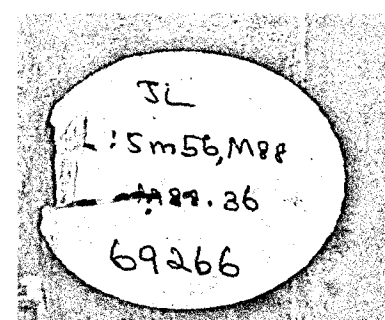




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Editorial.

MILK PROSECUTIONS.

Public indignation continues to increase concerning the betrayal of the public health and public interests by the Ministry of Health by its issue of circular No. 325 and there are all kinds of interesting rumours with regard to its origin. We again desire to call the attention of every member to this important matter and to the report issued by the council and published on page 318 of our September issue. Every effort should be made to force the withdrawal of this circular.

In connection with the general administration of the work under the Sale of Food and Drugs Act some recent proceedings at Islington are interesting. In December, 1921, the Public Health Committee of the Islington Borough Council reported to the Council on the question of the apparent small amount of the fines imposed as a result of proceedings under the Public Health (London) Act, 1891, the Sale of Food and Drugs, etc., and stated that after considering a number of fines imposed over a given period, which they had instructed the Medical Officer of Health to present to them, they hoped to be able to submit a recommendation on the subject to the Council. At the council meeting, last week, the committee reported as follows:— "This return has now been considered by us, together with a joint report from the Town Clerk and the Medical Officer of Health, in which it is pointed out that there are occasions where a statement of the bare result of a prosecution does not sufficiently indicate the true position in regard to that particular prosecution because the full facts of the case are not given, and that discretion needs to be exercised, inasmuch as a representation made to the Home Office without sufficient justification might lead to irritation on the part of the magistrate concerned, and this would not be in the interests

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of the Council when these cases are heard. We are reminded that the late Food Control Committee for Islington were much concerned at the apparent smallness of the fines imposed for offences under orders made by the Food Controller, and that representations to the Home Office did not then have the desired effect. It became necessary for that committee to apply to the Finsbury justices to set up a local court for the hearing of the committee's prosecutions, the result being that fines were imposed that bore a reasonable relationship to the offence committed. Inasmuch as other Metropolitan Borough Councils may be concerned as to the apparent inadequacy of fines imposed by stipendiary magistrates, we are of opinion that it is desirable that the matter should be referred to the Metropolitan Boroughs' Standing Joint Committee for consideration on the next occasion when a fine is imposed which, having regard to all the facts, appears not to be commensurate with the offence committed."

SMOKE PREVENTION.

In introducing the Bill which recently passed its second reading in the House of Lords, Lord Onslow, Parliamentary Secretary of the Ministry of Health, admitted that the measure as introduced did not include many of the more important recommendations of the Departmental Committee which was set up originally in 1914, and which reported unanimously at the end of last year. Lord Newton, the chairman of that committee, refused to accept the Government Bill as a "genuine instalment of the promise made to the people interested in the question," or to regard it as carrying out the recommendations of his committee. On the contrary, all that it does is slightly to amend the provisions of the Public Health Act of 1875, which in working has proved thoroughly unsatisfactory—so unsatisfactory, in fact, that the great municipalities of Birmingham, Manchester, Leeds, Glasgow, Bradford, Nottingham, Liverpool, have all found it necessary to bring in Acts of their own. How useful the amended Act is likely to be may be inferred from the fact that, for instance, it leaves intact the exemption of the original Act of such industries as coal and all works concerned with iron and steel, i.e., the industries that produce more smoke than any others.

The committee made two important recommendations, in their view the vital elements of

reform, both of which are ignored. They urged that the duty of enforcing the law should be transferred from the 1,800 odd small local authorities which at present nominally administer it, and transferred to the 140 county councils and county boroughs. The power of enforcement remains, under their plan, with the smaller authority, to exercise it, if it wishes—at present, unfortunately, most of them do not so wish—but if it neglects that opportunity, it becomes an obligation on the larger body. As it is, the authorities in most of the big towns, for instance, are genuinely concerned about this evil, but their efforts are in many cases blocked or rendered nugatory by the apathy of their neighbours who send over to them smoke which they cannot control.

But, so the committee state in their final report, "perhaps the chief factor in the failure to deal with the smoke evil has been the inaction of the central authority.... Smoke and air pollution are, in our opinion, a national question, and we consider that it is useless to expect that it will be adequately dealt with by local authorities unless they are subject, when necessary, to the stimulus of Government."

SALARIES CAMPAIGN.

An excellent object lesson has been set to the public health service by the action of the British Medical Association in its crusade against the Admiralty. The British Medical Association has placed what amounts practically to a ban on the Admiralty, owing to the manner in which senior surgeon-commanders of the Navy are being treated. It has decided to advise recently qualified medical practitioners to consider seriously the disadvantages to which they are liable if they place their careers in the hands of the Admiralty. The case against the Admiralty has been fully set forth in "The British Medical Journal," in which it has been forcibly suggested that the Admiralty has been guilty of a breach of contract.

In January, 1920, as a consequence of the report of the Jerram-Halsey Committee, new regulations for retirement came into force in the Royal Navy. It was at once seen that a great injustice had been done to a considerable number of surgeon-commanders who were nearing or who had passed the new retiring age of fifty. The grievance arose under two heads—age of retirement and rate of pension. Under

the new regulations these medical officers were compelled to leave the service from one to five years earlier than would have happened under the original terms of their appointment.

The effect of this was to penalise the senior surgeon-commander in two ways. In the first place he was deprived of several years of service at a higher rate of pay, and in the second place his chances of promotion to higher rank—and therefore of increased pay and pension—were correspondingly diminished. A special hardship was inflicted on those officers who, when making provision for old age, had taken out endowment policies to mature at the normal age of retirement; they found themselves saddled with heavy insurance premiums, which had to be met out of a halved income. Again, the Jerram-Halsey Committee, had recommended increases of retired pay for all branches. Under the new regulations the officers of other branches got increases of pension varying from twenty-six to one hundred per cent., the surgeon-commanders received only ten per cent. increase. Thus these medical officers, who had entered the service on the understanding that they would be allowed to serve until the age of fifty-five, were compulsorily retired at fifty, and their maximum pension was fixed at an increase of but ten per cent. on the former retired pay of their rank.

