serum. Initially, 2 grammes of sulphapyridine by mouth and 20 c.cm. of convalescent serum intramuscularly are given, and 1 gramme of sulphapyridine is repeated four-hourly until the temperature settles unless there are serious contraindications. Occasionally the serum is repeated once or twice.

(3) Patients presenting acute symptoms, where paralysis is impending or has already developed, receive physiological saline intravenously at the earliest moment possible, together with 20 c.cm. of convalescent serum intramuscularly. The sulphapyridine soluble is repeated four-hourly until 8 to 10 grammes have been given. A second dose of 20 c.cm. of the serum is administered eight to ten hours after the first. Next day sulphapyridine soluble and serum are repeated; in the more severe cases further injections are given on the third day, but usually they are not required. Modification for children is made according to age.

Since this procedure has been adopted we have had no serious extension of paralysis in any case, nor have there been any deaths; such reactions as occurred were negligible.

Award for Gallantry in Civil Defence

The award of the George Medal to Dr. Laura Bateman, Medical Officer, Brook Hospital, Shooter's Hill, is announced in a *Supplement* to the *London Gazette* dated June 13th.

The announcement reads as follows: "When the Brook Hospital was bombed two maids were imprisoned by debris, Dr. Bateman quickly relieved the suffering of the first maid, but the other was buried under girders and masonry. Dr. Bateman volunteered to crawl under the wreckage and administer an anaesthetic. A porter held her, suspended by her ankles, while she reached the casualty and successfully carried out the injection. A slight subsidence might have resulted in her being trapped and fatally crushed. The danger was very apparent, but this did not deter Dr. Bateman from carrying out a gallant and difficult action."

The Minister of Health (Circ. 2407) calls the attention of authorities to the desirability on nutritional grounds of making available to patients and staffs of hospitals within the Emergency Hospital Scheme, and to inmates and staffs of any other residential institutions under the control of local authorities, bread made of national wheatmeal flour. This flour contains the greater part of the germ of the wheat, with some of the finer bran, but excludes the coarser bran. It thus contains not only most of the vitamin B₁ but also most of the remainder of the vitamin B complex, as well as valuable mineral elements which are removed in producing white flour.

CORRESPONDENCE

DIPHTHERIA IMMUNISATION

To the Editor of PUBLIC HEALTH

SIR,—I have to thank you for your comments (PUBLIC HEALTH, July, 1941, p. 175) on my recent article in the *Medical Officer*. There are one or two small comments arising out of those remarks which seem worth while.

In the first place, is not the Emergency Hospital Laboratory Service a child of the Ministry of Health, and is it a fact that the father advises two injections of A.P.T. of 0.2 c.cm. and 0.5 c.cm., while the rebellious child (to wit, the E.H.L.S.) specifically advises the dosage of 0.1 and 0.3 c.cm. of A.P.T.? Is it a case of the right hand not knowing what the left is doing, or is the policy of the Ministry really to countenance the smaller dosage and are the responsible officials hiding behind the petticoats of the E.M.S.? The whole thing savours a little of Dr. Jekyll and Mr. Hyde.

The other important point is based on the famous quotation: "The evil that men do lives after them. The good is oft interred with their bones." I may be accused of undue anxiety about the ultimate effect on the community of imperfection in the immunisation of individual cases. But in this respect I beg to point out that the failures are shouted from the housetops locally, while all the sound but unknown work which has protected numerous other children passes unrecognised because it is unseen, and because it could never be proved that any of the children concerned would have contracted diphtheria. In the field of diphtheria prophylaxis I object to being classed with the scientists. I imagine that I have been in more intimate contact with more parents than most people in the country in the course of my work, and I know, from peace-time experience, that if we want our clinics to advertise themselves failure must be kept as low as possible. Britons are probably the most thoughtful people on earth when it comes to sizing up the value of anything they are asked to do for their own good. The more we can convince them of the worth of what we are doing, the sooner shall we have the demand for universal immunisation, as opposed to the war-time receptivity of guidance which you so rightly mention is prevalent at the present time.

I am hard at work assessing the degree of enormity of the failure of the Ministry (or ought we to say Emergency Hospital Laboratory Service) campaign for the immunisation of our child population. When the facts collected are sufficient, they will be published. In the meantime, it has reached my ears that some people have thought that something was wrong with Schick toxin because it gave such strongly positive readings after adopting the Jekyll and Hyde dosage of 0.1 and 0.3 c.cm. of a certain brand of A.P.T. Would anyone like to say anything about that? Or may I perhaps be right in saying that the Ministry is leading the Nation right up the garden.—I am, etc.,

GUY BOUSFIELD.

London, S.E.5.

July 22nd, 1941.

BOOK REVIEWS

Brompton Hospital Reports. Volume IX. 1940. Price 5s.

We are glad to welcome once again this excellent little volume. No such collection would be complete without some reference to war injuries of the chest, and the papers by Roberts and Price Thomas on the immediate and remote problems raised by these injuries clearly enunciate the basic principles which underlie their successful treatment. In his paper on "Primary Carcinoma of the lung," Roberts again draws attention to the necessity for early diagnosis. This need cannot be too often repeated, for it is the *sine qua non* of successful treatment.

There are two interesting papers describing rare conditions—"Spontaneous haemothorax," by Davidson and Keith Simpson; and "Spontaneous pneumothorax and staphylococcal lung abscess in an infant," by Leigh Collis and Foster-Carter. A detailed account of forty cases of chronic iridocyclitis, and a discussion of the relation between this condition and tuberculosis, emphasise the beneficial effect of sanatorium treatment for patients suffering from this disease.

Several excellent papers dealing with different aspects of tuberculosis have perhaps a more direct interest for most public health workers. Notable among these papers is that by Scadding on "The Diagnosis of Pulmonary Tuberculosis without Bacteriological Confirmation." Brooks draws attention to the lack of real knowledge of the relation between pregnancy and pulmonary tuberculosis—a fact which is deplorable when it is remembered that the combination of these two conditions is by no means uncommon. Wingfield contributes two stimulating papers on the prevention of pulmonary tuberculosis and on the treatment. The first is a plea for better hygienic conditions and wider use of mass radiography. The second draws attention to, and regrets, the modern tendency to neglect the principles of the social aspects of treatment as laid down by Sir Robert Philip. It is singularly fortunate that this volume of reports should have for its concluding paper one which contains so much constructive criticism of our present methods, and which ends on a hopeful note for the future success of our struggle against tuberculosis.

Medical Treatment and Special Centres, E.M.S. Instructions. Part I, Ministry of Health

The Ministry of Health has published a 60-page booklet which embodies the instructions on medical treatment and special centres issued as E.M.S.I.s and E.M.S. Gens. from the beginning of the Emergency Scheme until the end of May, 1941, with the exception of E.M.S.I.s 144, 278 and 289. Other booklets are being prepared. The present one is a complete guide to the medical services under the E.M.S., and contains as appendices valuable articles by leading authorities on the treatment of injuries of the spinal cord, chest injuries, and burns. The booklet is not on sale and is available only to officers in the Emergency Medical Service.

OBITUARY

SIR WILLIAM H. WILLCOX, K.C.L.E., C.B., C.M.G.,
M.D., F.R.C.P., D.P.H.,

*Consulting Physician, St. Mary's Hospital
Medical Adviser to the Home Office*

We much regret to announce the death on July 8th of Sir William Willcox, Consulting Physician to St. Mary's Hospital and Medical Adviser to the Home Office.

It was only at the last meeting of the Society of Medical Officers of Health that it was unanimously decided to elect Sir William Willcox as an Honorary Fellow.

William Henry Willcox was educated at Wymondham Grammar School, Oakham, at Wyggeston School, Leicester, and at University College, London. He received his medical education at St. Mary's Hospital Medical School, where he was senior scholar and gained the Cheadle gold medal for research in clinical medicine. At London University he was gold medalist in anatomy, organic chemistry, materia medica, and therapeutics and forensic medicine. He took the M.B. of London in 1900, and the M.D. in 1901. He took the D.P.H., R.C.P.S. in 1900, also the F.I.C. Willcox was medical registrar at St. Mary's from 1904 to 1906, and in 1907 was elected to the honorary staff of the hospital, a position he occupied until 1935, when he became consulting physician. In the last war he served as consultant to the armies in Mesopotamia, was four times mentioned in dispatches, and received the C.B. and C.M.G.

Willcox took a particular interest in forensic medicine and lectured at St. Mary's on this subject and on chemical pathology. His special knowledge brought him in as expert witness in many important criminal cases, including the famous Crippen case. In 1919 he was appointed medical adviser to the Home Office. His somewhat halting method of speech might have led the casual observer to believe he would not be a good witness, but this was far from being the case, as legal authorities soon came to realize. His expert knowledge of toxicology was well in evidence during what came to be known as "the battle of the barbiturates," and Willcox never ceased to warn his professional colleagues of the danger of indiscriminate use of these widely prescribed drugs. He was an indefatigable worker, contributed many articles to medical literature, served on many committees, and held office in many medical societies. In 1935 he was Master of the Society of Apothecaries, of which he had become a licentiate thirty-six years before; he served on the Council of the Royal College of Physicians from 1931-33, having been elected a Fellow in 1910. He examined in pharmacology and therapeutics at Cambridge University, and was a visitor for the Privy Council to the examinations of the Pharmaceutical Society. By his death medicine has lost one who carved out a highly individual professional career with conspicuous success.

WILLIAM PARRY MORGAN, M.D.,
Lecturer in Bacteriology, Welsh National School of Medicine

Dr. W. P. Morgan, whose death occurred recently, was well known as a bacteriologist in Cardiff, where he was lecturer in pathology to the Welsh National School of Medicine, and pathologist and bacteriologist to the Glamorgan County and Cardiff Public Health Laboratory.

William Parry Morgan was educated at Cardiff, Cambridge, and St. Mary's Hospital. He qualified M.R.C.S., L.R.C.P. in 1904, took the Cambridge B.Ch. in 1906, the M.B. in 1908, and the M.D. in 1917. He was also a B.Sc. of London University. He had a brilliant university career, entering Clare College, Cambridge, where he won the Lady Clare Scholarship. He was 16th Wrangler in the mathematical tripos in 1898, and named proxime accessit in the Horton Smith Prize in 1917. Parry served as house-surgeon and house-physician and resident obstetrical officer at St. Mary's. From 1908 to 1914 he was assistant in the department of therapeutic inoculation at the same hospital, and during this time spent a year in South Africa as research bacteriologist under the Witwatersrand Native Labour Association, for whom, with Sir Almroth Wright, he prepared a report on pneumonia. During the last war he served as a temporary Captain in the R.A.M.C. He published an article on the technique of inducing pneumothorax in 1914, and one on artificial pneumothorax in the treatment of pulmonary tuberculosis in 1917 at a time when this method of treatment was little practised in this country.

DR. A. LASNET

News has been received from the International Office of Public Health of the death on December 14th, 1940, of Medical Inspector-General A. Lasnet, delegate for Algeria on the Permanent Committee of the Office. Dr. Lasnet had had wide experience in every French African Colony and in Indo-China and was in charge of the health services of the French Army of Occupation on the Rhine until 1924, when he became Inspector-General of the Colonial Medical Services. In 1924 he joined the Committee of the Office as delegate for Indo-China and later represented Algeria. In 1936 he undertook a mission to Spain to investigate the epidemic and sanitary situation on behalf of the Health Committee of the League of Nations, and in 1937 and 1938 he was in charge of one of the three health units sent out to China by the League. His works include many studies on epidemiology, hygiene, and social medicine, and he took especial interest in yellow fever and in the Mecca Pilgrimage. His many friends will deeply regret his loss.

VIOLET MAUD REDMAN KING, M.B., CH.B.

We regret to announce the death at the age of 50 of Dr. Violet King, Assistant Medical Officer of Health and Assistant School Medical Officer for Swindon.

Violet Maud Redman King qualified M.B., Ch.B. at Leeds in 1922. For a time she acted as assistant pathologist to the General Infirmary at Leeds, and later

was clinical assistant to the Metropolitan Ear, Nose, and Throat Hospital, Fitzroy Square. She went to Swindon as Assistant Medical Officer of Health in 1926. Dr. King was Supervisor of Midwives and surgeon to the Nursing Division of the Swindon Branch of the St. John Ambulance Brigade. She joined the Society of Medical Officers of Health in 1927.

ALLOCATION OF MEDICAL MAN POWER

Release of Public Health Officers

In March of this year the Ministry of Health issued Circular 2323 on the allocation of medical man power (see PUBLIC HEALTH, May, 1941, p. 146).

The Board of Education now draw attention in Circular 1559 (here slightly abridged) to paragraph 9 of the Ministry's circular, in which authorities are asked to consider in co-operation with the principal Regional Medical Officer of the area the release of members of public health staffs. In Circular 1523 (August 21st, 1940) the Board suggested the pooling of staffs of adjacent areas where such a course was practicable. They also set out for the consideration of local education authorities a scheme for the inspection and treatment of school children which might be followed where, owing to the depletion of medical staff, it was not possible to undertake the usual full routine inspection. The Board regard it as essential that the routine medical inspection of "entrants" should be maintained. Apart from this, however, they would be glad if authorities would again review the position, and consider among other things whether the surveys of children now conducted by medical officers might not be undertaken by school nurses (who would refer special cases to the school medical officer for examination), and whether less highly trained staff might not be more widely employed on certain kinds of work hitherto performed by nurses, particularly in connection with surveys for the detection of lice.

SCHOOL DENTAL SERVICE

As stated in paragraph 3 of Circular 2323, the Minister of Health announced his intention of replacing a number of British members of the Emergency Medical Service by foreign practitioners admitted to practice under the Medical Register (Temporary Registration) Orders referred to in Circular 2264. The Board for their part would offer no objection to the employment by local education authorities of foreign medical practitioners thus admitted. Names and full particulars of such practitioners may be obtained on application to the Secretary, Central Medical War Committee, British Medical Association House, Tavistock Square, London, W.C.1, and special measures have been arranged by the Government Departments concerned to facilitate their early employment.

Attention is also drawn to paragraphs 6 to 13 of the Board's Circular 1523, in which methods for the best utilisation in war-time of a restricted dental staff were suggested. In view of the further calls being made for dentists for the fighting Services these suggestions

should now be adopted, in so far as this has not already been done, and the following steps should be taken: (a) The normal length of session devoted to dental treatment should be extended to three hours; (b) Sessions should be held regularly on Saturday mornings and generally during school holidays, provision being made for the full-time school dentists to be released in rotation for the necessary periods of annual leave.

The Joint War Committee of Dental Associations, 13, Hill Street, Berkeley Square, London, W.1, may sometimes be able to furnish authorities with the names of dentists on their list who might be available for employment in the School Dental Service. The Board would also suggest that in order to maintain their school dental service authorities should consider, when necessary, the recruitment of foreign dentists and of British dentists holding foreign qualifications admitted to the British Dental Register provided that, in the case of foreign dentists, they have received permission from the Home Office to practise in this country. Authorities desiring to employ a foreign dentist should consult the Joint War Committee of Dental Associations. Where authorities are unable to fill vacancies in their dental staffs by full-time appointments, it should often be possible for them, particularly in urban areas, to secure the part-time services on a sessional basis of dentists engaged in private practice. Appointments of part-time dentists should be notified to the Board on Form 9b.M.

VOLUNTARY HOSPITALS IN THE E.M.S. Financial Arrangements with Ministry of Health

The Minister of Health has discussed with the British Hospitals Association the question of the financial arrangements with voluntary hospitals in target areas which may find it necessary to reduce their bed complement on account of bombing or anticipation of bombing.