After more than two years' pressure the Admiralty have given an assurance that in no case shall the retired pay of a surgeon-commander, who was on the list on July 1, 1919, be reduced below the old maximum of £547 10s., but the main injustice still operates. So far the Admiralty have refused to concede as generous treatment to these medical officers as to the executive and other officers, with the result that the British Medical Association has issued a warning to the medical students and young practitioners, and has announced that it intends to reiterate its advice on all suitable occasions.

The case is one of special interest to the M.O.H. Society, not only as illustrative of a crusade which it may be necessary to undertake shortly on our own behalf but also because some of the gentlemen who are being so badly treated may feel inclined, in their extremity, to accept underpaid appointments in the public health service. It is not right that they should be exposed to such a temptation, and the premature discharge from the Navy of medical officers requires the very serious attention of the Society.

EPIDEMIC DISEASES IN LONDON.

During the two years to June 30, 1922, the Metropolitan Asylums Board states in its annual report, the incidence of infectious disease occurring in London was the greatest on record, 88,487 patients being removed to hospital during that time. Although the total normal accommodation of the Board's hospitals is 8,800, it has proved capable of expansion in times of urgent need, and the highest number of patients under treatment at any one time was 9,599 on November 8th, 1921, viz.:

Scarlet fever, 6,277; diphtheria, 3,025; other diseases, 297.

The hospitals have steadily gained in public estimation, and the percentage of patients admitted to these hospitals to the total number notified in London has increased from 33.6 in 1890 to 87.5. For scarlet fever only the percentage is now 94.58, and for diphtheria, 96.39. Notifications of infectious diseases during the year numbered 50,019, including the following:

Cerebro-spinal meningitis	...	...	103
Continued fever	...	...	2
Diphtheria (including membranous croup)	...	...	16,334
Enteric fever	...	...	330
Ophthalmia neonatorum	...	...	1,076
Poliomyelitis	...	...	55
Puerperal fever	...	...	353
Scarlet fever	...	...	32,764
Smallpox	...	...	2

There were 626 tuberculosis patients admitted during the year, 344 were discharged, and 242 died. On June 30 the number under treatment was 1,906—adults 756 (males 484, females 272); children 1,150 (males 586, females 564). Among the children admitted to the Board's institutions for the treatment of tubercular glands are many who have already been operated on, but in whom the disease has recurred. The liability to recurrence has long been recognised as a drawback to operative treatment, and investigations have been made at home and abroad into the use of radium as a substitute for operation. The reports of these investigations were sufficiently encouraging to lead the Board, at the close of 1920, to purchase an applicator containing fifteen milligrams of radium bromide. This has been used at Queen Mary's Hospital for about 180 tubercular glands in forty-eight patients, and, especially

in the less advanced cases, the results have generally been satisfactory, a gradual, and in many instances remarkable, diminution of the size of the diseased glands following.

FOOD POISONING BY BACILLUS BOTULINUS.

In connection with the Loch Maree food poisoning cases the Scottish Board of Health have issued a preliminary report of a specially useful character.

In Britain this is the first recorded outbreak of this type of food poisoning. The germ that produces the poison was discovered by a Belgian investigator, Van Ermengem, in 1896. Twenty-three persons had been taken ill after eating ham that had been preserved in brine and three of them died. From the tainted food, Van Ermengem was able to isolate the *bacillus botulinus* and, by using cultures of the germ, he was able to produce the same symptoms in animals. There have been many outbreaks on the Continent of Europe and several in America; but its relative rarity is shown by the American figures produced by Rosenau in a recent article. "The high mortality, the distressing symptoms, and the relation to food have dramatic news value and the disease has recently caused concern and alarm out of all proportion to its prevalence. A disease which during a period of twenty-two years has made only about 150 people ill and caused the death of 111, among approximately a hundred millions of people, cannot be compared in magnitude to tuberculosis, syphilis and other public health problems." (Nelson's "Loose-Leaf Living Medicine," article on Food Poisoning.) Formerly, sausages were supposed to be the main source of botulism. It is true that the foods concerned in outbreaks have been for the most part meats, such as sausage and ham; but "in America, other foods have been involved such as string beans, cottage cheese, corn, asparagus salad, spinach and ripe olives. Botulism has also been attributed to turkey, beef, chicken and fish."

To produce its toxin it requires certain conditions. It must have proteid material, whether from animal or vegetable sources, to enable it to generate the toxin and it does not grow where oxygen is present. Obviously a sealed tin of preserved food, if accidentally or otherwise inoculated with the bacillus, is an ideal culture

medium. The germ goes on generating its poison out of the materials of food and may then itself die; but the poison remains and, without any obvious sign of its presence, may, as in this outbreak, produce its specific effects. It is important to understand that, in food poisoning by *bacillus botulinus*, the person is killed not directly by the bacillus itself but by the poison it has previously produced in the food consumed. Botulism, therefore, would be classified not as an infection but as an intoxication. This is essential in the explanation of what follows.

In poisoning by this toxin, the victim begins to show symptoms from sixteen to thirty-six hours after partaking of the poisonous food. In some of the cases of the present outbreak, the symptoms appeared earlier, in some later; but in none later than forty hours after the poisoning took place. Among the earliest symptoms, the patient experiences weakness, dizziness, headache, and perhaps nausea and sickness. There is distress of vision; the patient sees double. The eyelids droop, the pupils are dilated and at a certain stage refuse to react to light. These conditions are all due to the effect of the toxin on the nerves. The bowel gets more or less paralysed and there is constipation. The lips get paralysed and there is difficulty of speech. The muscles about the throat get paralysed and there is difficulty of swallowing. The voice muscles get paralysed and there is loss of voice. The tongue is paralysed and cannot be protruded. The respiration begins to be paralysed and the patient gasps for breath. Ultimately the paralysis of the respiration and the heart is complete and there is death. Meanwhile, the temperature remains normal or sub-normal, unless there are special complications. In this respect, poisoning by this toxin differs from the ordinary infectious diseases, where there is always a temperature at some stage. There are two other special conditions that are practically always found present, there is no local pain, although the distress due to the various paralyses may be great, and the mind remains clear from beginning to end. In the cases recorded in the Loch Maree outbreak, those symptoms recurred with the most painful uniformity. One case after another showed them much in the sequence indicated above.

It is hoped that fresh light will soon be thrown on the nature and activities of this bacillus and its toxin or toxins and new

methods devised for prevention and cure. Already anti-toxins, both for diagnostic and therapeutic purposes have been prepared; but, as in the case of lockjaw (tetanus), these anti-toxins are, so far as known, of little value after the symptoms are well established. To be of real service they must be given, as is the case in other diseases, early in the history of the case.

Both in Europe and in America, the activities of this germ are being subjected to the closest investigation and experiments are in progress for the discovery of methods of prevention and cure. So far as human beings are concerned, the bacillus has not hitherto been recognised as the cause of death in many instances. When it is remembered that hundreds of thousands, even millions of jars of prepared food have been consumed without casualty, the public will tend to agree with Dr. Rosenau's statement quoted above, namely, that "the disease has recently caused concern and alarm out of all proportion to its prevalence."

MONMOUTHSHIRE COUNTY COUNCIL.

For some little time the economy question has been agitating the minds of the members of the Monmouthshire County Council, and among the suggested economies was a substantial reduction of the salaries of the professional staff of the Public Health Department. These reductions were strongly opposed by the British Medical Association, and the Society of Medical Officers of Health, acting together in this instance, with admirable unanimity, and the final stage of this opposition was reached on September 11th, when a joint deputation consisting of Drs. Garstang, Cox (British Medical Association), and Drs. Sanders and Cates, with Mr. Elliston (M.O.H. Society), supported by Drs. Hamilton, Green, and Steel, representing the Monmouthshire Division of the B.M.A., attended a meeting of the County Salaries Committee at the County Hall, Newport.

After hearing the deputation, the Committee decided to reduce the salary of the County Medical Officer from £1,600 to £1,500, and to suspend the increments of the salaries of his medical staff for the next three years. This represents an average loss for each person concerned of about 6½ per cent. per annum. In the case of the Health Visitors the Committee decided to alter the reduction of salaries from 10 to 5 per cent. For some

unexplained reason the committee refused to reopen the case of the dental officers. There is no justification for differential treatment of these members of the public health staff, and we feel confident that on further consideration the Council will realise that their dental officers are not being treated fairly.

As far as the medical officers are concerned the above result may be regarded as satisfactory as it still leaves the salaries in a favourable position as compared with the pre-war standard. Up to the present, in all cases where the campaign has been started early and prosecuted vigorously, the influence of the Society has been most successfully demonstrated.

THE HOUSING, TOWN PLANNING, ETC., ACT., 1919.

An extremely important decision has been obtained in connection with "Housing." In delivering judgment in the Appeal of Arlidge against the decision of the Tottenham Magistrates under the above Section, the Lord Chief Justice drew a clear distinction between the operation of Sections 14 and 15, H.T.P. Act, 1909, and Section 28, H.T.P. Act, 1919. Section 39, S.S. (2), makes Sections 14 and 15 of the H.T.P. Act, 1909, part of the principal Act, i.e., the Housing of the Working Classes Act, 1890, and Section 40, H.T.P. Act, 1919, incorporates the whole of the H.W.C. Act, 1890, so amended in Part I. of the 1919 Act.

Whereas Sections 14 and 15 of the H.T.P. Act, 1909, relate to houses of limited rental, Section 28 of the H.T.P. Act, 1919, relates to houses suitable for occupation by persons of the working classes, irrespective of rental and whether occupied or unoccupied.

Considerable confusion therefore arose concerning the class of houses to which Section 28, H.T.P. Act, 1919, referred.

His Lordship pointed out that Sections 14 and 15, H.T.P. Act, 1909, had relation to an implied contract between the "landlord" and tenant, whereby houses coming within a certain rental were presumed to be let and maintained during the continuance of the tenancy in all respects reasonably fit for human habitation. The tenant under these sections has his remedy.

By Section 28, H.T.P. Act, 1919, the Local Authority has statutory powers to cause to be made fit for human habitation in all respects any house, suitable for persons of the working classes, whether such house is occupied or not. Mr. Justice Lush expressed the view that Section 28 seemed specially designed to meet the case in which the "owner" chooses to keep a house suitable for persons of the working classes in such a condition of disrepair as to be uninhabitable.

The case has not been taken to the Court of Appeal, so that, at present, as the Law stands, Section 28 may be made a very useful section by which to secure the repair of working class dwellings, if all the details necessary to make it operative are strictly complied with.

NOTIFICATION OF VENEREAL DISEASE.

Dr. Douglas White, of Harrow, at a recent conference at Oxford, dealt with compulsory versus voluntary methods in the treatment of venereal diseases. He opposed compulsory notification and treatment of this disease not only on the question of morals, but on the grounds of social expediency.

The compulsory enactments regarding the diseases in foreign countries and in our colonies were, he said, inoperative. He knew of no punishment having been inflicted for non-compliance with the orders. It was perfectly obvious that a person could not be called on to diagnose his own disease. As self-declaration of the diseases was fundamental to the compulsory system, its foundation was laid on quicksand. Dr. White pointed out how under compulsion the public might be placed at the mercy of informers whose identity need not be disclosed, and, discussing the transmission of the diseases, contended that to penalise knowing transmission was almost impossible. Such transmission, he remarked, was a wicked and brutal crime in the social sense, but it would be a mistake to make it a statutory crime if there were no means of enforcing the penalty. Another difficulty would be the standardisation of cure, and it was hard to say when the cure was effective and definite. Our educative policy here, he declared, had produced better results than the coercive policy of the Dominions. In compulsion the door would be open to blackmail. We should

develop our voluntary system, create a public intelligence on the subject, and with that and the co-operation of modern medicine and rational sexual ethics the diseases would no longer be a menace to our social life.

THE NOTORIOUS MILK CIRCULAR 325.

The principles embodied in the above Circular are apparently more widespread in application than would appear at first sight, and we congratulate "London Opinion" upon the following indication of some results which would follow the extension of similar principles to other spheres.

"A new rule for cricket, based on this principle, should be popular (with batsmen)."

"If the bowler discharges a ball which is judged strictly legal by the umpire—that is, the projectile is not thrown, kicked, hit with a golf club, or hurled from any lethal weapon, such as a trench mortar—and the opposing batsman's wicket is struck so as to cause the stumps to recline in a position horizontal to the turf, or pitch, causing the dislodgment of the bails, then the bowler is liable to be requested to repeat this feat for not less than three consecutive times. Then, if the umpires, the scorer, and the man who rings the bell for the luncheon adjournment are in thorough agreement that the bowler has succeeded in penetrating the defence of the batsman, the latter will be declared to be thoroughly out, the senior umpire to announce this decision in a voice audible to all."