The agreement reached with the British Hospitals Association is embodied in a document (War 184), an abridged version of which follows.

When the bed complement of a hospital has been reduced because some parts of the building have been put out of commission through enemy action, or because some parts are thought to be particularly dangerous, some adjustment will be needed in the basis of apportionment of costs between the Emergency Hospital Scheme and the hospital. For example, before a hospital is damaged only 20 per cent. of the total beds in commission may have been used for casualties, but, after damage, if an adequate casualty reservation is to be maintained, it may amount to 80 per cent. of the reduced complement. As the hospital's normal sick will receive treatment at the expense of the Emergency Hospital Scheme, being transferred to outer hospitals, it is fair that the hospital should make some contribution towards the cost of the Scheme beyond what would be involved in the strict application of the apportionment basis on the reduced complement. Beds out of commission are not apportioned at all.

It has accordingly been agreed with the British

Hospitals Association that if the "live" bed complement of a hospital has been reduced either because of damage or because of danger, the subsequent expenditure of the hospital should be apportioned according to the beds actually kept in commission for civilian sick and for casualties; but that the hospital should, in a separate statement to be enclosed with the A.G. 136, credit the Ministry with the number of "lost" civilian beds. For example, if the bed complement of a hospital before reduction was 300, of which 200 were civilian and 100 casualty, and after that date, because of danger or damage, the total complement was reduced to 150, of which only 75 were civilian, 75 still being casualty, the expenditure shown on A.G. 136 should be apportioned on this basis, but the hospital would credit the Ministry with 125 "lost" civilian beds.

In assessing the civilian bed complement prior to reduction the hospital should, unless there has been some specific agreement with the Ministry regarding complement, take the average number of civilian beds actually occupied over the last six months or over the period between reduction and the last presentation of A.G. 136 (whichever is the longer), plus a percentage increase to allow a "margin." Thus, if a hospital showed an average civilian occupancy of 180 beds during the period under review, it would be reasonable to assume that 200 had been the civilian complement, since every hospital must retain a margin of empty beds for its own purposes. In calculating the total complement of the hospital after reduction, the Department are, unless a complement has been specifically agreed, prepared to accept as "live" the number of beds allowed by the rule of three beds to one nurse. Of this total complement the Minister will accept as casualty beds all beds not actually occupied by civilian sick, since once the hospital is crediting the Department with the "lost" civilian beds there is no further need to allow a "margin."

The document then goes on to discuss difficulties in connection with the calculation of complement in other than straightforward cases of hospitals with an agreed bed reservation, and states that allowance may be made for the loss by the hospital of patients' contributions: in the interests of simplicity it has been agreed that £1 per bed per week should be deducted from the ascertained cost of each "lost" civilian bed before the net credit to the Ministry is assessed. In addition there shall be deducted from the pre-war cost per occupied bed those items of expenditure of which, as indicated on A.G. 136, the Ministry of Health is not prepared to bear a proportion; i.e., appeal expenditure, advertising, and law charges. It is also stated that it is possible that the application of the principles contained in the memorandum would react harshly on individual hospitals, and it is desired to make it quite clear that in any such case the Ministry will be prepared to consider making a separate arrangement. The whole object of this amendment to A.G. 136 is to distribute the burden of maintaining casualty and civilian sick beds more equitably between the hospitals and the Ministry of Health than would have been the case if A.G. 136 had been continued without amendment to a hospital with a greatly reduced complement mainly reserved for casualty purposes.

ALTERNATIVE METHOD OF PASTEURISATION

Representations have been made to the Minister of Health that for such reasons as shortage of skilled labour and of materials difficulties are now experienced in maintaining or replacing apparatus licensed under the Milk (Special Designations) Orders, 1936 and 1938, which provide only for a process of pasteurisation known as the "holder" process. At the same time, it is particularly desirable, for the safety of the milk supply, that pasteurisation should as much as possible be encouraged.

The new Regulations—Milk (Special Designations) Regulations, 1941—enable a licensing authority to grant a pasteuriser's licence in respect of a process of "high temperature short-time" pasteurisation as an alternative to the "holder" process. The Minister is advised that, provided the apparatus is suitable and is worked with proper care, this process effectively destroys any disease-producing organisms in the milk. At the same time, the apparatus needed is much smaller and simpler than that required for the "holder" method. In many cases "holder" apparatus may be capable of adaptation. The conditions for a pasteuriser's licence under this method are the same as the relevant conditions in the Orders of 1936 and 1938, except for the modifications made by the Second Schedule of the present Regulations. These more particularly provide that the milk shall be retained at a temperature of not less than 162° F. for at least fifteen seconds, and that the apparatus for this process shall be provided with an automatic device to divert the flow of any milk which has not been so treated.

In view of the importance of ensuring that the apparatus for pasteurisation is suitable, the Minister desires that authorities will, before granting a pasteuriser's licence under the new Regulations, require the applicant to satisfy them fully as to the suitability of the apparatus, including a demonstration to their authorised officers by a trial run (for which water would be sufficient) that the apparatus works satisfactorily in accordance with the requirements of the Order. The Minister is advised that a local authority may obtain advice with regard to apparatus which an applicant proposes to use from the National Institute for Research in Dairying, Shinfield, near Reading. After a licence has been granted, inspections should be made of the working of the apparatus as frequently as circumstances permit, and periodical samples of the milk should be taken for examination by the prescribed plate count test. The Minister further desires to impress on authorities the importance of having samples also examined by the phosphatase test.

(The above is a shortened version of Circular 2423.)

EMERGENCY HOSPITAL SCHEME Notification of Discharge of Child Casualties

The Minister of Health has had under consideration with the President of the Board of Education the question of the welfare of child casualties after their discharge from hospital. A child requiring hospital treatment as a result of enemy action is, of course,

admitted in the ordinary way to a hospital in the Emergency Hospital Scheme. It is the purpose of that Scheme to ensure that every necessary medical attention and care are afforded to children, as to adults, so long as treatment is necessary, and the full resources of the orthopaedic and other special centres in the Scheme are available to secure this. After discharge from hospital such out-patient treatment as may be desirable and practicable is also afforded.

In this period after discharge, however, when the child either returns home or is billeted with a householder in a reception area, it appears to the Minister and to the President that it is important that the fact of the newly discharged child's arrival in the home or reception area should be made known through some regular machinery to the Local Education Authority or Child Welfare Authority, in case there may be any steps which the school medical officer or other officers of either of those authorities may wish to take in regard to the child's welfare during this period. There must be no risk that, through lack of information, those authorities are prevented from making any enquiries or providing any assistance which they would otherwise be concerned to make or provide. To secure this in the simplest manner possible, it is requested that all hospitals in the Scheme should, when about to discharge a child casualty (under 16 years of age), notify the discharge in the following manner.

As soon as the date, or approximate date, of discharge of a child casualty can be determined, the medical officer in charge—or someone on his behalf—should send a notice in the form appended to this Circular (2427) to the Medical Branch, Board of Education, Branksome Dene Hotel, Bournemouth. It will be helpful if these notices are completed and forwarded as early as possible before the discharge takes place. To simplify procedure all notices will go to the Board of Education at the above address. The Board will then take whatever steps seem most appropriate to bring the fact of the discharge to the notice of the appropriate local authority, but the hospital need not concern itself with this.

The Minister is confident that hospitals in the Scheme will be anxious to assist in this way to bring their child casualty patients, after discharge, to the notice of those local authorities which are most concerned with children's welfare.

NOTICE OF INTENDED DISCHARGE FROM HOSPITAL

To the Medical Branch, Board of Education, Branksome Dene Hotel, Bournemouth:

The undermentioned child (under 16 years of age) who has been treated in this hospital for war injuries, will be discharged on/about (date) to the following address: (give full address and state whether home or billet).

Name of Child (in full)
Age Sex
Nature of injuries treated
Any residual disability
Any arrangements made for out-patient attendance, and if so, where
Signature
Name and address of Hospital
Date

SOCIETY OF MEDICAL OFFICERS OF HEALTH

BRANCH MEETINGS

HOME COUNTIES BRANCH

President: Dr. E. W. Caryl Thomas (M.O.H., Harrow U.D.C.).

Hon. Secretary: Dr. Cecil Herington (M.O.H., Dagenham M.B.).

The annual meeting of the Branch was held at Tavistock House South, Tavistock Square, London, W.C.1, on June 20th. The President was in the chair and 11 other members were present.

The minutes of the meeting held on April 25th were confirmed and signed.

Branch Council, 1941-42.—The following members were unanimously elected as the officers and representatives of the Branch for the Session 1941-42; Drs. D. H. Geffen (President), K. E. Tapper, O.B.E. (Hon. Treasurer, re-elected), C. E. E. Herington (Hon. Secretary, re-elected); representatives of Council of Society, Drs. Geffen, Herington, and E. W. C. Thomas; representatives on T.B. Group Committee, Drs. Barker, Bruce, and Dobson; representatives on Kent Branch Council of B.M.A., Drs. Bramley and Brocklehurst (re-elected).

Address.—Mr. J. H. Thompson gave an address on anti-growth substances in the treatment of cancer. After the address a number of questions were asked and answered by the speaker. A vote of thanks to Mr. Thompson was proposed by Dr. Ferguson and seconded by Dr. Williams.

WELSH BRANCH

President: Dr. J. Greenwood Wilson (M.O.H., Cardiff C.B.).

Hon. Secretary: Dr. H. W. Catto (M.O.H., Newport C.B.).

A meeting of the Branch was held at the Institute of Preventive Medicine, Cardiff, on May 16th. In the absence of the President, Dr. E. Colston Williams was in the chair and 28 other members were present.

The minutes of the last meeting held on April 25th were read, approved and signed by the Chairman.

Arising out of the minutes the Hon. Secretary reported:—

(1) The North Glamorgan and Brecon War Emergency Committee had appointed Dr. Betenson, C.M.O. for Brecknock, to serve on the Committee as the representative of medical officers of health, as it was desired to ensure closer co-operation between Glamorgan and Brecon, a view supported by Dr. Severn, who had previously been nominated by the Branch and who was present at the meeting;

(2) As it was difficult to establish contact with the dental sub-group owing to the absence of their secretary, who was in the Forces, all matters remain in abeyance for the time being;

(3) Programmes of papers to be read at future meetings during the session had now been arranged, details of which would be notified in due course.

The meeting then listened to a most excellent address by Mr. Jessop. [This was published in the July issue of PUBLIC HEALTH.]

RECENT APPOINTMENTS IN THE PUBLIC HEALTH SERVICE

The following are some recent appointments in the health departments of various local authorities.

The Editor will be grateful if members of the Society will notify him at once of any new appointments.

CASTLEFORD U.D.C.: M.O.H., Dr. Joseph M. Paterson. Salary £800, rising to £950 p.a., plus £50 p.a. travelling expenses.

CONWAY M.B.: M.O.H., Dr. W. H. Parkinson (formerly M.O.H., Basford U.D.).

COVENTRY C.B.: Deputy M.O.H., Dr. R. C. M. Pearson (Deputy M.O.H., Middlesbrough C.B.).

EASTBOURNE C.B.: Temp. A.M.O.H., Dr. Greta Lowe (A.C.M.O.H., Essex C.C.).

PUDSEY M.B.: M.O.H. & S.M.O., Dr. E. Ormond Bowie (A.M.O.H. & T.O. & R.M.O., Infectious Diseases Hospital & Sanatorium, Doncaster C.B.).

RICHMOND M.B.: M.O.H., Eric Pereira (A.M.O.H., Richmond). Salary £1,000, rising by annual increments of £50 to £1,250 p.a.

Dr. P. H. Deeny, formerly M.O.H., Carlton U.D.C., and Assistant County Medical Officer and A.D.M.S., A.R.P., of the Nottinghamshire County Council, has been appointed Major, R.A.M.C., Officer Commanding 31st Field Hygiene Section with the Middle East Force.

MINISTRY OF HEALTH APPOINTMENTS

The following appointments and promotions have recently been made by the Minister of Health:

Senior Medical Officers. E. L. Sturdee, O.B.E., M.R.C.S. (in charge of the Regional Medical Organisation, including environmental hygiene; succeeded Dr. H. A. Macewen, O.B.E., who has retired from the service of the Ministry); W. A. Lethem, M.C., M.D. (food and nutrition).

Principal Regional Medical Officer of the London Region. M. D. Mackenzie, M.D.

Deputy Senior Medical Officers. N. M. Goodman, M.D.; C. J. Donelan, M.B.; Miss G. I. Brodie, M.B.; V. D. Allison, M.D.

Regional Medical Officers. G. V. Davies, F.R.C.S.; D. L. MacKENNA, M.B.; W. G. McKenzie, M.C., M.R.C.S.

The following are acting appointments:

Mr. J. C. Wrigley, C.B., to be Deputy Secretary of the Ministry of Health in the place of Mr. A. N. Rucker, C.B., C.B.E., who has been seconded for special duties. Mr. E. G. Bearn, C.B.E., to be an Under-Secretary in general charge of the preparatory and operational activities of the Ministry arising out of the war, other than those associated with the Emergency Medical Service. Mr. T. Lindsay to be a Principal Assistant Secretary. Mr. P. N. R. Butcher to be an Assistant Secretary. Mr. Howell E. James to be Chief General Inspector in the place of Mr. C. F. Roundell, C.B.E., retired.

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"Public Health" is the Official Organ of the Society of Medical Officers of Health and a suitable medium for the advertisement of official appointments vacant in the health service. Space is also available for a certain number of approved commercial advertisements. Application should be made to the Executive Secretary of the Society, at Tavistock House South, Tavistock Square, W.C.1.

Telephone: Euston 3923. Telegrams: Epidaurus, Westcent.

Editorial

Medical Planning

Planning is like the writing of a book. How to begin and how to finish are the hardest parts of the task. It is easier if there is a concrete and widely accepted objective for which to plan. The desideratum that every member of the community (no matter how poor) should have access to and enjoy the benefits of a complete preventive and curative medical service is not controversial; if there were agreement as to the best way of reaching it, if there were no vested interests, and if costs were no object, it would not be difficult to start by enumerating the component parts of such a service and proceed to show how they could be built up into a coherent whole. But there are the vested interests of those who have taken up one or other line of private or public practice, and, so far as one can see, cost will be a serious problem in spite of the facile arguments so often used in reference to our capacity to spend money on war and armaments. There is, too, honest disagreement as to whether men and women give their best when employed on a whole-time, part-time, or fee-paying basis. Further, the form of a medical service must depend on the structure of the society of which it is a part. A type of service which might be ideal in a completely socialised community—which may come if the war lasts long enough—would probably be unattractive and unsuccessful in a society the economic basis of which remained capitalistic. It may therefore be sound policy to begin planning on the assumption that something better and more comprehensive can be evolved from the present system and to examine how each part of this system would require to be modified in conformity with an ordered process of evolution. No doubt this was in the minds of the members of the Medical Planning Commission when they decided last May to set up separate committees for the consideration of general practice, special practice, public health, and hospitals, as well as a co-ordination committee which would try to integrate their ideas.

Two articles by Dr. George Buchan and Dr. Maitland Radford which appear in this issue are illustrative of the contrasting points of view even of men engaged in the same type of service. Dr. Buchan, who thinks that the medical officer of health will be least affected by future changes, is severely practical in his approach to the subject, putting forward some of the problems which have to be solved. Practitioners have sunk capital in practices. Is this traffic to persist? If not, how are practitioners to be compensated? To what

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extent does "free choice" exist? Is it worth preserving and if so how is it to be done? How many hospital beds does an area need? What is the best size of area for hospital administration? What should be the relations between one local governing body and another, and between them and the central authority? How is the new medical organisation to be used for medical education? To what extent should medical service be whole-time or part-time? Dr. Buchan refrains from expressing dogmatic opinions on these topics, but exhorts us to think about them, discuss them, and, when we have made up our minds, put forward our conclusions as clearly and definitely as possible.