"SWEATING" BY COUNTY COUNCILS.

The attention of all members of the Public Health Service, and also all those who are desirous of entering the same, is called to the effort now being made by the Somerset County Council to secure the services of a whole-time medical practitioner, with post-graduate experience, for a salary of £300 plus a bonus, which stands at present at £149, but which will disappear as the cost of living goes down. Anyone who may be tempted to accept such terms should remember that by so doing, he is reducing the whole standard of professional incomes, and that if he were employed for the whole of his time in treating panel patients at the standard rate he would receive not less than £1,500 a year.

*"THE ENGINEER AS A FACTOR IN PUBLIC HEALTH."

A HISTORICAL SURVEY.

BY

J. JOHNSTONE JERVIS, M.D., D.P.H., M.O.H.,
City of Leeds.

Few medical men are so deluded as to think that to their profession only must be ascribed the glory and honour for these great triumphs over disease and death which have made the latter part of the nineteenth and the twentieth century so remarkable. We recognise and frankly admit that had it not been for the willing co-operation and assistance of the Engineer who supplied the technical knowledge and the mechanical skill to enable difficulties in sanitation to be successfully surmounted, we should not have been standing to-day in the position we are, nor would the results achieved have been so good. In point of fact long before the study of disease in the human body became a separate science, certainly before the study of the prevention of disease, or what is generally called Public Health, had been evolved, the Engineer had begun his beneficent work on behalf of humanity. Indeed, it has been suggested, though with what truth I am not prepared to say, that in order to make their garden home reasonably fit for human habitation, our first parents had to undertake a complete system of drainage and sewage disposal, which makes it all the more difficult to understand why they fell.

What I wish to propose to you to-night and to prove is that the Engineer has always taken a place in the front rank of "disease fighters" and has carried the forces of medical science to victory on endless occasions. In pre-historic times, though no exact records of any extensive engineering works are available, one can readily imagine the skill of the Engineer would be required in connection with water-supply to towns and villages, as well as for the construction of bridges, roads, and even land drainage. One gathers from ancient writings, as well as from the exploration of the sites of buried cities, that such things as sewers and aqueducts were not uncommon even in those early days. Nineveh, "that exceeding great city," whose wickedness was the cause of so much tribulation to the prophet Jonah, is credited with having had a complete system of drains and aqueducts; and similarly the discovery of the remains of sewers in certain of the cities of Egypt and Mesopotamia bear witness to the

existence of the sanitary engineer. Herodotus, the historian of ancient Egypt, states that when the city of Memphis was founded some three or four thousand years before Christ, the then King of Egypt undertook the Herculean task of diverting the river Nile from its natural course in order to protect the new city from inundation. He also describes the building of the pyramids by Cheops, and relates how in order to accomplish his great task, he constructed what is perhaps the finest example of road-making known in History, "The Cheops Causeway," which itself took ten years to construct, and as a triumph in engineering is hardly inferior to the pyramid itself. Whilst no actual mention is made of the existence of sanitary works at this early period, proofs that such did exist in certain of the ancient cities of Egypt have been brought to light as a result of recent excavations. The ancients were very much alive to the virtues of an abundant supply of water; indeed flowing water was looked upon by certain religious sects as sacred. The Tiber and the Ganges, for example, were both sacred rivers, and for that reason were protected from gross and deliberate pollution. Where no convenient supply of water was available, as from a river, stream, or lake, other sources had to be found. Sometimes these sources were wells or springs in the locality, and in others the waters had to be conducted for some distance through aqueducts. Thus Jerusalem derived its supply of water from the Judean hills, and special aqueducts were constructed by King Solomon to bring the water into the city. These aqueducts were renewed by Pilate when he was governor of the city, and the remains of them may be seen to this day. Similarly remains of aqueducts have been discovered in certain Egyptian cities probably built in the reigns of the Pharaohs, as well as in other Eastern centres of population.

As regards refuse disposal, we have the evidence of the Old Testament that there existed at the time of Moses very definite rules as to the destruction of camp waste, including human and animal excreta. It has also been proved beyond doubt that a complete system of drainage existed in connection with the Temple at Jerusalem, consisting of properly constructed conduits. These conduits were used to carry away the blood and other remains of animal sacrifices, as well as excreta and washings from the Temple. They discharged into two cesspools, the overflow from which was used to irrigate the King's garden, whilst the solid precipitate or sludge was used for manure. But, at the best, these attempts at sanitation

* An Address given to the Yorkshire Association of Civil Engineers, February 6th, 1922.

were crude and imperfect, and it was not until the rise of Rome that any noteworthy progress was made in sanitary science. As the military power of the Roman Empire grew and its frontiers extended, cities and towns sprang into existence, and it became necessary for the protection of life and the prevention of disease to make provision for water-supply, sewage disposal, street paving, street cleansing, etc., for these communities. The Roman citizen had a very simple, but a very high conception of life and duty. He was keenly alive to the necessity for keeping his body fit, and was sufficiently educated to appreciate the value of fresh air, pure water, and good housing. Wide roads solidly constructed and with a good surface were required for the rapid movement of large bodies of troops from one portion of the empire to another. The remains of these roads still exist in some parts of the country and demonstrate the care and skill lavished upon them. The longest and perhaps the best example of a Roman road was that which stretched from the Antonine wall in the middle of Scotland to the port of Brindisi at the South-East corner of Italy, a distance of some 1,700 miles. What this road—parts of which are still in use—meant to civilisation can never be estimated. These roads had not only a military value, but they stimulated the development of commerce and industry, and over them passed and repassed men of art, science, and philosophy carrying the wisdom and learning of Italy and Greece to the furthest domains of the great Roman Empire. If it be true that Rome made the roads, it is also equally true that the roads made Rome, because without them the empire could not have held together for a week. The Romans had acquired from the Greeks a love of painting and sculpture, and they sought to emulate the magnificence of their public buildings and the beauty of their architecture. This passion for art was reflected even in the meanest dwellings of Rome, and the cottage of the peasant had often as much care lavished on its design and decoration as if it had been an emperor's palace. Such a thing as an ill-constructed or dilapidated house was not known in the principal cities of the Empire. Fabulous sums of money were expended in the erection of public buildings, as well as on private houses and sacred edifices. In this connection it was said of the Emperor Augustus that he found Rome a city of brick and he left it a city of marble; and what Rome did one day, the provincial towns did the next, and so we find the same architectural magnificence in Verona, Padua, Aquileia, Milan, Ravenna, and other Italian cities. The one desire of the people

of the provinces seemed to be to imitate the capital, or if possible to go one better.

From what has been said of the Roman's love of art and beauty, it is not surprising that personal hygiene and cleanliness occupied a high place in his life. The frequent bathing of the body was looked upon as the duty of every good citizen, and in every town were to be found public baths of all degrees of size and stateliness, which were visited by all classes of the community. Some of these baths were of the most exquisite design and workmanship, and were built at enormous cost. But the question of money never seemed to enter into the calculations of the Roman citizen, who seemed to look upon the beautiful as something to be had at any price. But to conduct these numerous baths meant that a very liberal supply of water was required. In some towns that was derived from a river or stream in the vicinity, but there were others, including Rome itself, which had to depend on outside sources. In these cases the water was conducted into the city in aqueducts. Some of these aqueducts were triumphs of engineering skill, and so well were they constructed that they have withstood the ravages of time, and may still be seen to-day. The aqueduct of Sinope is stated to have been sixteen miles in length and to have cost nearly £200,000 whilst that of Nicomedia, because of the difficulties of the terrain over which it had to pass, is reported to have required the skill of some of the best engineers of that day. Gibbon, writing of the aqueducts of Rome, says that "they were amongst the greatest monuments of Rome's genius and power."

Turning to the question of the collection and disposal of sewage, here again we find in all the great Roman cities evidence of progress. Rome itself possessed a most elaborate system of sewers constructed of brick and large enough (so one of the historians says) to accommodate a hay-laden cart. The main sewer of the city in the time of the Emperor Hadrian, known as the "maxima cloaca," is still in use. Into the sewers all sorts of filth and rubbish were flung. Sometimes even the bodies of the victims of gladiatorial fights, or of persons done to death by vindictive enemies or as the result of family or personal feuds found a convenient hiding place in these subterranean channels. In consequence, the sewers often became stopped, and gangs of men were retained whose duty it was to cleanse them at regular intervals and prevent the recurrence of stoppages. Many of the drains which discharged into the sewers were merely open channels, and carried both surface washings and sewage. No attempt

at disposal works was made; the sewers simply discharged their crude contents into the river. The streets, generally speaking, were well paved with blocks of stone set solidly in cement, and provided with side gutters or channels. Sometimes there was a raised car-way in the middle of the street, but this obtained only in certain cities and in certain streets of these cities. It was the duty of the Aediles, or policemen, to see that the streets were kept clean and that no filth was deposited on them. There was also a rule which forbade citizens depositing refuse on the street, but judging from the remarks of some of the historians, it could not have been very strictly enforced, because some of the streets are described as "most foul and odoriferous." Juvenal particularly mentions the risk run by the unwary pedestrian of receiving the contents of a slop-pail—"diversa pericula noctis"—on his head from an upper window, just as one knows used to happen in London, Edinburgh and Glasgow. A certain number of houses were supplied with latrines, and in the large cities public latrines were also provided. Some of these were supplied with water and connected to the drains and some not. The standard of health of Rome and the other cities of the empire would appear to have been very high, and no money seems to have been spared for the promotion of physical well-being and the prevention of pestilential disease; indeed, it is on record that during the reign of Pliny a whole city was removed to an entirely new locality because of the unhealthy nature of the site on which it stood. It may be said, therefore, that Rome was the cradle of sanitary science and preventive medicine. Alas! at the very time when the great Roman Empire reached the meridian of its fame and power, a deadly canker was gnawing at its vitals, and before it was able to secure complete dominion or to consolidate its influence, the whole fabric crumbled to pieces like a child's castle of bricks, and the hope of civilisation for a thousand years was buried in the ruins of its fall.

With the extinction of the light of Rome came darkness worse than that which prevailed in pre-Roman times, and for nearly a thousand years no progress whatever was made in sanitation, or for that matter in any of the applied sciences. Such advances in knowledge as had been made were not maintained, and nations which had profited by the influence of Roman learning rapidly subsided into the abysmal ignorance of their former state. Cleanliness instead of being exalted was abhorred, and personal hygiene was looked upon as vanity and an offence against

God. Dirt and filth raised their hideous shapes in nearly every country, and were acclaimed by a bigoted and emasculated church whose votaries and priests revelled in the miasmal horrors of unwashed bodies and foul rags. The history of the middle ages makes mournful reading; it is a long and dismal record of famine, suffering, pestilence, and death. Now and again there may have been attempts to raise the standard of living of the people of England, but these were so feeble and ineffective that they perished almost as soon as they were born.

London in the fourteenth century was simply a collection of hovels separated by narrow lanes or alleys into which neither sun nor air could enter. There was complete absence of sanitary conveniences of any kind, and domestic refuse and filth were either flung into the river or deposited in the street. As a result, the surface of the foot and carriage ways, which were unpaved and beset with ruts and hollows, became foul, and the noisome odours which emanated therefrom, especially in hot weather, rendered the atmosphere poisonous and invited pestilence. In 1297 a law was passed which made it incumbent on every householder to keep the street in front of his own premises clean. This law had the effect of compelling householders to find other means of disposing of domestic refuse, and the river being the most convenient spot, was generally chosen for this purpose. In 1357, King Edward III. addressed a royal order to the Mayor and Sheriffs of the city, complaining of the filthy state of the river Thames which had become so choked up with accumulations of garbage, dung, and other refuse, that the flow of the water was impeded. As a consequence of this interference by the King, a law was passed, forbidding the citizens to deposit rubbish or filth in the rivers Thames or Flete or into the Fosses round the walls of the city, but to take all such material outside the city by carts. But the people were not to be deterred, and the practice of fouling the river continued as before, until in 1372 the King again addressed the Mayor, Sheriffs, and Aldermen on the subject, this time threatening penalties should the offence continue. In 1388 in the reign of Richard II., a law was passed, regulating nuisances in or near cities and towns, especially such as arose from latrines. Housing conditions at this period were deplorable. Not only were the houses not sanitary, inasmuch as they were deficient in lighting, ventilation, and even the most primitive accommodation for the disposal of refuse, but they were built without regard either to health or comfort. The truth is

that the architects and builders of that day were kept so busy designing and constructing churches and universities, that they had little time to devote to the erection of dwelling houses. Water was obtained from the nearest source of supply, and it did not matter very much whether the source was polluted or not. Happily the populations of our English towns in those days were small, and there was as a rule no difficulty in obtaining a sufficient supply of good water. Water supplies were left entirely unprotected and it cannot be doubted that the drinking of polluted water was responsible for much of the disease prevalent at this period. The cult of the bath had perished with Rome, and the remark of an eminent physician "that for a thousand years not a man or woman in Europe ever took a bath" was literally true. Such was the condition of affairs, not only in England, but in every other European country up to the end of the sixteenth century. What wonder that plague and pestilence were rife, that year by year thousands of lives were sacrificed to disease and thousands left so maimed and disfigured as to be unable to earn a livelihood and were driven to beggary in order to live.