Dr. Maitland Radford is more radical in his criticism of the present state of affairs. In his view the medical officer of health is most immediately affected by the future of the social services, since health depends so largely on economic and social circumstances. The lop-sidedness of our system is illustrated by the obstruction to progress on financial grounds, the existence of poverty in the midst of plenty and the absence of health insurance provision for women and children who need it most. The medical services have grown in a haphazard fashion; they are not a mosaic but a muddle. The general practitioner loses patients and income as a result of public health activities and is excluded from participation in the newer branches of medical work. The road to specialisation is blocked for him. Dr. Radford's view seems to be that general practice is the least interesting branch of medicine, a contention with which many will not agree. He is uneasy as to the position of the medical officer of health under any proposed regional organisation, but urges us not to approach the question of planning with minds made up to maintain the present administrative arrangements. Postulating a high standard of individual efficiency, free consultation between the Government and the profession and their co-operation in administration of the medical services, he seems to have in mind something akin to a fascist organisation. The results of our form of democracy have not been so inspiring that we can afford to disregard anything good in the corporative state, but it is doubtful whether those basic social changes which Dr. Radford thinks fundamental would receive due consideration and support by a medical hierarchy.

It is at least certain that medical education is not designed to launch men into the profession with an outlook favourable to such developments. Students spend most of their senior time in hospitals and laboratories under the guidance of teachers preoccupied with the processes and manifestations of disease, and not as a rule profoundly interested in the social conditions and habits conducive to deviation from health, or even in the physiological processes which may be impaired by these circumstances. The lifting of medical education out of this rut, as suggested by Dr. Buchan, is a prerequisite of any successful plan for giving the people a medical service which will be effectively preventive as well as curative. It is possible that the Planning Commission may be dominated by those who think in terms of disease and do not realise that the greatest gains in health of the past century have not been made

in hospitals or in any other field of clinical medicine. The public health service can exercise a corrective influence on any such tendency of thought, without itself forgetting that its own clinical services might well be fitted into a better framework than our present system of local government affords.

Whooping Cough

From time to time every medical officer of health is asked what can be done to abate the high incidence of whooping-cough. There is no doubt that with proper material and methods protection can be given. Cruickshank* showed four years ago that he could by vaccination protect 90 per cent. of groups of mice against a dose of living bacilli which killed almost 100 per cent. of unprotected mice. Satisfactory figures for children are difficult to obtain, but, largely from U.S.A., convincing results accumulate. McCullough watched approximately 100 children who had been vaccinated; roughly one quarter of these became later exposed to intimate contact with infected children. Not one vaccinated child became infected. The cautious reader may reflect that not all children exposed to the disease succumb. Sauer† found that only 75 per cent. of ordinary children exposed became infected. Family contact is more deadly than school contact. Not all who "whoop" suffer from pertussis; and not all who suffer from pertussis actually whoop. The diagnosis of pertussis in controlled investigations should therefore be confirmed by cough-plate culture and by blood count. All these reservations have been kept in mind during a series of carefully controlled American observations, and the figures indicate a high measure of protection. Sauer and Kendrick, each supervising some 4,000 children, found attack rates among unprotected children of 15 to 16 per cent., while vaccinated ones showed a 1 to 2 per cent. rate.

How then can good vaccine be obtained, and how can it be used? Lawson, in controlled mouse experiments, examined a small number of vaccines on sale to the public and found more than half to be useless. Ruth Dow‡ in Canada made a somewhat similar report. The vaccine manufacturer can satisfy himself that his brand of material will protect mice before he issues it for clinical use. One American worker distrusts agglutination or complement-deviation tests. Rambar and his co-workers in San Francisco§ are convinced that in immunizing campaigns they can ensure that the vaccine is effective and that the method of use is good by doing opsono-phagocytic tests on the serum of the vaccinated children. This test is a simplified variant of the opsonic index method. Rambar and his colleagues kept under observation 379 premature infants. Apparently maternal antibody is placentally transmitted to the foetus; this and mammary transmission protect infants for the first six months of life. At that age the infants received four weekly injections of 1, 2, 2 and 3 c.cm.

* See *Brit. Med. J.*, 1941, 1, 522.

† *J. Amer. Med. Ass.*, 1938, 110, 1927. *Ibid.*, 1939, 112, 305.

‡ *Canad. Publ. Hlth. J.*, 1940, 31, 370.

§ *J. Amer. Med. Ass.*, 1941, 117, 79.

of Phase 1 vaccine, 10,000 million per c.cm. Almost all had some erythema and induration at the site of injection in the arm; 77 had transient pyrexia to 101-102° F., and 7 to 103-104° F.; one developed convulsions twelve hours after the third injection. The results of the immunisation were impressive. Of 379 babies, 58 were in intimate contact and 9 (15.5 per cent.) developed pertussis, whereas of the 140 siblings who remained unvaccinated, 47 exposures occurred with 37 attacks (78.7 per cent.); 2 developed bronchopneumonia. Of the 9 vaccinated children, 7 suffered mild attacks while 2 were severe. In five families in which the vaccinated child developed a mild attack, 7 siblings became infected at the same time; all had a severe attack. The period between completion of vaccination and attack was five and nine months in two cases and thirteen to twenty-one months in the remainder. The opsonic index was highest eight weeks after vaccination, and thereafter slowly declined. All nine children who became infected had shown a low index several months before their attack. The index may thus prove a promising method of measuring immunity. The authors advocate revaccination two years later.

The following would seem to be the answers to the obvious questions that are being asked: Properly made vaccine tested by mouse protection is effective. At least four doses are required spread over a month. It is unlikely that protection is high until at least four to six weeks after the start of vaccination, and therefore family contacts cannot be given immediate protection. High immunity lasts for many months and probably for several years. Properly vaccinated children, if infected, will most probably suffer a mild attack. Immunity can probably be measured by the opsonic index.

The Health Administration of India

The official publication entitled *An Indian Medical Review for 1938** is compiled under the able direction of Major-General E. W. C. Bradfield, Director-General of the Indian Medical Service, and contains a wealth of information on many subjects which may be referred to when textbooks are found to be wanting. India, an aggregation of many races and creeds, is in some respects very backward in medical matters, but there is, nevertheless, much in the country that will be of interest even to those who do not intend to practise in the tropics.

In the introduction it is pointed out that, while public health, hospitals and dispensaries are provincial legislative subjects, the Central Government has responsibilities for medical research, port quarantine, higher medical education, and for other medical and health matters. India is peculiar in that the activities of medical and public health departments have been separated, and in some cases even divorced from each other. This diarchy has been brought about partly because of the early emphasis which had to be laid on cure among an enormous population which had not then been educated up to the standard of prevention,

* Published by the Manager of Publications, Delhi. 1938. Price 4s.

and partly by the specialisation which was necessary for those who proposed to practise public health in this vast heterogeneous community. The sphere and scope of public health are expanding rapidly, but there is still much to be done, and many high officials have emphasised that in rural districts especially the civil surgeon must play not only a curative but also a preventive part. It is certain that India can never afford to maintain two experts for each small centre of her population.

Hospitals are dealt with fully in an important section. It is difficult for us in this country to realise that the average area served by a hospital in India varies between 111 and 1,327 square miles (with the exception of the province of Delhi), and that similarly each hospital serves a population ranging from 11,000 to 81,000 persons. Institutions are administered by officials with the assistance of advisory committees. The work of these committees does not seem to have been too happy in the past. One of the great difficulties of administration in India is the variation in conditions in different provinces, and a good example of this is found in the varying standards of poverty upon which a patient can receive free treatment in a hospital. The maximum monthly income which constitutes the standard varies from Rs. 30 in Bombay to Rs. 2,000 in the United Provinces and Central Provinces. Few private nursing homes exist except in Calcutta, Madras, and Bombay, and as the general standard is poor legislation on British lines has been recommended. Facilities for X-rays and radium treatment are regarded as inadequate. On the other hand constant endeavours are being made to improve the training of honorary medical officers attached to hospitals, and the report gives an interesting comparative section on the qualifications and duties of such officers in different districts. In India post-graduate training has received special emphasis. It is interesting to note that convalescent patients of the Madras Mental Hospital are sent home on parole for thirty days at a time. The system has been in vogue for some years and has apparently been very successful. But much of the bed-space in all mental hospitals is occupied by incurable cases, and arrangements for the care of mental defectives are admittedly inadequate. Similarly, much remains to be done regarding the health of school children. Although secondary schools and colleges are catered for, it can hardly be said that three part-time medical officers in Calcutta can cope adequately with the work of examining 8,000 students of thirty-three schools scattered over a fairly large area, and in the same city there is no provision at all for children in primary classes. Medical relief in rural areas is provided either by fixed dispensaries, by travelling dispensaries, or by rural medical practitioners who are engaged on a fixed annual subsidy with an allowance for medicine and equipment, together with a travelling allowance. In return for this salary and emoluments the rural practitioner undertakes to treat the sick-poor free. But use is also made of educated members of the lay public, and indigenous native medicine flourishes.

Tuberculosis is a disease of outstanding importance in India. Lankester estimated that in the whole

country there were at least two million cases, but Megaw believes that this figure is too low. Another estimate gives a figure of a million persons affected in Bengal alone, and in this province the annual number of deaths is supposed to be in the region of 100,000. On these estimates the number of beds for treatment should be 500,000. Actually there are only 2,768. From a table of sanatoria which is given it is observed that the largest institution of this type in India has only 250 beds, and that only eight sanatoria have 100 beds or more. These facts must render the selection of patients for sanatorium treatment a very difficult matter.

There is an interesting section on the history of medical colleges since their first establishment at Calcutta and Madras in 1835. In 1892 the General Medical Council of the United Kingdom accepted Indian degrees as being of sufficient standard to be placed on the Medical Register of Great Britain, and thereafter the development of medical education in India was rapid. Interesting comments are made on the curricula and on the methods adopted in various colleges. It is noted that instruction in dental diseases forms one of the courses in special subjects for the ordinary degree in medicine. Nursing is similarly though less fully—dealt with, and it is evident from the historical section that, though the standard of nursing was high in India from 800 B.C. to A.D. 1000, when public hospitals were abolished, since that date the provision of any type of skilled nursing was until recently a difficult matter. The British Army first made headway in this direction, and for long skilled nursing could be given only by Europeans. The Hindus are now taking up nursing in increasing numbers, but even yet this profession is very unpopular in rural areas. The Council of Medical Women in India has put forward suggestions for improving the status of nurses. Midwifery is in a similar plight, and the days of the "dai" are by no means past. It is tragic to think that in Calcutta at least 90 per cent. of maternal deaths are preventable—as was shown by Dr. Neal—and that in All-India the deaths of women in child-birth may reach a total of 160,000 annually. In addition, about three million women are disabled temporarily or permanently as a result of child-birth every year. The public are not yet sufficiently educated to take advantage of the rather meagre service which does exist. But steps are being taken to increase the output of qualified midwives, and enlightenment will come through time.

Food Surveys in Canada

The published results of food surveys undertaken by the Canadian Council on Nutrition* over roughly the same period in four cities—namely, Halifax, Quebec, Toronto, and Edmonton—constitute a welcome addition to the literature of the subject. The surveys have been most carefully planned and include in all cases a certain proportion of estimation by the individual method. Physiological tests and measurements were also made, without which, as Professor Bigwood, in his

Guiding Principles for Studies on the Nutrition of Populations, has emphasised, no investigation of this sort can be considered complete. The Canadian survey gives an analysis of the results without publishing any of the protocols. As the report is referred to as "preliminary," it is to be hoped that later we shall have an opportunity of studying the figures more closely, and also that food intake will be correlated with physiological tests.

The examination of the surveys has very properly been preceded by a careful calibration of the yardstick by which the results were measured, as it was felt that the use for this purpose of dietary standards set up in other parts of the world might not be applicable to Canada. The "Canadian Dietary Standard" differs little from that of the League of Nations, except that it is more complete and gives precise figures for calories, fat, plant and animal proteins, calcium, phosphorus, iron, vitamins A, B₁, and C, with variations according to age. The completeness of this standard much facilitated the examination and comparison of the results. But we must not lose sight of the fact that any dietary standard is as yet largely a matter of hypothesis. When so much emphasis is being placed upon calcium deficiency, it is as well to recall that, when Sherman fixed the figure of 1 gramme as the required daily calcium content of the diet, he did no more than average the output in 97 experiments, making a liberal allowance for safety. Had he fixed the figure at, say, 0.8 gramme, the percentage of persons falling below the normal in any particular investigation would be considerably affected. Without a ruler no measurements can be made, but with a ruler as yet incompletely calibrated many of the measurements may have appreciable margins of error—a fact that should be borne in mind.

The results of the surveys in the four Canadian cities are surprisingly uniform. The greatest deficiencies in all cases are those of calcium and vitamin B₁, while in the low-income families all the protective foods are lacking in varying degrees, a verification of the findings of so many of our own surveys. In Edmonton the diet of 70 per cent. of the low-income group was deficient in calcium, of 71 per cent. in iron, and of 61 per cent. in protein. The diets were deficient in vitamin B₁ in 73 per cent. of all children up to six years. "Our results indicate that diet tends to improve automatically with increase of income" is a statement made so often by our own investigators as to have become a cliché. An interesting observation is that "food is not fairly distributed in the family," the mother being the worst fed and the father the best, while of all the children those who need the most—children in the teens—receive the least. Many of the findings compare not unfavourably with our own. Thus, in Halifax, the consumption of milk, commented upon for its paucity, is 1.52 quarts per man per week. This may be compared with that recorded in the Newcastle-upon-Tyne survey*, where it was found that the average amount per man per week in unemployed families was 0.4 pint, and in employed families 0.69 pint; in the Yorkshire

*A Study of the Diet and Social Conditions of the Working-class Families in Newcastle-upon-Tyne. Najib U. Khan. 1940.

survey† the average of all families was two pints and for the lower-income families 1.2 pints per man per week.

The Editor of the *Canadian Public Health Journal* asks, "Why should malnutrition exist in this country?" and explains that it is due partly to lack of purchasing power and partly to lack of knowledge of food values. If there is concern in Canada, how much greater this should be in England at the present time. Strenuous efforts are indeed being made, not only to learn more but to teach to all who will learn the elements of healthy feeding. In this respect the war has accomplished more in two years than would have been done in 20 years of peace. But is everything being done to stamp out malnutrition among our children? Opinion moves slowly in this country, but recent speeches in the House of Lords on the need for family allowances are encouraging. The provision of money in proportion to the mouths to be fed might go far to solve our difficulties. It is hoped that this health measure will not be long delayed.

By an Order of the Committee of Privy Council, made after consultation with the Medical Research Council and with the President of the Royal Society, Mr. E. Rock Carling (Senior Surgeon to the Westminster Hospital) and Professor S. P. Bedson, F.R.S. (Professor of Bacteriology in the University of London) are appointed Members of the Medical Research Council, in succession to Professor G. E. Gask and Dr. W. W. C. Topley, F.R.S., who retire on September 30th, 1941.