In 1532 an Act of Parliament was passed which provided for the institution of Commissions of Sewers. The sewers here referred to were intended for the drainage of land only, and it was not permitted to deposit any filth or refuse of any kind in them. But even so, the acknowledgment that swamps and marshes—and a great portion of the land in England was of such a nature in those days—required to be drained and rendered fit for cultivation, marked a great advance, both from the point of view of agriculture and health, because at that time the English marshlands were noted breeding grounds of disease. One of the fruits of this enactment was the clearing of the famous Fleet Ditch. Gradually the scope of usefulness of the sewers was extended, and we find them in 1373 being used for carrying away rain water from the streets of London, and in 1634 a sewer six feet in height and three feet in width at the bottom was ordered to be constructed for the cleansing of what was nothing more nor less than a huge cesspool—The Moor Ditch. Though not introduced for the carriage of sewage, these were the first of that great network of sewers now in use throughout England. About 1628 the foul and dangerous state of the streets and pavements attracted attention, and the King commanded the then Lord Mayor to have the pavements repaired and the road surface levelled. Evidently little heed was paid to the command,

for six years later it was repeated, and on this occasion a definite attempt was made to put the streets and pavements into proper repair. But the sum of the sanitary work done up to the end of the sixteenth century was almost negligible, and instead of growing better, conditions of living steadily became worse. The result was that when plague and cholera invaded the land, everything was favourable for their rapid growth and spread. The years 1580-1583 were made noteworthy by a terrible visitation of the plague or "black death" to London, as also were the years 1625 and 1629. The authorities were at their wits end what to do to stay the ravages of the malady, but never seemed to realise that the root of the mischief lay in the uncleanness of the houses, streets, water supplies, etc. So it continued unchecked and with ever-increasing fury and virulence until in 1665 came the most terrible visitation of all, indeed the most terrible in history, when men, women, and children died literally by the thousand. There were weeks when as many as 3,000 deaths occurred, and the total loss of life in London alone during the epidemic was computed at 70,000. Hard on the heels of the Great Plague came the Great Fire, which burnt out the greater portion of London—13,200 dwelling-houses—and effectually cleansed and sterilised the plague-ridden spots of the city. If the Plague was a curse, the Fire was a blessing, because it marked the beginning of better days. Wren, the great architect, was invited to make a design for a new city, and in due time he submitted a scheme of reconstruction which, had it been adopted, would have conferred on London the honour of being the finest city in the world. Unfortunately the authorities would not sanction the huge expenditure involved; they were still unrepentant and unashamed, notwithstanding the lessons of the past, and, had it not been for pressure brought to bear by influential persons, might have repeated all the old mistakes. The city was rebuilt, not to Wren's design, but to one which certainly gave a result far superior to the old city. The houses were built of brick and were larger and more commodious, the streets wider and better paved, there were more open spaces, and, as Bishop Burnet remarked, "to the amazement of all Europe, London was in four years rebuilt with so much beauty and magnificence, that all who saw it in both states before and after the fire were left wondering where the wealth was found to bear so vast a loss as resulted from the fire." London and England entered a new era after the charred and blackened remains of

Old London had been cleared away, and never again did plague visit these shores. Still progress in sanitation was painfully slow, and the beginning of the eighteenth century found London, and indeed all the cities of England, without proper water supplies, with insufficient sewerage, no provision for scavenging or refuse disposal, streets badly made and ill kept, no pavements—in short, conditions of neglect and uncleanness which made English cities the laughing stocks of Europe.

During the eighteenth century Medical Science made great strides and Britain took the lead of all the nations of the world in this sphere of learning. Out of this movement and as part of it sprang the new science of Preventive Medicine, and soon great minds were engaged with the problems of infectious and contagious diseases and their spread, the influence of poverty and environment on health, and the prevention and arrest of epidemics. As a result of these researches, there emerged valuable information regarding the influence of pure air, pure water, clean food, good housing, personal hygiene, the removal of filth, and the preservation of physical fitness. Soap and water came into its own and began to be recognised as the most valuable of all defences against contagion, whilst the virtues of sulphur as a disinfectant were everywhere acclaimed. Whilst the doctors were busy organising their attacks against the citadels of disease, the mechanics and physicists were engaged in the study of the mechanics of air and water. The medical scientist demonstrated the beneficent effects of pure air on health, and the physicist showed how by the use of certain mechanical contrivances a constant supply of pure air could be assured in every dwelling. In 1741 Stephen Hales, the eminent physicist, invented an instrument which he exhibited to the Royal Society, by the use of which the air of enclosed spaces could be changed regularly. Similarly a mechanic named Sutton invented another and simpler appliance for the same purpose, which was extensively adopted by the Admiralty in the ventilation of ships. From this time onwards good ventilation was looked upon as an essential feature of every house, and a field of research was opened up which proved a happy hunting ground for inventors. Some progress, though of a halting and indefinite nature, was made with the water-supplies of the larger towns, but no real attempt to put these on a sound hygienic basis was made until 1850, when the Board of Health instigated an inquiry into the water-supply of

London, then in the hands of four private companies. The result of the inquiry was to prove that the bulk of the water consumed by the citizens of London was impure and unfit for use. In addition the supply was intermittent, a grave disadvantage in case of fire and in seasons of drought, and at times there was barely sufficient for ordinary domestic cleansing. The upshot was that a comprehensive scheme of water-supply and drainage was called for; the water-supply was taken out of the hands of private companies, and was placed under a central authority responsible to Parliament, and the same authority was entrusted with the supervision of the drainage of the city. New sources of supply were found sufficient to maintain a constant supply of water at high pressure to every house. At the same time provision was made for storage, filtration, and the protection of the gathering grounds and reservoirs from pollution. The work in connection with the scheme was expedited by extensive outbreaks of Asiatic cholera, which took place in London in 1848-49 and 1853-54, in which a total of more than 500,000 persons were involved, of whom 12,000 died. In both outbreaks the cause was traced to the drinking of water polluted with sewage. There is nothing like a good going epidemic for getting things done, and there cannot be any doubt that London and other cities owed their improvements in their water-supplies which took place at that time to the cholera epidemics.