It has now been agreed that 50 coupons may be issued to an expectant mother on the production of a certificate from the doctor or the midwife booked to attend at an ante-natal clinic, or when the mother is in attendance at an ante-natal clinic, from the medical officer of the clinic. It is desirable that the coupons should be supplied as soon as the diagnosis can safely be made (usually the sixth month of pregnancy) so as to give the mother adequate time to make up the garments. Where a positive diagnosis of twins has been made and confirmed a double number of coupons may be issued. Subsequent coupons, which will be available after the birth of the infant, will be issued by the Ministry of Food with the Food Ration card, but the Board of Trade have been unable to devise any method of distribution of pre-natal coupons without the help of the Welfare Authorities. The Minister of Health is confident that Authorities will be willing to undertake this additional work in the interest of the mothers and their infants. The coupons will be supplied in bulk by the Board of Trade and a careful record should be kept of those issued in order that a report may be made of the number of mothers who have been supplied with coupons when an application is made for further stocks. The certificate to be given by the midwife or medical practitioner should state name and address of the expectant mother; National Registration number; the approximate date on which confinement is expected. If working parties are held in connection with the maternity and child welfare work of the authority, wool may be bought in bulk and sold to mothers attending the classes on the surrender by them of the appropriate number of coupons.

†Report on a Study of the Diets of 205 Families in the West Riding of Yorkshire. T. N. V. Potts, C.M.O.H., West Riding of Yorkshire. 1939.

MEDICAL PLANNING*

By GEORGE F. BUCHAN, M.D., F.R.C.P., D.P.H.,
Medical Officer of Health, Willesden

Medical planning has been under consideration by many persons and organisations from time to time for some years. The most notable effort in this direction was the Dawson Interim Report of the Consultative Council on Medical and Allied Services, published in 1920. The reference by the Minister of Health to the Consultative Council was in these words:—

"To consider and make recommendations as to the scheme or schemes requisite for the systematised provision of such forms of medical and allied services as should, in the opinion of the Council, be available for the inhabitants of a given area."

Other workers have surveyed the field, and more recently the British Medical Association issued in 1938 their revised proposals for a General Medical Service for the nation. I would advise anyone who is interested in this subject to secure these two documents, as each in its own way states the problem and offers a solution. Personally, I think that the Interim Report is essentially sound and requires modification only in the light of changes, both medical and social, which have occurred since 1920.

It may be thought that now is hardly the time for medical planning. Whether this be so or not it has to be realised that the matter has been taken up by important medical organisations, and I hope the Society of Medical Officers of Health will play a leading part in planning for the future of public health and medicine.

It should further be appreciated that any medical plan now formed will require to be accepted ultimately by the public whom it is designed to serve, and that their acceptance of the plan will in turn depend on the general social conditions prevailing in the country when the war ends.

I do not propose to set out any comprehensive plan for the future of medicine, but I would like to give an outline of what appear to me to be the main points for discussion and solution. Primarily there are two types of services requisite for a complete medical service: (1) a non-hospital medical service; and (2) a hospital medical service.

Non-Hospital Medical Service

The non-hospital medical service includes (a) medical practice in the homes by general practitioners and consultants, as required; and (b) medical practice in surgeries, clinics, dispensaries, and out-patient departments of hospitals, including all such medical and health work at present undertaken by public health and education authorities. This form of medical practice would again be undertaken by medical practitioners and consultants, who might be employed on a whole-time or part-time basis.

The first problem is how can all this work be amalgamated into an effective and smooth-running scheme. Is it desirable that the work of public health authorities above mentioned should be conducted apart from the

*This paper gives the substance of the remarks made in opening a discussion on Medical Planning before a joint meeting of the Metropolitan and Home Counties Branches of the Society on August 8th, 1941.

*Canad. Publ. Hlth J., 1941, 32, Number 5.

general practitioner, and if this separation is not desirable how can amalgamation be achieved?

PRIMARY HEALTH CENTRE

It appears to me that the conception contained in the Dawson Report of a primary health centre offers a solution to this problem. The only difference I would make is that I would not have, as a rule, any beds at a primary health centre. The specific questions then become: (i) How can all the work under (b) above be carried out at this modified primary health centre? (ii) How many persons can be allotted to one doctor doing home visitation and primary health centre work? (iii) What would be the most effective size for such a modified primary health centre?

It would probably be found that in any urban population of 12,000 a very efficient health centre could be established at which eight general medical practitioners would work, and cover the services outlined in (b) and have time for such visitation under (a) as might be necessary. These clinics or primary health centres would be visited regularly by the consultants from the hospitals in the area and arrangements would be made accordingly. This is essentially the same conception as appears in paragraph 10 on page 6 of the Dawson Report. Paragraph 10 is as follows:—

"The domiciliary services of a given district would be based on a Primary Health Centre—an institution equipped for services of curative and preventive medicine to be conducted by the general practitioners of that district, in conjunction with an efficient nursing service and with the aid of visiting consultants and specialists. Primary Health Centres would vary in their size and complexity according to local needs, and as to their situation in town or country, but they would for the most part be staffed by the general practitioners of their district, the patients retaining the services of their own doctors."

And, again, paragraph 50 on page 11 states:—

"The Primary Centre would be the home of the health organisation and of the intellectual life of the doctors of that unit. Those doctors, instead of being isolated as now from each other, would be brought together and in contact with consultants and specialists; there would develop an intellectual traffic and a camaraderie to the great advantage of the service. No doubt discussions and postgraduate instruction would in time be organised, and 'study leave' to teaching hospitals could easily and advantageously be arranged."

Much has been said about the general practitioner being the first line of defence in health matters. Health cannot be separated from the prevention of disease and considerations of environment, and it is a matter for discussion as to how preventive and sanitary services can be associated with or established at a clinic or primary health centre. These services include, among others, housing, food control, and measures for preventing the spread of infectious diseases. Industrial hygiene also comes within the scope of the present problem, and visits to factories or consultations and treatment with regard to occupational diseases require to be considered in connection with the scheme. Mental health services must also come within the scope of the medical services as outlined above.

Hospital Medical Service

This includes provision of accommodation for all cases requiring in-patient treatment or institutional care. It includes provision for diseases of the body, diseases of the mind, and convalescence.

The number of beds to be provided for hospital treatment will to some extent be determined by the conception of the medical profession as to the cases which should be dealt with in hospital. This will no doubt vary with individual experience. It is therefore difficult at the present time to state the number of beds which any population might require ultimately. It is, however, generally conceded that beds in the region of 10 per 1,000 of the population served would make reasonable provision for all existing services other than mental services. Some authorities put it higher, but 10 per 1,000 at the present time may be considered a good working basis.

Another point that arises in connection with hospital accommodation is the determination of the minimum size of a complete general hospital which may be regarded as fully efficient and economical to work. There are also special hospitals for example, smallpox hospitals, other infectious diseases hospitals, ophthalmic hospitals, maternity hospitals, and the like. It is necessary to consider the minimum size of each type of special hospital which can be efficiently and economically maintained. The provision of hospitals for mental diseases is a separate question on which expert advice and consideration are required.

ADMINISTRATION

This question is not easy to solve, but the following principles would require to be embodied in any solution.

1. The area to be administered must be sufficiently large so that all health and hospital services can be adequately provided and maintained.

2. There should be in this area one authority for all health and hospital purposes. In this connection it must be realised that this health and hospital authority should also be the local authority for the area, whose boundaries would be defined in the light of many other considerations and not merely of questions of health and problems of hospitals. Another difficulty that arises here is that in any area there are not only the hospitals of local authorities but also the voluntary hospitals, and not only a health authority but a number of voluntary organisations dealing with health. How all these may be integrated into one plan requires much conference and consideration, and perhaps even legislation. Given that the area is defined and that the above principles apply to the area, it is a matter for the authority of that area to utilise the beds in the area and to classify and staff the hospitals according to their knowledge and experience of local conditions and local needs. If, for example, it is decided that 1,000 beds and a population of 100,000, or 5,000 beds and a population of 500,000, are needed to fill the necessary requirements of local administration, then the distribution of beds and the classification and staffing of hospitals are matters for the local authority of the area, acting with medical advice. Such classification would include the nomination of one or more hospitals as the principal

hospital or hospitals of the area, which should have the complete equipment of the best modern hospital.

In the light of such new conditions of the local government of health and hospitals as may be determined upon the question of the central administration of these matters arises. It will be appreciated that with areas sufficiently large it is unlikely on the whole that the central medical department will be able to obtain or give better advice than is available in local areas. But whatever may be the future constitution of the central medical department, we shall all agree that it should be designed so that it may be really helpful to a health and hospitals authority desirous of trying out new methods suggested by individual experience or by some acquisition to medical knowledge.

On the other hand, as the areas of local authorities, however planned, are not likely to be financially equal, although their populations may be approximately so, some method requires to be devised by the Treasury in order that financial inequalities may be reduced to a minimum.

COMBINATION OF LOCAL AUTHORITIES.

For some special conditions it may be necessary for local authorities to combine or even for the central authority to establish a national hospital or institution, as there are some conditions sufficiently rare requiring special treatment for which only very large areas could make economical provision.

RESEARCH

It seems to me that every area should be encouraged to do research, and I think this principle is well enunciated in paragraph 87 of the Dawson Report as follows:

"We hope that the scheme of services which we suggest would facilitate inquiry into the causes of disease and the possible remedies."

"The facts which indicated the need for such inquiry might, we think, often be brought together in the first instance by the medical practitioners in a given locality."

"There are great and important opportunities for research in preventive medicine, which at present are scarcely dealt with by any organisation, and mostly are not attempted by individuals."

"Encouragement of research in the prevention of disease should, we think, be developed, for the materials are everywhere, and the results would undoubtedly be valuable."

"The nature of the agency or agencies best qualified in each case to carry out the inquiry could only be determined by a consideration of the subject-matter, but for the purposes of research into fundamental problems the profession would no doubt look to the Universities and the Medical Research Council for guidance and assistance."

MEDICAL EDUCATION

Certain hospitals will no doubt remain as teaching schools and it may be that other hospitals will be added as teaching schools, but any hospital which is a teaching school must be in close touch with all the other health and medical agencies in the area in which it is, in order that the medical student may get the training necessary to fit him for the improved type of medical practice envisaged.

DENTISTRY

In any service for the health of the people the dental surgeon must have his place, and the provision of this service has to be brought into line with the medical services. This is primarily a matter for expert advice from dental surgeons but must not be forgotten in medical planning.

OTHER MATTERS

I have not yet made any reference to convalescent homes or institutions which would serve the purpose of reducing the number of beds for acute hospital cases, nor have I referred to laboratory and pathological services, which would generally be associated with the principal hospital or hospitals of the area. Auxiliary services, too—such as radiography, massage, pharmacy, midwifery, nursing and ambulance services—have all to be remembered and brought into proper relationship in the scheme when its main outlines have been determined.

Probably one of the most controversial matters which will be under consideration is the question of whole-time or part-time medical services. This is a subject which requires the best consideration of us all. There are advantages in both types of services, and if we can devise a plan in which the best of both types is included we shall have done well.

I would like to add that what I have said is in the nature of an exposition and not a solution. Any figures given are tentative, and any suggestions that I have made may require modification in the light of conference and discussion. I would also ask members of the Society of Medical Officers of Health, individually and collectively, to study this problem and to prepare reports or make communications to PUBLIC HEALTH. We of this Society can make a contribution to medical planning which is probably as devoid of bias as it is possible for any plan to be. I would therefore suggest that individual members or groups of members in nearby areas get together with general practitioners and consultants and members of hospital staffs, with a view to determining the best solution of this problem in their locality. All these reports should go to the Council of the Society, who, when they have co-ordinated them, should, I think, hold a conference as soon as possible after the war is over and discuss every detail of these reports so that nothing is forgotten and the plan is as complete as possible. The subject at some later date may be a matter for a Royal Commission, and we of this Society would in this way be ready to submit our carefully-thought-out evidence and not try to give evidence on this vast subject at short notice.

For the duration of the war, candidates who have served in the hygiene sections of the Royal Army Medical Corps will be allowed by the Royal Sanitary Institute and Sanitary Inspectors Examination Joint Board to qualify under Regulation 4 by producing a certificate of having worked 125 days in a public health department spread over a period of not less than six months and of having received instruction during that time in all branches of the work and duties of a sanitary inspector for not less than 150 working hours.

THOUGHTS ON MEDICAL PLANNING

By MAITLAND RADFORD, M.D., D.P.H.,
Medical Officer of Health, St. Pancras

To plan to safeguard the future is probably part of the defence mechanism evoked by war. Everybody is doing it. Divided into groups, however, as they are, the planners tend too much and each from his own point of view to see the future as the golden age when it will be finally agreed that there is nothing like leather.

How does it appear to the Medical Officer of Health? He is concerned for the health of the population in his area, he is administratively responsible for certain health services, and he is identified with the medical profession as a whole. Each of these three aspects of the problem receive brief consideration in the following paper.

Desiderata for Health

We have been advised when we study the course of the war to use large maps, and this advice is equally sound for planners. If it is ignored some plans will overlap and be mutually inconsistent, while between others there will be gaps which are likely later to be the scene of happenings that will upset the best-laid schemes. Our large map, then, is the health of the population, and a brief recital of the things necessary to maintain health will show that it is such a very large map as to be coextensive with our social organisation. These things are good and sufficient food; fresh air; good housing conditions; healthy conditions in office and factory; rest; recreation; avoidance of infection; medical advice; medical treatment for as long as may be necessary; a quality of mind that may perhaps be called confidence. To these should be added a racial consideration that is closely linked with individual happiness—namely, the maintenance of the population at a satisfactory level.

It is safe to prophesy that when this war is won there will be a determined and widespread demand for comprehensive and rapid instalments of social progress designed to improve the lot of the individual in relation to all these things. Sectional planning that is not in accord with the trend of popular feeling will be quickly swept away and forgotten. Evidence of this demand is already to be found in the speeches of public men, and overwhelming support is to be expected by reason of the experiences of a large section—and that the older and more responsible section—of the population during the last thirty years. Twice they have seen untold resources conjured into being for the purposes of war. Twice they have seen heroic sacrifice to defend their traditions and their homes. They have seen progress, but this has had little of the dynamic magic of war effort; it has been obliged to look twice at many a ha'p'orth of tar, and that miserable concession, *festina lente*, has been upgraded until it actually masquerades as a virtue.

But why hasten so slowly? The public health worker has asked himself this question many times. Our difficulty is that though the desire for improvement has been general, and though there has been a wide diffusion of knowledge of health standards, the application of these standards has always, or nearly always,

raised the question of cost and ability to pay. This is equally true whether we consider the budget of the working-class family or of the local authority or of the nation. The spirit has been willing but the balance has been weak.

Paying for Health

The *British Medical Journal* of January 18th of this year contained an article by Sir John Orr in which a proposal is made that is fundamental to the consideration of planning. He suggested that the medical profession should make, as its contribution towards post-war planning, an authoritative statement upon the reorganisation of our social and economic system necessary to satisfy the health needs of the whole population. This may seem a tall order, and so thought the Editor of the *Journal*, for he hastened to advise us that the doctor should stick to his last, meaning thereby that the medical profession should confine itself to giving the public a clear statement regarding the essentials for a healthy life. But the field of social medicine is covered with statements of this kind just as the road to another place is paved with good intentions. Merely to add to their number would be supererogatory if not disingenuous. It would certainly be irritating, and it is very much to be hoped that the Medical Planning Commission of the B.M.A. will give full consideration to Sir John's advice.

Public opinion is likely after the war to be in insistent mood in demanding that something shall be done to make it possible to pay for the things necessary for peace as it is in wartime to pay for the things necessary for war. This brings us to the threshold of a mystery that the ordinary man cannot hope to fathom. What he has fathomed, however, is that the problem of poverty, shortage of cash necessary to pay for essential things, is not what he used to think it.

When Malthus published his essay at the beginning of last century he urged that the population would increase beyond the means of subsistence. This implies a concept of poverty easy to understand, in which money can be thought of simply as a means of exchange and not as itself affecting the problem. But to-day we look forward to a rapid fall in the population at the very time when natural and industrial resources are rapidly increasing, and we have seen periods of acute depression and widespread poverty associated with enforced idleness, restriction of output, and the actual destruction of food. As a result we see poverty not as something inevitable but as failure to make financial arrangements for the exchange of goods and services that are, in fact, available in abundance. Ideas on this theme are fermenting in every part of the world, and the solution of the problem, whatever it may be, will make nonsense of many of our present difficulties.

One remembers a picture of a dog with a bone looking hesitatingly at his reflection in a pool uncertain whether to drop the bone he holds in order to snatch the other. Planners should remember that when the image is to-morrow it may be very good sense to drop certain bones if only as a gesture of intelligent anticipation. It would be fatal to their adoption if plans were so framed as to give the impression that their real aim was to defend vested interests at a time when public

opinion was demanding that the whole question of vested interests should be drastically reviewed. A few weeks ago the medical officer of a mobile unit was describing his visit to an incident at which a block of working-class flats had been hit by a land mine. He said, "Do you remember Doré's drawings of Dante's inferno? It was like that." As a description of things seen the comparison was accurate and apt. As an indication of the spiritual experiences through which the post-war world is being approached it was profound.

The Working-class Housewife

As a result of the great change in the public health outlook that came about when consideration of conditions existing in the homes of the people was added to that of general environmental conditions, we now try to see future arrangements and conditions as they will appear when viewed from within the working-class home. For more than twenty years it has been the duty of local authorities to arrange for visits to be paid to the homes of mothers of children below school age, and as a result an immense volume of information regarding the problems and difficulties of these mothers has reached public health departments, members of committees, and the general public. In the light of this information the wife of the lowly-paid worker is seen as the representative figure in whose person is typified the essence of the problem with which we are confronted. She has long been known as an individual, she has been described in literature, and has been the recipient of charity, but in the last twenty years she has been rediscovered statistically. We now know what her income is, how much of it she can spend on food, under what conditions she is housed, what she pays in rent, how many children she has, and so on. Let us look at her statistical representation and let us consider how she is placed in relation to accepted health standards.

While there is probably little or no actual hunger, recent dietary surveys have shown that a considerable proportion of families subsist upon a diet that is deficient in protective foodstuffs and that their health suffers as a result. Much working-class housing accommodation has been provided, but it is the exception rather than the rule for the woman we are considering to be living under housing conditions that conform to accepted present-day standards. The Rent Restriction Acts passed during the last war are still in force. These Acts serve the useful purpose of protecting tenants against exorbitant rents, but they also have had the effect of keeping in occupation a large number of houses of very low standard. In fact, they are slum preservation acts. Admittedly the preservation was to have been for a supposedly interim period, but this has already lasted for a quarter of a century. With the exception of maternity provision, arrangements for medical care under the National Health Insurance Act have proceeded upon the principle of women and children last.

In the face of the immense difficulties under which this woman struggles it would be presumption to do anything but admire her determination to play her part, but her confidence is threatened in two ways. Press, film, radio and health education all tell her that the right way of life, the socially acceptable way of life, includes nice food and plenty of it, good housing condi-

tions, elbow-room, nice clothes, and all the things that make life healthy and happy, whereas she knows that with her income these things are unattainable. This situation tends to undermine social confidence and to produce the state of mind of the social outlaw. But the difficulty in which she is placed in attaining and maintaining standards of living that are only just within, or they may be just beyond, her reach financially, affects also her attitude towards child-bearing. There are many factors to be considered in relation to the birthrate, but one of them is certainly the conflict in the mind of the woman for whom children must be a menace to a hardly-won standard of living. If the forecast recently made by the Population Investigation Committee affords a reliable indication of the population trend, all plans for the future should be considered in relation to this problem. The Committee have calculated the population for each five years from 1935 to 2035, and the following are quoted (round figures) from this table: 1935, 40½ million; 1960, 37½ million; 1985, 26 million; 2010, 12 million; 2035, 4½ million. Could anything more strikingly support the claim of the woman whose home we have been visiting to be the central figure upon whom we should concentrate our attention when we make plans for the future?

George Meredith says somewhere that nothing affords so good an index of the state of civilisation reached by any society as the position accorded to its women. This reflection should be taken well and truly to heart by all who are concerned with social planning.

Future of Social Services

Of all the problems with which medical planning is concerned the medical officer of health is perhaps most immediately affected by the future of the social services. These services have been extended greatly during the inter-war period, and it is likely that this tendency will be accelerated after the war.

Local government stands to the central government in a relation that may be compared with that of the sympathetic to the central nervous system—the one older, concerned with the instinctive reactions upon which survival depends; the other alert, sensitive to immediate changes, having direct control over voluntary movement, but being able only to send messages indicating the general situation in regard to which the co-operation of the older system is required. The analogy, however, breaks down in an important particular. There is one sympathetic nervous system that functions as a whole, whereas local authorities are highly individualised and react differently to impulses arriving from the centre. It is of the essence of local government that, given the broad lines of Government policy, schemes shall be worked out locally with due regard to the special circumstances, financial position, and political complexion of the area. This ensures freedom for local initiative but it does not ensure uniformity. The very great diversity that does in fact exist is elaborated in an interesting book, published in 1938, by Mr. Norman Wilson, of the Birkenhead Public Health Department.

With every increase in the responsibilities placed upon the social services the more important does it become that uniformly efficient administration should

be secured. Regionalism is a method of imposing a degree of uniformity upon local administration, and it is often said that regionalism has come to stay. As a war-time method of administration of the Civil Defence Services, the only criticism likely to be made is that responsibility and control are not more centralised. If, however, a similar system were to be applied to the peace-time control of the social services the position of the Medical Officer of Health would call for very careful consideration. It is the duty of the Medical Officer of Health to obey the instructions of his Authority and to be responsible for the administration of the work of his department, and under any system these duties are likely to be unaffected. But it is also his duty to advise his Authority. If anything in the nature of regionalism were to be applied to the administration of the health services, it would be a matter of the first importance to consider at what point, by whom, and to whom medical advice was given on the larger questions of health policy in each region.

It is impossible to discuss the future of the social services without reference to the question of encroachments on the sphere of private practice. The National Health Insurance Act was a step in the direction of a socialised practitioner service, but it was not followed by the further steps necessary to provide a complete scheme. For thirty years the general practitioner has been left in an indeterminate position in which he is neither a full-time pensionable public servant nor a family doctor practising his profession as a free agent. During this long time a variety of social services has been developed, and these services have in the main been staffed by wholtime medical officers who are, or who should be, provided with all equipment and assistance necessary for diagnosis and treatment. The general practitioner thus finds the resources of the State organised in such a way as to restrict his work in a field that he has reason to regard as belonging to the sphere of private practice. His grievance is twofold. He loses patients to the social services and thus loses income, and he is excluded from participation in many of the newer branches of medical work. It may be answered that the gaps were there and that they had to be filled, but it must be admitted that there is much that is haphazard, incomplete, and ill-considered about the growth of the social services, that the analogy of filling gaps is misleading, and that the present result is not a mosaic but a muddle.

The Medical Officer of Health is greatly concerned that the social services under his administrative control shall be conducted in such a way as to secure the maximum efficiency and social usefulness, but he should not approach the question of planning with a mind made up as to the desirability of maintaining present administrative arrangements. To insist upon this would be to risk further disunity in the profession at a time when opportunity is at the door with the offer of a comprehensive scheme in which all will participate. At this moment nothing seems more important, so far as the medical profession is concerned, than to plan its future unity in the service of social medicine. This is the bone that must not be dropped.

The present situation, however, shows tendencies that call for close attention.

Professional Unity

The medical profession as it exists to-day owes cohesion to the Medical Act of 1858, the preamble of which is as follows: "Whereas it is expedient that persons requiring medical aid should be enabled to distinguish qualified from unqualified practitioners . . ." In the years that followed this desideratum was realised. The public learned to distinguish and to place confidence in the qualified practitioners. Within the register the profession grouped itself into general practitioners, consultants, surgeons, hospital honoraries, and so forth. Those eminent in different branches gravitated to positions of authority and were able to speak for the profession as a whole upon matters involving medical knowledge and experience. Both before and after the passing of the Medical Act the British Medical Association contributed greatly to this professional unity. It is still zealous to defend the register from attacks from without, but changes within have now become as important as attacks from without, if not more important.

Inclusion in the register does not now of itself ensure quite the same position as formerly. The registered medical practitioner is legally required to obtain an additional qualification before he can hold the position of Medical Officer of Health. Regulations impose a similar requirement in regard to an increasing number of posts—as, for example, tuberculosis officer, maternity and child welfare officer, and doctor in charge of an ante-natal clinic. Under the National Health Insurance Act the contractual obligation of the doctor is to give his patient ". . . medical services other than those involving the application of special skill and experience of a degree or kind which general practitioners as a class cannot reasonably be expected to possess." However necessary administratively, such a reservation, thus set forth, does not leave the status of the registered practitioner entirely unimpaired. It is, of course, necessary and desirable that the expansion of medical knowledge should find expression in a greater degree of specialisation, but unless safeguards are introduced specialisation combined with a steady increase in the proportion of doctors in State employment involves the risk of the disintegration of the profession as we have known it. Registration gradually ceases to be for the purpose quoted above and becomes a kind of matriculation qualifying for certain of the less interesting forms of medical work, while other posts are reserved for those who have qualified to be placed upon what are in effect registers within the register. At the same time the older form of professional organisation, based upon the teaching hospitals and professional associations, is likely to be weakened as State employment increases.

The State and the Doctor

Carr-Saunders's book on the professions contains reflections of great interest in regard to the position that would arise if a large proportion of doctors were in State employment. Since this book was written the situation he discusses has become an urgent problem. Whether State employment is brought about by extensions of the present scheme in the manner suggested by the British Medical Association in a "General

Medical Service for the Nation," published in 1938, or by appointing a wholtime salaried staff of doctors, the influence that the profession, as a profession, is now able to exert will be lacking in the future unless provision is made for some new form of professional organisation. When State Medicine meant environmental medicine, and medical treatment was in the main the undisputed field of the private practitioner and the voluntary hospital, the appointment of medical men and women as technical officers on the staffs of the Ministry of Health and of local authorities seemed natural enough, and the question of formal consultation with the general body of doctors hardly arose. But State Medicine is no longer so restricted and in the immediate future it is likely to know no limits. Already cancer, rheumatism, venereal disease, tuberculosis, and arrangements for their diagnosis and treatment, raise problems affecting nearly all registered practitioners in one way or another. As the field of State Medicine is enlarged liaison between the organised profession and the State will become more and more important. If it were not established the State might gain any number of individual doctors, but the community would lose the benefit of that body of authoritative opinion that the profession as we know it to-day still represents.

The community requires soldiers to win its wars, but it does not employ them directly and as individuals. It establishes an army, gives it powers of recruitment, training, and organisation, and lays down the procedure necessary to secure that the army, as an army, shall carry out its instructions. This example is introduced merely to emphasise that soldiers render their special service as members of an organisation that is largely autonomous. In other respects, anything resembling military administration would be quite unsuited to the medical profession, which must find its own appropriate organisation.

The medical profession now stands upon the threshold of events that threaten its existence as a profession unless some form of corporate co-operation with the State is introduced. If this is done we shall have a medical service for the nation organised upon a democratic basis; if it is not, the organisation will be bureaucratic: the difference is vital. We do not lack experience to guide us. The British Medical Association has in its Divisions an organisation that secures full discussion and that enables the Association to speak with authority in regard to matters upon which agreement has been reached. But the Association has no administrative powers within the existing scheme of State Medicine. The Local Medical Committees appointed under the National Health Insurance Act have definite duties conferred upon them in connection with the administration of the Act. The General Medical Council has important legal powers, but these are limited to maintaining the status of medical registration.

The democratic absorption of the profession into the service of the State should include as part of the scheme arrangements that will secure a high standard of individual efficiency, free consultation between the government and the profession, and co-operation between the government and the profession in the administration of the medical services of the country.

THE TRAINING OF HEALTH VISITORS*

By MARGARET MCEWAN, S.R.N., S.C.M.,
Tutor to the Health Visitor Students, Royal College
of Nursing

The present time is well chosen for a discussion on the training of health visitors as a difference of opinion still persists as to the best method, and it would seem that after 16 years of trial it ought to be possible to decide which of the two methods approved by the Ministry of Health gives the more satisfactory result.

Scope of Work

It is obviously unnecessary to describe in any detail to medical officers the various duties which the health visitor may have to undertake, but in considering this problem it must be remembered that the range of these duties has increased considerably of late, partly to prevent overlapping and multiple visiting and partly because of the extension of the clinic work. The training and experience of the nurse is specially desirable for much of this work, but the Council of the Royal College of Nursing is well aware of the two main criticisms levelled at the general training: first, that the nurse is apt to maintain the interest in curative work only, and, second, that many nurses have had limited experience. With reference to the first criticism, given the right personality and interest in the work, experience has shown that this is not the case. It does seem, however, that, if the preventive outlook were stressed throughout the general training of all nurses, not only would the community benefit, but the right foundation for the student health visitor would be laid. It is encouraging to find that the Society of Medical Officers of Health, in the memorandum submitted to the Inter-departmental Committee on Nursing Services, recommended this, and that even though they were not satisfied with the present nursing training they agreed that it could provide the best basic training for a health visitor.

Scheme for Training

The Council of the College has worked out a scheme for a demonstration school of nursing in which teaching on preventive lines is introduced throughout, and a nurse with public health qualifications and experience is to be responsible for some of the instruction. During the preliminary period, before formal admission to the hospital, the emphasis is to be laid especially on the maintenance of the health of the normal individual and the primary cause of disease, and an introductory course of lectures on the social aspects of disease is suggested. In order to ensure the success of this part of the training the co-operation of the public health department would be required to provide an insight into the preventive work. From the investigations made just before war broke out it appeared likely that if such a scheme were started the co-operation required would have been forthcoming.

Plans also included suggestions for a wider nursing training, which the Council of the College has made

*Paper read at a meeting of the Maternity and Child Welfare Group, Society of Medical Officers of Health.

efforts to promote for all training schools and not only in this demonstration school. In addition to a more varied experience in the special departments of the hospital, experience in the nursing of infants and children in special wards and some experience of fever nursing are to be arranged for. It has been interesting to note that since this criticism of the general training has been given publicity there appears to be a marked improvement in the variety of experience given to some student nurses. Many authorities responsible for both general and special hospitals could ensure that all students gained this experience, and it seems that, as the hospitals have become involved in many changes in their training schemes because of the war, it would be the time to place such proposals before the General Nursing Council for recognition. It is probable that these schemes would assist in the problem of staffing of special hospitals, but they would have to be carefully safeguarded to ensure adequate nursing of the patients as well as adequate teaching of the student nurses.

Obviously with a wider nursing training, and some preventive instruction introduced throughout, the present health visitors' training could receive considerable modification, and more time would be available for instruction in mothercraft, in the general principles of economic housewifery, and in the social services, with which the health visitor may be required to put the families in touch. It would also allow of more time for supervised home visiting, which is specially desirable now that the majority of students have only taken Part I of the midwifery training, in which no district experience is required. To achieve this the Council had hoped to start a demonstration area to which the students would all go for a limited period during their training, such an area being staffed so that students could receive more individual teaching in all branches of the work than is possible in the majority of centres to which they go at the present time.