But the whole of London did not participate in the benefits of the new water scheme. The supply to the East End still remained in the hands of a private company, consequently one is not surprised to learn that cholera again appeared in 1866 which, as in the previous epidemics, was traced to the drinking of polluted water. An inquiry was held into the outbreak and a special report issued by the Privy Council strongly condemned local authorities for not keeping a better check on the operations of private water companies. Shortly after the epidemic, an Act of Parliament was passed which compelled local authorities to exercise better control over the sanitary circumstances of their district, to provide better and healthier houses, reduce overcrowding, abate public health nuisances, provide adequate supplies of pure, wholesome water, make proper provision for the removal of filth, and provide hospitals for the isolation of cases of infectious disease, thus bearing out the truth of the old adage, "It is an ill wind which blows nobody good." Turning to drainage and sewerage, the

position up to the end of the reign of William IV. (1837) was that practically nothing had been done to improve the lamentable conditions which prevailed throughout the country as the result of the entire absence of proper schemes of sewage and refuse disposal. In 1839, Dr. Southwood Smith, an eminent medical practitioner of that time, presented a report to Parliament in which he stated that of the paupers relieved during the preceding year 14,000 had suffered from fever brought on in consequence of bad housing conditions and the lack of proper drainage, and appealed for the construction of underground sewers, drains for surface water, and a regular system of scavenging. A few years later (1842) Mr. Edwin Chadwick, who is generally recognised as the father of sanitary science, in "his general report to Parliament on the sanitary conditions of the labouring population of Great Britain" reiterated Dr. Southwood Smith's appeal in greater detail. The presentation of these two reports resulted in the appointment of two Royal Commissions, on which both the medical and engineering professions were represented, which were instructed to go fully into the matters dealt with in the reports and submit their findings to Parliament in due course. Both Royal Commissions held extensive enquiries and took the evidence of engineers, financial experts, medical men, social reformers, etc., which was compiled and presented to Parliament in two reports, the first presented in 1844 and the second in 1845. These reports showed up the terrible conditions as regards housing and drainage which existed at that time, and exposed the flagrant insufficiencies of the existing sanitary provisions. The need for the introduction and maintenance of an efficient and economical system of house drainage and sewerage, paving and street cleansing in all towns and populous districts, as well as the provision of water supplies, was emphasized. The reports also recommended that all these services should be centralized in one authority. The direct outcome of the reports was the passing of the Towns Improvement Clauses Act in 1847, and a year later of the first Public Health Act. Both were measures of the very first importance, and inaugurated a new era in the sanitary history of England. The Public Health Act of 1848 did not extend to London, where sanitary conditions were still in a most unsatisfactory state. Drainage and sewerage remained in the hands of the old Commissions of Sewers established in the days of Henry VIII., and though certain progress had been made, the fact that every district had its own Commission made uniformity impossible, and this lack of uniformity

led to confusion and inefficiency. By the passing of the "City Sewers Act" which took place in the same year as the Public Health Act, the whole of the sewers in the City were placed under one administrative body called the Metropolitan Commission of Sewers. From that time henceforward progress was uninterrupted, and London very soon came to possess one of the best systems of sewers in the world.

As soon as the new Act became operative, the Government appointed a certain number of inspector-engineers for the purpose of supervising schemes of sewerage and drainage. These appointments at first gave rise to a good deal of ill-feeling and friction between private engineers and the Government, with the result that for a time progress was retarded, but the good sense of the engineering profession restored harmony and saved the situation and made it possible for work to proceed in those areas which had prepared and submitted schemes. It was about this time that improved brick sewers and earthenware pipes came into use. The former were first introduced in Holborn and Finsbury by one John Roe, and warmly recommended by Chadwick in his report of 1842, whilst the latter had been favourably received and recommended by both Royal Commissions. The earliest form of sewer used in this country was of very primitive design, and because of its faulty construction allowed the liquid portion of the contents to escape whilst the solids were left behind. In consequence blockages were frequent. To facilitate cleansing and to prevent such blockages occurring, the size of the sewers was gradually increased until they were of such dimensions as would accommodate a man. With experience and the passage of years both design and construction improved until in 1842 the egg-shaped sewer now universally in use was introduced by Mr. John Phillips, C.E. What has been said with regard to the sewers applies with equal truth to the surface and house drains. At first the former were merely open channels and generally most foul, whilst the latter were not much better, for they were rectangular in section and constructed either of flat stones or slates with open joints and irregular, uneven surface. In nine cases out of ten they were useless as drains because of the inevitable leakage from the joints and the frequent blockages. With the introduction of earthenware pipes a great improvement was effected, and the rapid removal of sewage from the vicinity of the dwelling was assured.

The paving of streets and the making of roads also improved vastly after the passing of the first Public Health Act, and by the complete or partial

clearance of congested areas it became possible for sunshine and fresh air to exert their beneficent influence on narrow courts and alleys which had been wrapped in darkness and gloom for centuries. Street cleansing and scavenging were also organised on proper lines and a serious effort made to preserve the homes of the people from the evil effects which arose from accumulations of manure and other refuse in their vicinity. How the early engineers and architects ever condoned the building of houses of the type common in the 16th and 17th centuries is a mystery, and it is equally difficult to explain the entire absence of the most elementary knowledge of road making and street paving in these early years of our history. Good roads are not often mentioned in relation to health, but I am convinced that they are one of the most important factors. Since 1848 steady progress has been made in all departments of sanitary engineering, and the England of to-day could scarcely be recognised as the same England of Henry VIII.'s time. The great Public Health Charter of 1875 and its amending Acts, together with the various Housing and Town Planning Acts of the 19th and 20th centuries, marked a great and important advance, and have made it possible to raise the standard of living to a pitch where even disease itself finds it difficult to get a footing. Each succeeding year finds our defences strengthened, and the maladies which used to flourish in all our cities have steadily been, and are steadily being, eliminated.