Selection of Students

It would be wrong to take part in any discussion on the training of health visitors without mentioning the all-important question of selection of students. Some hold the view that any candidates qualified according to the regulations should be allowed to train. It does seem, however, that if the Ministry of Health had wanted merely some specific educational qualification they would have defined it. As it is, training centres are required to satisfy themselves that the candidates have had "a previous education of such a kind that they are likely to profit by the course."* If a wide interpretation is taken, then the education and experience of those selected should be such as to enable them to use for their work, when necessary, after training, all the resources of the services available and at the same time to respect the freedom of the individual. In other words, the personality of the health visitor is even more important than the training if their work is to be a real service to those for whom it is intended. So much is heard of the need for better salaries, hours, and conditions of service for health

visitors that the medical profession and general public must wonder whether the health visitor ever pauses to consider whether the labourer is worthy of her hire. It is indisputable that those who are teaching healthy living must be in a position to practise what they preach. On the other hand, even good conditions of service and the most carefully planned and supervised training will fail if the students are not those who hold the welfare of the individual mother and children as the primary consideration.

There are numerous other points which might be discussed, such as grants in aid of training, which need revision at the present time, and the length of training. As alterations in the general nursing training will take time the Council of the Royal College of Nursing supports the Joint Consultative Committee† in recommending an extension of the health visitors' training, though they do not feel this can be urged at the present time owing to the present shortage of health visitors and the financial problem of intending students. They would, however, be glad to do anything to further discussion among all those involved in health visiting and in the training and employment of health visitors, in order to try to arrive at some decision about a uniform standard of training, so that a better service may be available for the future and the medical officers may have the co-operation not only of well-qualified women but of those capable of assisting in the development of preventive work, which is so essential for the welfare of the nation.

THE TRAINING OF HEALTH VISITORS*

By D. M. HAYWARD, S.R.N., S.C.M.

The training of health visitors has been determined by the Minister of Health acting under Section 59 of the Local Government Act, 1929, and given in Statutory Rules and Orders 1930, No. 69. There are two types of training recognised at present: (1) A two years' recognised health visitors' course with 18 months' training for Part I of the C.M.B. Certificate, and at least six months' hospital training. (2) Full general or childrens' hospital training, with six months' training for Part I of the C.M.B. Certificate and a minimum of six months' recognised health visitors' training. The second course of training is the one usually taken, possibly because Medical Officers of Health find it more convenient to employ the fully-trained nurse health visitors, who can be sent to fill any gap that may arise in the local authorities' nursing schemes.

Work of the Health Visitor

From time to time, however, queries are raised about the wisdom of appointing as health visitors women with three or more years of nursing training and a minimum training of six months in public health and social work.

†Joint Consultative Committee of Institutions Recognised by the Minister of Health for the Training of Health Visitors and of Organisations of Health Visitors.

*Paper read at a meeting of the Maternity and Child Welfare Group, Society of Medical Officers of Health.

These queries arise because the health visitor is not appointed to nurse women and children but to teach and advise mothers on the care of themselves and their children, and to help them to solve their economic and social problems.

This is the chief work of the health visitor, but in addition she is usually engaged to do such other duties as may be assigned to her by the Medical Officer of Health. Among these duties may be attendance at ante-natal, post-natal, birth control, child welfare, ophthalmic, orthopaedic, diphtheria prevention, light treatment, and dental clinics. She may be called upon to act as home visitor to boarded-out children under the various Acts, to visit certain cases of notified infections, some mentally defective, blind, or tuberculous persons, and to attend school medical inspections. She is expected to report sanitary defects and be able to give lectures on general health matters, to co-operate with hospital almoners, and to link up all with the various agencies for help. Knowledge of sanitary law and government, and of elementary economics, is also necessary. The Women Public Health Officers' Association, the largest organisation of health visitors, passed at its last annual meeting a resolution that health visitors should be associated with the teaching of mothercraft to senior school-girls, and also that the training of future health visitors should include social case work. This latter cannot be managed in the present six months' course of training for the Health Visitors' Certificate; the syllabus is already too crowded.

One Training Course

The Women Public Health Officers' Association submitted evidence on the training of health visitors to the Inter-Departmental Committee on the Nursing Services in 1938. As the work of a health visitor is primarily to teach, a good standard of general education should be a preliminary requirement; one not lower than the school certificate is recommended. In place of the two courses of training now recognised, neither of which is considered entirely satisfactory, the Women Public Health Officers' Association suggested the establishment of one training for health visitors, to be arranged in conjunction with a University and to be combined with a modified course of hospital training. In this hospital course special emphasis would be laid on the preventive side of medicine, and opportunities be provided for experience of special value to health visitors, but not necessarily included in the ordinary general nursing training—e.g., childrens' nursing, infectious diseases, tuberculosis, venereal diseases, and common skin affections. The principle underlying these proposals is to train the health visitor as such from the beginning to the end of her studentship. The health visitors are now an established part of the nation's life, and the community has a right to demand that they shall be specially trained in their duties and that they should not be just an afterthought from another profession.

Details of the Women Public Health Officers' Association scheme remain to be worked out. Meanwhile, it is felt that under the existing regulations the recognised two years' whole-time course for health visitors

(which can be started on leaving school at 18), with full general or childrens' hospital training and Part I of the C.M.B. Certificate, is the most satisfactory training. This course would enable the student to qualify by the time she is 24. As the supply of health visitors appears likely to fall short of the demand, it seems probable that at present recruitment must come from the ranks of the general or childrens' trained nurses with Part I of the C.M.B. Certificate. The duties of these visitors, be it remembered, will be concerned not with nursing the sick, but with preventing illness, co-operating with hospital almoners and the various social service agencies, teaching hygiene, and advising on social and sanitary problems. She will be prepared for this by a six months' health-visitors course only.

Duration of the Course

With the evacuation of mothers and children which has taken place dissatisfaction has been expressed in various quarters at the alleged widespread ignorance of hygiene and mothercraft, and it is asked if there is something lacking in the present system of health visiting. Can it be that the health visitor has too little of her time left to teach in the home, or is she insufficiently equipped to teach her subject? I have no doubt members of the Maternity and Child Welfare Group of the Society of Medical Officers of Health have already reached their own conclusions. It does, however, seem feasible that the health visitor who has to be the "guide, philosopher and friend" to so many of the community should have a good working knowledge of the various agencies between whom she is the link, and should spend some portion of her training working with them. This is impossible in the short six months' course now allotted, but by the extension of the time to nine months this urgent reform could be brought about.

The Joint Consultative Committee of Institutions recognised by the Minister of Health for the training of health visitors and of Organisations of Health Visitors (commonly known as the J.C.C.), of which Professor Winifred Cullis is Chairman, and on which the Royal College of Nursing and the Women Public Health Officers' Association is represented, helped also by the advice of several well-known members of the Society of Medical Officers of Health, is strongly of the opinion that the present six months' course of training for the Health Visitors' Certificate should be extended to nine months—a reform which should certainly be adopted.

GENERAL DISCUSSION

IMPORTANCE OF GENERAL NURSING

Dr. JAMES FENTON (M.O.H., Kensington) opened the discussion by recalling the health visitors appointed when he was first a medical officer of health over 25 years ago. These were for the most part well-educated and efficient women who did quite adequately the limited work then open to them. But in a few years' time trained hospital nurses began to enter the health visiting service, and he at once realised that they made

*Memo. 101—M.C.W.

better health visitors. Since that time he had consistently recommended his authority to appoint health visitors who had had general nursing training, and had kept to this opinion throughout his career. It had been strengthened by his experience at the examinations for health visitors over a period of 17 years. He had come to the definite conclusion that the best basic training for the health visitor was three years' general hospital training. He noted with satisfaction that local authorities throughout the country had also come to this opinion and were requiring applicants for posts of health visitors to have general hospital training.

Dr. Fenton drew a parallel between the medical officer of health and the health visitor, saying that it might be argued that there was no need for the medical officer of health, who held an administrative post, to be a doctor. Personally, he was convinced that any prestige attaching to the position was largely due to its holder being a medical man. In a similar way the health visitor gained the confidence of the mothers who asked her advice because they knew she was a trained nurse; the confidence of the public was likewise given to her on account of their trust in her knowledge evidenced by this qualification. Dr. Fenton thought that the trained nurse made a better member of the team of the health department because she understood team work through her previous training. Her early grounding in curative medicine enabled her to pick up preventive medicine more quickly than others, just as the medical student's education in physiology enabled him to get a better grasp of pathology.

In one point only Dr. Fenton thought that the student who took the two years' course for health visitors had perhaps an advantage over the general trained nurse, and that was in the higher standard of general education required as a preliminary for the two years' training. He hoped this point would be taken up by the Royal College of Nursing and that a good standard of education would be required in the future in all candidates admitted to the nursing profession.

SPECIAL COURSE UNNECESSARY

It had been suggested that there should be a special nursing course arranged for the health visitor. He did not agree to this any more than he would agree to a modified course of medical training for the student who wished to become a medical officer of health. This was not to say that in the general training of both doctor and nurse the preventive outlook in medicine did not need to be given more prominence, for such was the case and most people recognised it. But specialisation should come after qualification, and all nurses, similarly to all medical students, should pass through the same general curriculum. It was not every girl in her teens who on her entrance to the hospital was capable of judging the particular branch of nursing for which she was best fitted: she would realise that later in her training.

Although fully appreciating the importance of fever and children's nursing, Dr. Fenton would not accept these as substitutes for the general hospital training. He had welcomed the division of the C.M.B. examination into two parts and thought that Part I was sufficient for the health visitor.

With regard to the much-debated subject of lengthening the special health-visitors course to nine months, he doubted if this were necessary. In a candidate with general hospital training who had passed Part I of the C.M.B. examination, he thought that six months' work should be carefully arranged, and he would omit all subjects from the curriculum which the student had already learned in her previous training namely, anatomy, physiology, and midwifery. This would give more time for preventive medicine. The time spent in training was long enough as it was and it would be a pity to make it longer still.

CONDITIONS OF SERVICE

Dr. Fenton agreed with the Women Public Health Officers' Association that the fact that some county councils give grants to county nursing associations to do health visitors' work was to be deprecated. If it had to be done and it should be done only in sparsely populated districts he endorsed the recommendation, made by the Society of Medical Officers of Health to the Inter-Departmental Committee on the Nursing Services, that the money should be given only on the condition that the work was carried out by qualified health visitors.

Dr. Fenton sympathised with all health visitors, whether trained nurses or not, in that their conditions of service were not better. He would like to see uniformity of salary scales, brought about on the lines of the Burnham scale in the teaching profession. There were few opportunities for promotion, few posts as superintendent health visitors, and higher salary scales would serve to counter-balance these disadvantages. It was especially unfortunate that a health visitor should be tied to her post for financial reasons on account of the increment to her salary 'not being transferable if she moved to another district. This should be remedied in the future if possible. With regard to superannuation, Dr. Fenton thought that the principle of voluntary superannuation at the age of 55 and compulsory at the age of 60 should be supported. The health visitors' work was strenuous and she had earned her retirement by this age.

The question of security of tenure for the health visitor had been raised. Dr. Fenton thought that this was a mistake. The medical officer of health and the sanitary inspector had a certain amount of odium necessarily attached to some of their duties, which rendered this security of tenure desirable; but neither the town clerk nor the borough treasurer had this security, and it did not seem necessary for the health visitor from the nature of her work.

In conclusion, he pointed out that it was to the interest of the medical officer of health to improve the conditions of work and the status of the health visitor, since it was mainly on the result of her work that the prestige of the maternity and child welfare departments was based.

HEALTH VISITOR A SOCIOLOGIST

Dr. J. GREENWOOD WILSON (M.O.H., Cardiff) supported the views put forward by Miss Hayward. He thought that the present tendency to have a series of specialists representing each section of public health work visiting the home was strongly to be deprecated.

In his opinion the health visitor should do a great deal more than the recognised routine of maternity and child welfare work—much more than she was supposed to do at the present time. For example, the type of work started by Octavia Hill should have been taken over by health visitors. He would like to see all the various sociological points of contact with the housewife narrowed down to the one highly-trained health visitor visiting the home.

If one worker was to be capable of carrying all this responsibility her selection was of the greatest importance. He thought she should be primarily a sociologist and must possess tact in high degree. Her function would be to educate the housewife in the art of running the home, including the extremely important question of education on food and how to use it. When all the different aspects of the housewife's responsibility in organising her home and the welfare of her family were considered, it would be realised that the training of such a health visitor would need almost as much preparation as that of a doctor. That such skilled assistance to the housewife would be of great benefit to the community as a whole went without saying. One could not maintain that the average home was now run with any high standard of efficiency. If community life with communal nurseries and communal feeding were to be avoided, the mothers responsible for the welfare of each individual family must be educated to a higher level. For this a more highly-trained health visiting service was needed.

Dr. Greenwood Wilson did not think that six months was long enough for the special training of a health visitor, although he agreed that such of the present syllabus might be omitted. The first essential, in his view, for the health visitor was that she should want social service work. He thought some nursing training was desirable but would consider children's nursing sufficient. On this basis one could build up an adequate sociological training. The candidate must be a well-educated woman. It would be necessary for her to possess the knowledge of housing, maternity and child welfare, mental health, and the other points mentioned by Miss Hayward. But above all she would need common sense. The years spent in hospital during the general nursing training were too cloistered an existence to make a good preparation for the woman who would have to be competent to advise the perplexed housewife in her troubles. Naturally such a health visitor should command a good salary.

The principle of dividing the C.M.B. examination into two parts might be extended with benefit to the nurses' general training. It might be a good thing to divide the latter as well as the C.M.B. into two parts, making only the first part necessary for nurses wanting to do sociological work.

At the present time, the health visitor was expected to know a little about everything but the importance of the sociological outlook was not stressed. In Dr. Greenwood Wilson's view the latter was all-important.

SOME OTHER POINTS

Dr. AGNES NICOLL agreed with Dr. Fenton that a general nursing training was the best basic training for a health visitor. Her knowledge as a nurse was

essential to her task, which dealt principally with the medical side of preventive work. This nursing training, however, should be a basic training, and she did not consider that it should include highly specialised work such as that of the operating theatre. Dr. K. M. HIRST (Deputy M.O.H., Islington) emphasised the importance of the subject of the health visitor's training to all the members of the Group. She did not approve the idea of a special nursing course for intending health visitors. She drew attention to the fact that there are only about 300 health visitors in the country, which was too small a number to justify a special training. Recruitment for the service would be difficult under these conditions, as there might be a serious difficulty in getting an appointment after qualification. As things were now a trained nurse could find other work if no post as a health visitor was open to her. Dr. SAUNDERS-JACOBS (Assistant M.O.H., Woolwich) raised two points which had been brought to her notice by health visitors themselves. They were omissions in the present general nursing training which if remedied would be of the greatest use in their subsequent work. The first was practical work in the care of healthy babies. For this Dr. Saunders-Jacobs suggested that a course of nursery nursing after leaving school and before starting the general nursing training would be extremely valuable. The second point was that insufficient attention was given to the sociological side of hospital work while the nurse was passing through her training. It might perhaps be possible to arrange for her to spend some time in the almoner's office to remedy this.

REPLY TO DISCUSSION.

Miss McEWEN, in replying to the points raised, said that the gap between leaving school and beginning training was a problem which might well be solved by Dr. Saunders-Jacobs's plan of day nursery training. She was afraid that financial reasons would usually prevent Miss Hayward's suggestion to place the two years' health visiting course before the general nursing training from being a general solution: if possible, it would be an excellent one. She agreed with Dr. Greenwood Wilson that multiplicity of visits to the home was undesirable, but thought that this could be largely avoided even under the present system. The personality of the health visitor was all-important, and the right person knew enough about the different sides of her work to be able to get the mother in touch with the right person to help her in each particular problem. In reply to Dr. Nicoll, she would say that the type of nurse who liked work in the operating theatre and spent much of her time there during training was not the type who wanted to do public health work after qualification. Matrons were always willing to co-operate in planning out suitable training for the nurses who wished to enter the public health service. She agreed that work in a nursery training college or day nursery formed a very useful preliminary training for the nurse who had made up her mind to become a health visitor.

Miss HAYWARD said she was in complete agreement with Dr. Fenton as to the importance of a high standard of general education for the student health

visitor. For her part she thought that these students had usually made up their minds as to their wish for a health visiting career by the age of 18. For other professions the decision had to be made at that age. She did not think that there was a complete analogy between the medical officer of health and the health visitor. The former must obviously be a doctor since he co-ordinated and to a certain extent supervised the work of doctors in his area. The health visitor, on the other hand, did not work among nurses and had nothing to do with the supervision of nurses' work. Miss Hayward was not against nursing training for the health visitor; she was in favour of some hospital nursing training, but she thought it should be a specialised one. The Women Public Health Officers' Association realised the importance of the point raised by Dr. Hirst and tried to keep in touch with the law of supply and demand. If there seemed no likelihood of a need for many health visitors there must be a restriction in the number accepted for training.

Dr. AGNES YOUNG (President, M. and C.W. Group) closed the meeting by proposing a vote of thanks to both speakers and to those who had taken part in the discussion, which was carried with acclamation.

CORRESPONDENCE

POLIOMYELITIS

To the Editor of PUBLIC HEALTH

SIR,—In view of the importance of correctly assessing new methods of treatment of acute poliomyelitis, I think it would be of great help if we could have some information further to that supplied in the PUBLIC HEALTH of August, 1941.

An example of the response to treatment obtained in a series of sixteen cases treated by sulphapyridine and convalescent serum is given under the heading "Case History" in the note on treatment by Dr. Sinclair Miller. As the meningeal signs in this patient were conspicuous, I think a report on the cerebrospinal fluid removed prior to treatment would have added to the value of the report.

A note on the incidence of cerebrospinal meningitis in Harrogate at the time of the poliomyelitis outbreak would also be of interest in view of the great prevalence of cerebrospinal meningitis over the country as a whole during the period in question.—I am, etc.,

A. A. CUNNINGHAM.

Edgware, Middlesex.

August 14th.

Defeat Diphtheria, a documentary film on diphtheria immunisation which has recently been made under the auspices of the Ministry of Health, is being successfully presented by the Ministry of Information through its mobile projection units. Immediately after its showing in a small town with a population of about 4,500, 230 forms were received consenting to immunisation, and three weeks later the forms were still coming in. This is gratifying evidence of the film's usefulness for propaganda purposes. Copies of it are deposited at the Central Film Library and with the Central Council for Health Education, and these may be loaned to approved organisations or to Medical Officers of Health.

OBITUARY

DUNCAN FORBES, M.B.E., M.D., D.P.H.

The death of Dr. Duncan Forbes, a distinguished sanitarian and for many years medical officer of health and school medical officer for the County Borough of Brighton, occurred suddenly in London on July 25th, after an operation. Dr. Forbes was 68 years of age.

Duncan Forbes was a native of Aberdeen, and received his medical education at Edinburgh University, where he graduated M.B., Ch.B. with honours in 1898, taking the B.Sc. in public health and the M.D. of Edinburgh (highly commended) in 1901. In the same year he took the D.P.H. of Cambridge University. He was holder of the Crichton Scholarship in Pathology from 1899 to 1901, received the special certificate in tropical diseases of the University of Edinburgh, and was a Fellow of the Society of Medical Officers of Health. At one time he was a member of the Council of the Royal Sanitary Institute, and an examiner in public health for M.B., Ch.B., at the University of Edinburgh. He served as resident physician at the Royal Infirmary of Edinburgh, and as resident medical officer at the Monsall Fever Hospital, Manchester, and in 1902 he was appointed M.O.H. for Cambridge. In 1908 he began his long career as Medical Officer of Health for Brighton, a post from which he retired in 1938. During all this time he was fearless and outspoken in expressing his views, even though they might not be popular. He advocated housing centrally rather than peripherally those people who were displaced from slum property. This was not an idea that found acceptance, but from the point of view of the slum dwellers themselves many consider that he was right. His views on the spread of infectious diseases were far-sighted, and he was one of the first sanitarians in this country to realise that it was persons, not things, that should be feared; that persons carried about the infection they had acquired; and that articles might usually be neglected except for what may be described as meticulous "spring cleaning." In this connection his name is coupled with that of Dr. Charles Chapin of the City of Providence, Rhode Island. Shortly before his death Dr. Forbes caused some controversy by suggesting that all persons over 65 not engaged on essential war work should be sent to Canada or the United States; his belief was that this move would ease the food position here.

Dr. Forbes was awarded the M.B.E. in 1918 in recognition of valuable voluntary work among the Services during the Great War.

ROGER NEVILLE GOODMAN, M.A., M.D., D.P.H.

We regret to announce the death on July 9th at Oxford of Dr. R. N. Goodman at the age of 78.

Roger Neville Goodman, the son of Neville Goodman and Maria Cunliffe, was one of a long line of Nonconformist millers and farmers of Cambridge, Ely, and Huntingdonshire. He was educated at St. John's College, Cambridge, and received his medical training at the London Hospital, where he qualified M.R.C.S., L.R.C.P. in 1887. In the same year he took the M.B., and proceeded to the D.P.H. in 1891 and the M.D. in

1892. Before qualifying as a medical practitioner he had already distinguished himself in an academic career, being placed first in the First Class of the Natural Sciences Tripos at Cambridge. In 1890 he entered general practice in Kingston-on-Thames, where he remained until his retirement, which he spent at Great Kimble, Bucks. During the last war he acted as honorary anaesthetist to the Epsom War Hospital.

His interests were extraordinarily wide, centring especially in every aspect of biology. He had, as a youth, sailed round the world and made a trip up the Amazon with his father, to collect scientific specimens. Later he was offered a post at the Marine Biological Research Station at Naples, but for family reasons it was impossible for him to accept. He had a deep sense of public duty, which led him to spend his spare time in educational and other public work. He was for many years Chairman of the Board of Governors of Kingston Grammar School and the Tiffin School, a member of the Kingston Education Committee and the Surrey County Council Education Committee. He was to a great extent responsible for obtaining school and other playing fields and for preserving the fourteenth century Lovekyn Chantry Chapel. In 1929 he was admitted to the Freedom of Kingston-on-Thames, and his humility was such that this remained virtually the only honour which he allowed himself to accept. He was so eager for disinterested service to the community that last winter he insisted, as head warden of Kimble, on going out at night in all weathers. He left his body to the Cambridge School of Anatomy.

His first wife died in 1931. His second wife survives him, and his only child, Dr. Neville Marriott Goodman, is Deputy Senior Medical Officer of the Ministry of Health.

WILLIAM HANNA, M.A., M.D., D.P.H.

We regret to record the death on July 13th of Dr. William Hanna, late Deputy Medical Officer of Health for the City and Port of Liverpool.

William Hanna was a graduate of the Royal University of Ireland. He qualified M.B., B.Ch., and B.A.O. in 1895, took the D.P.H. of Cambridge in 1898, and proceeded to the M.D. of Belfast University in 1912. From 1899 to 1901 he was Special Plague Medical Officer to the Government Laboratory, Bombay, and from there was appointed Assistant Medical Officer of Health for Liverpool. He was particularly interested in the Port Medical Service, instituting this department in its modern form and devoting much attention to it during his long career. On the retirement of Dr. E. W. Hope in 1924, Dr. Hanna was appointed Deputy Medical Officer of Health of Liverpool, and for some years his principal task was the inspection of food in the City and Port. He was lecturer in vaccination and in public health administration at the University, and in 1913 published a small textbook, *Studies in Smallpox and Vaccination*. He was also collaborator in another textbook, *Industrial Hygiene and Medicine*, and in 1916 his *Suggestions for Improvements in Sanitary Arrangements and Appliances on Shipboard* won him the Saxon Snell Prize.

In character Dr. Hanna was essentially modest and retiring. He had no desire for the limelight, and his comprehensive knowledge of tropical diseases and of

epidemiology, while of great value to the City and Port of Liverpool, was little recognised in the world outside. His reward for many years of devoted service lay in the esteem of his colleagues and of the medical profession of Liverpool. He was ever helpful and sympathetic to his juniors in times of difficulty. He was a keen photographer and unusually skilled in wood carving. After his retirement from official duties he became Curator of the Liverpool School of Hygiene Museum until it was temporarily closed owing to the exigencies of war. To the task of improving this exhibition he applied all his scientific knowledge and his usual skill and patience, and there is no doubt that future students in public health will reap there the benefits of his unstinted labours. Dr. Hanna's family life was singularly happy and our sympathy goes to his widow and the two sons and one daughter he leaves behind.

BOOK REVIEWS

Essentials of Modern Chemotherapy. Edited by Sir HUMPHRY ROLLESTON, Bt., G.C.V.O., K.C.B., M.D., D.Sc., F.R.C.P., and ALAN MONCRIEFF, M.D., F.R.C.P. *The Practitioner* Handbooks, 1941. London: *The Practitioner* in conjunction with Eyre & Spottiswoode. Pp. app. iv + Ind. xvi + 88. Price 6s. net.

This, the latest of the booklets published by *The Practitioner*, consists of articles reprinted from two symposia on chemotherapy which appeared recently in that journal. To these, Mr. E. C. B. Butler has added a short account of his experience of sulphathiazole. Dr. L. E. H. Whitby contributes a stimulating and well-balanced introductory chapter, and Mr. W. K. Fitch deals with the vexed question of the nomenclature of chemotherapeutic agents. Thereafter diseases are discussed in groups by various authors. Dr. W. R. Snodgrass deals with streptococcal diseases, Dr. F. G. Hobson with meningococcal infections, Dr. W. F. Gaisford with pneumococcal diseases, and Dr. V. E. Lloyd with gonorrhoea. Acute specific fevers are adequately discussed by Dr. A. R. Thompson.

It is inevitable that in a work of this type there should be considerable difference in methods of approach. For example, the article on the acute fevers is a very comprehensive and well-documented discussion of the results obtained by workers in many lands, and covers the experience of the writer where this has been expressed in published papers. Dr. Gaisford's article is in itself a record of his own experience in Birmingham, and his results, based on a large series of cases, are set out statistically in a form which is easily memorised. Other articles are more general in character and, while all are good, it is sometimes difficult to decide whether the writers are giving their own experience or quoting that of others. It is interesting to note that Dr. Hobson believes that, despite the great advantage of treating cerebrospinal fever by chemotherapy, lumbar puncture should still be performed every second day for the first week. In cerebrospinal fever a fall of temperature and the disappearance of physical signs are not everything. The work of Banks hardly receives sufficient recognition in this article.

There are, of course, far too many names for the same chemical substances used in chemotherapy, and official action might be taken at a future date to standardise the terminology. For example, sulphamylamide is marketed under a variety of trade names.

The book suffers from a certain amount of perhaps unavoidable redundancy. For example, many of the writers deal with the various types of drugs used and with the toxic symptoms which may be produced. Despite this fault, the authors and editors are to be congratulated on having produced a useful summary of available information.

Essentials of Physiology. By BAINBRIDGE AND MENZIES. Edited by H. Hartridge, M.D., D.Sc., F.R.S. 9th Edition. 1940. London: Longmans, Green. Pp. 651 + 35, index. Price 16s. net.

This is the fourth occasion on which Professor Hartridge has edited this well-known textbook, and the fact that it has now had a run of 27 years is evidence of its popularity with students. The last edition was largely re-written, so that extensive revision was not considered necessary in this new issue. Nevertheless there are indications that the editor has sometimes been in two minds about additions and deletions, and it is possible that the book might have been improved by the omission of some theories which are now being relegated to the history of the science. More might have been said about permeability and osmosis, and the section on the thyroid gland might also have been extended with advantage. Bearing in mind the fact that the book has essentially a clinical bias, it might be argued that the section on the construction of a diet gives the student a false impression of the facility with which this may be done.

RECENT APPOINTMENTS IN THE PUBLIC HEALTH SERVICE

The following are some recent appointments in the health departments of various local authorities.

The Editor will be grateful if members of the Society will notify him at once of any new appointments.

BEACONSFIELD AND CHESHAM U.D.: M.O.H., Dr. T. Penry Evans (A.M.O.H., Southwark Met. B.).

BEBINGTON M.B.: M.O.H. and Med. Supt. under the Wirral Joint Hospital Board, Dr. D. O. Macdonald (Deputy M.O.H., South Shields C.B.). Salary £900, plus cost of living bonus and car allowance.

DARLINGTON C.B.: A.M.O.H., Dr. F. A. Paul.

EDMONTON M.B.: Deputy M.O.H. & S.M.O. (For duration of War and 6 months after), Dr. Hilda R. Hay (A.M.O.H. & A.S.M.O., Edmonton). Salary £675 rising to £750.

GT. YARMOUTH C.B.: Deputy M.O.H., Dr. J. T. Prendiville.

ILFORD M.B.: Deputy M.O.H., Dr. Anne Simpson.

NOTTINGHAM C.B.: A.M.O. M. & C.W., Dr. Isabella M. O. Allan.

WARWICKSHIRE C.C.: C.M.O.H., Dr. C. Fraser Brockington (Deputy C.M.O.H., Warwicks.)

JOINT TUBERCULOSIS COUNCIL

A meeting of the Council was held at the London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, London, W.C.1, on May 24th, 1941, when seventeen members were present.

After discussion of various matters on the Agenda, Dr. Heaf (Convener of the Postgraduate Committee) reported that there would be a postgraduate class held at Harefield Sanatorium during the summer and that the fee would be two guineas.

CARE AND EMPLOYMENT COMMITTEE REPORT

The Hon. Secretary, in presenting the report, said that the scope of the subject made it necessary to cover a good deal of the ground covered in previous reports. It was felt, however, that a comprehensive review of the position must be made in view of the important suggestions incorporated in the report. He laid particular stress on the sections of the report dealing with the sub-division of the tuberculous population and the cost of tuberculosis to the country as a whole. He pointed out that a new term "Relative Rehabilitation" had been introduced, that the proposals embodied in the summary and conclusions were those which had been arrived at as a result of some twenty years of experience in this subject, and that there was strong evidence in the report to substantiate these conclusions.

Dr. Heaf, referring to the part of the report on care committees, regretted that it was not possible to include any particular scheme from any one local authority.

In the discussion which followed there was some criticism of the non-inclusion of the Manchester Scheme, and Dr. Lissant Cox pointed out that the views which had been incorporated in the report and which were attributed to him (e.g., in his 1927 Lancashire Report) were now too old history to be taken as evidence in present-day circumstances. Dr. Jessel, Dr. Lissant Cox and others felt that too much importance had been attached to the value of voluntary care committees and that as time went on the value of such committees would gradually decrease. Professor Tyler desired that further attention should be given to the question of the employment of patients in sanatoria, and felt that an index should be added to the report.

After further discussion it was resolved that the report be referred back to the committee and that a special meeting be called to consider the final draft before publication.

SHORTAGE OF STAFF IN TUBERCULOSIS INSTITUTIONS

Dr. H. G. Trayer gave an interim report on a questionnaire which had been sent out to over one hundred tuberculosis institutions on the question of shortage of nursing and domestic staff. He made the significant observation that some 70 per cent. of institutions were short of staff and that the repercussions would certainly be great if something were not done to alleviate the situation.

The Council resolved that the figures, which were still coming in, be summarised and that the Nursing Committee prepare a final report and circulate it to members of the Council before forwarding it to the Ministry of Health.

The next meeting of the Council is to be held in London on the third Saturday in November or on the Saturday after the usual meeting of the Society of Medical Officers of Health.

GAS PRECAUTIONS FOR MEDICAL SUPPLIES

The Minister of Health has had under consideration the precautions which it may be practicable to take against gas contamination of medical supplies, and the following recommendations are set down in Circular 2385.

In general, the problems which arise in this connection are analogous to those arising in connection with the protection of foodstuffs, and accordingly, the handbook issued by the Ministry of Food entitled *Food and Its Protection Against Poison Gas* will afford considerable assistance in determining the steps to be taken for the protection of medical stores. A.R.P. handbooks Numbers 4 and 4a may also be useful in this respect.

The normal conditions of storage of medical and surgical supplies in suitably warmed and ventilated buildings should, in the Minister's view, provide for most articles all that is practicable in the way of protection against liquid contamination; some additional protection can also be afforded by using existing stocks of waterproof sheeting, batiste, cellophane, or other impermeable material, to the extent that they are not required for immediate use as a covering for unprotected stores, or stores whose nature or wrapping do not of themselves provide protection.

The following remarks regarding particular classes of medical stores may be of assistance:—

1. *Surgical Dressings, Cotton Wool, Bandages, etc., Wrapped in Paper, Cardboard, or Cartons.*—These would not become contaminated by exposure to vapour providing the wrappings are undamaged. Traces of vapour can, if necessary, be removed from such materials by opening them out and airing for an hour or so in a clean, well-ventilated warm atmosphere. Sterilisation might be undertaken where the means are available. If contaminated by liquid it is extremely doubtful whether any decontamination treatment would be satisfactory and destruction by burning may be unavoidable.

2. *Drugs and Medicines in Metal Containers.*—If adequately sealed no contamination of the contents can occur. If contaminated by liquid the containers should be decontaminated by repeated swabbing with solvent such as paraffin, petrol, etc., and airing; the corks, etc., unless protected by metal or other seal, should be destroyed and replaced by new ones.

3. *Rubber Materials, Surgeons' Aprons, Waterproof Sheetting, Hot Water Bottles, etc.*—Vapour contamination will, in general, not be serious and could be removed by airing. If contaminated by liquid, decontamination by immersion in boiling water for a period of one to three hours, depending on the thickness of the rubber, would be essential.

4. *Gum Elastic Catheters, Surgeons' Gloves, Fine Rubber Drain Sheetting, etc.*—The finest grades of rubber materials are unlikely to stand boiling, and if contaminated by liquid should be destroyed. Covering to prevent such contamination is, therefore, most desirable.

5. *Wooden Furniture, Bedding, etc.*—The decontamination treatment of such articles is detailed in A.R.P. handbook Number 4. In the case of bedding in general and mattresses in particular, treatment in a steam disinfectant is the only practical process.

6. *Metal Instruments and Utensils.*—These, depending on their nature, can be decontaminated by immersion for thirty minutes in boiling water or repeated swabbing with solvent.

MEDICAL AND DENTAL MAN POWER

In reference to Circular 2323 it is explained in Circular 2440 issued by the Ministry of Health that it is the practice of the Central Medical War Committee and the Central Dental War Committee, when recommending deferment from calling-up for a male practitioner of military age, to do so on the understanding that he will continue in his existing appointment and will not apply for or accept any other employment without first applying for the consent of the Central Medical War Committee if a medical practitioner, or to the Central Dental War Committee if a dentist. The practitioner is informed accordingly at the same time as he is notified of the Committee's recommendation. The reason is that deferment, apart from cases of personal hardship, which are dealt with by a separate machinery of the Ministry of Labour and National Service, is granted because of the work the practitioner is doing and not because of his personal suitability or otherwise for recruitment to the Armed Forces.

While the Minister does not wish to restrict a proper measure of fluidity in the hospital and public health service or to prevent individuals from legitimate advancement, it is obvious that a new position as regards a deferred practitioner's recruitment is at once created if he chooses to relinquish the post in respect of which deferment has been allowed. Accordingly the Central Medical War Committee and the Central Dental War Committee have decided with the Minister's concurrence that in future, as soon as a medical practitioner or a dentist leaves a post in which he has been deferred, a notice will be served on him that it is proposed to recommend his recruitment, at the same time inviting the comments of his proposed new employers and the appropriate Local Medical War Committee or District Dental War Committee.

Hospital and public health authorities will be well advised to satisfy themselves, in every case of a proposed new appointment in their service, of the candidate's position in relation to recruitment to His Majesty's Forces, and in case of doubt to seek information from the Central Medical War Committee, B.M.A. House, Tavistock Square, London, W.C.1, or the Central Dental War Committee, 13, Hill Street, Berkeley Square, W.C.1.

The National Baby Welfare Council, 29, Gordon Square, London, W.C.1, has brought out a pamphlet containing simple and straightforward advice to evacuees and their hosts. The motto and main thesis of the pamphlet is "Give and Take." Supplies at 2s. per hundred copies may be obtained on application to the Council, and a specimen copy will be sent on receipt of a penny stamp.

SOCIETY OF MEDICAL OFFICERS OF HEALTH NORTHERN BRANCH

A meeting of the branch was held in the Board Room at Elswick Grange, Newcastle-upon-Tyne, on June 18th, 1941, when the President and 19 other members were present.

The minutes of the meeting held on April 25th, were read, confirmed, and signed by the chairman.

Professor David Burns, Professor of Physiology, University of Durham, delivered an address on the war-time dietary of the population. After a short discussion, a hearty vote of thanks was accorded to Professor Burns for his interesting address. The meeting was followed by an informal dinner, which thirty-six members and guests attended.

YORKSHIRE BRANCH

An ordinary meeting of the branch was held in the Civic Hall, Leeds, on May 30th, at 3 p.m. The President was in the chair and 25 other members were present.

The meeting then proceeded to the election of office bearers and members of the Council for the Session 1940-41. The following office bearers were appointed: President, Dr. J. F. Galloway; Vice-Presidents, Dr. N. Gebbie and Dr. J. Sharpe; Hon. Secretary and Treasurer, Dr. R. Sutherland.

After a vote the following members were appointed members of the Branch Council: Drs. H. M. Gall, J. M. Gibson, Bertram Hill, E. D. Irvine, J. J. Jarvis, P. R. McNaught, D. D. Payne, T. N. V. Potts, G. Russell.

The following members were appointed representatives on the B.M.A. Branch Council: Drs. J. M. Gibson, Bertram Hill, T. N. V. Potts, R. Sutherland.

On the recommendation of the Council it was decided temporarily to suspend by-law No. 10, which requires that at least one of the meetings should be held in York or the North or East Riding of Yorkshire.

Dr. D. D. Payne, Medical Officer of Harrogate, then read a paper on an outbreak of infantile paralysis, and Dr. Sinclair Miller read a short communication on treatment. Both papers were published in the August issue of *PUBLIC HEALTH*. Dr. A. T. Elder, of the Ministry of Health, referred to the fact that the age group particularly affected was over school age. He was interested to find that evacuation had not been concerned in the onset of the epidemic. He wondered if any evidence was available to show that the infection could be contracted by ingestion. Dr. E. C. Benn the diagnosis was obscured by the presence of an erythema in the early stage. Some cases admitted under his care as suspected scarlet fever had turned out to be cases of infantile paralysis. Dr. J. M. Gibson referred to the widespread nature of the infection and to the fact that Harrogate seemed to be the only area in which it had spread sufficiently to cause what could be called an epidemic. He was interested to find that in this epidemic there had been a spread of infection not only in a particular school, but in a particular class. In his own area he had had to deal with six cases from

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October, 1939 till October, 1940. These had been widely scattered, not only as regards residence but also as regards date of onset, with no apparent connection one with the other. Dr. H. T. Bates spoke of isolated cases which had occurred in his experience; there had been no spread of infection.

On the proposal of Dr. G. C. F. Roe a hearty vote of thanks to Dr. Payne and Dr. Sinclair Miller was carried unanimously.

The meeting of the Branch was preceded by a meeting of the Council, at which the President and 8 other members were present.

The annual meeting of the branch was held in the Civic Hall, Leeds, on June 27th, at 3 p.m. The President was in the chair, and twenty members were present.

The minutes of the last meeting were taken as read, approved, and signed.

Upon the recommendation of the Council, it was decided that the Yorkshire Branch of the British Medical Association be invited to renew the former custom of electing two representatives to attend the meetings of the branch. Drs. Gibson and Sutherland were re-elected representatives of the branch upon the Council of the Society. Drs. McNaught and Tattersall were re-elected representatives of the branch upon the Tuberculous Group Committee.

Upon the proposal of the President, seconded by Professor J. J. Jarvis, the Treasurer's annual statement of accounts was accepted, and he was instructed to invest £25 in 3 per cent. War Bonds.

Dr. Watson, Medical Officer of Health of Doncaster, referred to the additional work that would result from the fact that the Ministry of Health circular 2386 required returns for periods ending other than at the end of the public health year—namely, December 31st. The Secretary was instructed to write to the Secretary of the Society of Medical Officers of Health asking the Council to approach the Ministry of Health with a request that in future they should, so far as possible, arrange for returns from health departments to be asked for in respect of periods ending on December 31st. Arising out of this there was some discussion regarding the necessity for a Schick test at the completion of treatment. The consensus was that from the point of view of obtaining herd immunity such a subsequent test was not necessary so long as the course of treatment adopted was one which had previously been found to give approximately 100 per cent. Schick negatives.

The branch then proceeded to a consideration of the hospital regionalisation scheme, and a lively discussion took place.

The meeting of the branch was preceded by a meeting of the Council at which the President and seven other members were present.

DENTAL OFFICERS' GROUP

President: Lieut. A. Quentin Davies, L.D.S. (Assistant Dental Officer, Glamorgan C.C.).

Hon. Secretary: A. Gordon Taylor, L.D.S. (Dental Officer, L.C.C. Hospitals and Institutions).

A meeting of the Dental Officers' Group was held at Tavistock House on July 19th, at 2.30 p.m. In the absence of the President, whose military duties prevented his attendance, Mr. Jeffrey Fletcher (Senior

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Dental Officer, Gloucestershire C.C.) was elected to the chair. There were also present ten members and one visitor. The minutes of the previous meeting were read and confirmed, and Mr. Frank Jones, L.D.S. (Assistant Dental Officer, Middlesex C.C. and Hon. Assistant Secretary to the Group), read a paper on the First Permanent Molar.

Mr. Jones dealt with his subject under five main headings: (1) The tooth and its common defects. (2) Environment and its effects. (3) Conservation. (4) Removal to minimise irregularity. (5) Removal to assist the correction of irregularity. The first permanent molar was usually the first permanent tooth to erupt and its calcification began before birth. Its structure was often defective; deep pits and fissures often occurred in which food debris lodged, causing decalcification in these positions. The occlusal surface of the first permanent molar was greater than that of any other tooth, and to lose it was a serious misfortune to the child.

Early loss of the deciduous molars allowed the first permanent molar to move or erupt forward of its normal position. Every effort should therefore be made to retain the deciduous molars for their normal functional period. Often it was not possible to save the deciduous molars before the child reached school age. Hence the necessity for treating children long before they reached school age, when a combination of judicious stoning and filling made possible the normal retention of the deciduous teeth. In some cases (as recommended by the late Mr. A. T. Pitts in an excellent paper read before the Group during the 1936-37 session) it might be necessary to sacrifice the first deciduous molar in order to save the second, which, from the point of view of blocking the forward movement of the first permanent molar, was the more important of the two. The speaker was of opinion that patent food drinks made with milk and taken at bedtime was the cause of much decay in the first permanent molar. Pits and fissures in this tooth should be cut out and carefully filled with silver amalgam at the earliest stage in which the carious process could be detected. He had had little success with the treatment of such pits and fissures with Howe's ammoniacal silver nitrate solution. Pulp with traumatic exposures responded well if the cavity was immediately swabbed with pure carbolic and kept as sterile as possible. Mr. Jones also considered that in some cases temporary fillings should be inserted in these teeth in order to retain them for a certain length of time. He would label them as being of "limited existence" by cutting out as much of the carious dentine as possible, treating with silver nitrate solution, and lining and filling with copper amalgam.

When one of the first permanent molars was removed changes took place which were dependent on the age of the child. He believed that the loss of a lower first permanent molar had a greater disturbing influence on the lower arch than an upper first permanent molar on the upper arch. In Class 1 cases, if at any age a lower molar had to be extracted he would recommend the extraction of the upper first permanent molar on that side. But if the upper were lost he would not recommend the extraction of the lower if the second permanent molars were not erupted and in articulation.

unless there were definite crowding in the premolar region to be relieved. In Class 2 and 3 cases it was difficult to generalise on lines of treatment when any particular tooth was lost. If it were decided for any reason except to relieve urgent crowding to extract the four first permanent molars, he considered that the best results were obtained at the age of 13 or 14. At this age there would be no appreciable closing of the bite, the least collapse of the lower arch, and the optimum articulation of the second permanent molars and premolars. In cases in which three first permanent molars had been or needed to be lost, he would extract the fourth unless the opposing tooth had been lost so long before as to make its removal a doubtful benefit.

Mr. Jones's paper had been circulated in folio form to a limited number of members who had previously expressed a desire to receive it. These members had appended their comments, which were then read. An interesting discussion followed. A cordial vote of thanks to Mr. Jones was proposed by Miss MacKinnon (Dental Officer, Reading C.B.), seconded by Mr. P. G. Oliver (Senior Dental Officer, Croydon C.B.), and carried by acclamation.

METROPOLITAN AND HOME COUNTIES SUB-GROUP
President: Miss M. S. MacKinnon (Dental Officer, Reading).
Hon. Secretary: Miss W. M. Hunt (Dental Officer, Hornsey).

The annual general meeting of the Sub-Group was held at Tavistock House on May 17th, at 2.30 p.m. The minutes of the previous meeting were read and confirmed. After the election of officers for the coming session, Miss MacKinnon, the President, gave her inaugural address under the title "Observations on the School Dental Service."

A further meeting of the Sub-Group was held on June 14th in the rooms of the Central Council for Health Education, Tavistock House, at 2.30 p.m. Miss MacKinnon occupied the chair and twelve other members and one visitor were present. After the minutes of the previous meeting had been read and confirmed, Mr. J. F. Pilbeam, Senior Dental Officer, Middlesex County Council, read a paper on "The Work of the Central Council for Health Education and Dental Propaganda." He spoke of the ways of educating the public by means of films, posters, leaflets, and handbills, and also of the magazine, *Better Health*. He discussed the various propaganda methods, and mentioned that the Dental Board as an affiliated Society was responsible for the dental propaganda of the Central Council. Five of the Council's sound films were shown. There is at present no dental film, but the Council has decided on the production of one this autumn, and a committee has been formed for this purpose.

The Dental Officers' Group of the Society of Medical Officers of Health will hold a meeting at the Strafford Arms, the Bull Ring, Wakefield, Yorks, on Saturday, September 27th, at 2.30 p.m. There will be a symposium on "The Dental Profession and Post-war Reconstruction." It is hoped to arrange for a party of London members to attend this meeting, and details will be circulated later.

CORRECTING MULTIPLE DIETARY DEFICIENCY —economically.

DIETARY deficiencies, which recent surveys have shown to be almost invariably multiple, are naturally most serious where the income-level is lowest. This raises an economic problem which has hitherto presented serious difficulties. For it is precisely in these cases that the patient is least able to afford the several supplements necessary to restore all the missing factors, some of which, e.g., vitamin D and calcium, can only be fully effective in the presence of others.

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