The health service to-day may be said to include four great and important engineering departments, viz., water, sewerage, highways, and housing. The thousands of miles of pipe line conveying the water collected on the slopes of a thousand hills into our great centres of population, the thousands of miles of sewers with their great outfall works which cleanse our towns and cities, the hundreds of thousands of miles of paved streets and macadamized roads all bear eloquent tribute to the skill and ingenuity of the engineer as well as to his ability to overcome obstacles.

Before entering on my concluding paragraphs, I should like to say a word or two on the effect of these great engineering works on the vital statistics of the country. We have no definite records of mortality figures for any years prior to 1841, but it is possible to gather from the bills of mortality as well as the records of burial that the death-rate in England up to the beginning of the 18th century was very high. As I have already stated, one epidemic would carry off as many as 17,000 or 18,000 lives in a single town, whilst

thousands more were so maimed and disfigured as to be invalids for the remainder of their lives. It is thus that one can explain the enormous numbers of paupers and vagrants which were found all over England in the 14th and 15th centuries. The general death-rate has been reduced from an average of 22.4 per thousand of the population in the years 1841-50 to 12.4 in 1921, whilst in the same period the death-rate of infants under one year of age per thousand births has fallen from 153 to 83. Diseases such as cholera, plague, and typhus fever, which used to claim thousands of victims in all our great cities every year and were the terror of every home, no longer count as factors in the death-rate, whilst the mortality from enteric fever (which may be said to be the disease of bad sanitation) and smallpox has been reduced to an almost negligible figure (*vide* Tables). Pulmonary tuberculosis—or consumption—and other respiratory diseases which are so closely associated with overcrowding, bad ventilation, and poverty, no longer take such toll of human life which they used to do even as recently as the 18th century, so that whilst the building up of this great sanitary system may have cost England millions of pounds of money, it has saved millions of lives, increased the efficiency and longevity of the survivors, and very materially reduced the number of unfit. Do not be dismayed when you hear that we are a "C.3" population, but think of the time not so very long ago when a very large proportion of our population was not even "C.3."

There is still much to be done. The great problem of housing remains to be solved, and I am not satisfied that we are doing the best we can as regards scavenging and refuse disposal. I should like to suggest, and I hope that in doing so before an expert audience such as this I am not presuming too much, that the time has surely arrived when it should no longer be necessary for the surface of the streets and thoroughfares of our cities to be disturbed in order to effect repairs or make connections to water mains, sewers, gas mains, etc. It is a reproach on municipal engineering that we should still see so much of the "Street up" notice. Would it not be possible to create subways sufficiently large to carry sewers, gas mains, water pipes, electricity mains, telephone cables, etc., even possibly to accommodate an underground tramway for the conveyance of household refuse so as to avoid the nuisance which arises to-day in consequence of the present antiquated methods of collection and removal. There is great need for the opening out of the

congested areas of our cities, for the reduction of the number of houses on the site, and the introduction of a healthier environment free from the foul emanations which arise from a huddled population as well as from the smoke stacks and ventilating shafts of factories. The people of England's cities lost their heritage of green fields, blue sky and pure air in the dark years of her history. It is for you and your successors to restore to them their treasure.

Gentlemen! England is the sanest country in the world: let us make her the healthiest.

Average Annual Death-Rates from Continued Fevers per Million Persons Living in England and Wales, also Leeds, Worked Out per Million for Purpose of Comparison.

England and Wales. Continued Fevers Years. (chiefly typhoid).	Leeds. Continued Fevers Years. (chiefly typhoid).
1861—1870 ... 885	1870—1879 ... 730
1871—1880 ... 482	1880—1889 ... 330
1881—1890 ... 235	1890—1894 ... 220
1891—1895 ... 185	1895—1899 ... 208
1896—1900 ... 180	1900—1904 ... 164
1901—1905 ... 116	1905—1909 ... 92
1906—1910 ... 71	1910—1914 ... 46
1911—1915 ... 47	1915—1919 ... 24

Average Annual Death-Rates from Typhoid Fever per Million Persons Living in England and Wales, also Leeds, Worked Out per Million for Purpose of Comparison.

England and Wales. Years. Typhoid Fever.	Leeds. Typhoid Fever. Years.
1871—1875 ... 354	1870—1879 ... 730
1876—1880 ... 278	1880—1889 ... 330
1881—1885 ... 218	1890—1894 ... 220
1886—1890 ... 180	1895—1899 ... 208
1891—1895 ... 176	1900—1904 ... 164
1896—1900 ... 176	1905—1909 ... 92
1901—1905 ... 113	1910—1914 ... 46
1906—1910 ... 70	1915—1919 ... 24
1911—1915 ... 47	

Sixty-sixth Annual Report of the Registrar-General for Scotland, 1920, formerly published at £2 17s. 6d., has now been reduced in price to £1 10s. (post free £1 10s. 9d.). Copies are obtainable through any bookseller or directly from H.M. Stationery Office, 23, Forth Street, Edinburgh.

THE ANTI-TUBERCULOSIS CAMPAIGN.* SOME CRITICISMS AND SUGGESTIONS.

BY

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(Abridged.)

I think we are all willing to confess that, in the past, our views on the tuberculosis problem were too short. So to speak, we stood too near the individual trees to be able to form any adequate conception of the extent of the wood. We attempted to deal with what is, when all is said, a biological problem, as if it were a simple arithmetical one; we worried—perhaps over much—about the tubercle bacillus, and not enough about the conditions which are necessary for its pathogenic activity; we concentrated on the diagnosis and treatment of individual cases while neglecting the causes which brought these cases about; and, to come from the general to the particular, I fear that we are not making, even now, as much use as we might of certain facilities at our disposal, such as (i.) our sanatoria, and (ii.) our school medical service.

The following provisional classification of pulmonary tuberculosis is an endeavour, however inadequate, to get a little bit farther back into the origins of the disease than is usually attempted. For I think we are all getting a little tired and a little impatient with the manner in which the fundamental problems in tuberculosis infection are being ignored or glossed over, and very wearied with the obscurantists who tell us that when they have said "Tuberculosis is an infectious disease," the last word has been said on the subject.

There are, no doubt, many who will say that this classification runs ahead of the facts—that is, after all, a matter of opinion. But even if we admit that there may be weak links in the chain of proof, I would still maintain that it is better that such a classification should be attempted, even though provisionally and inadequately, than that the whole case should be allowed to go by default, as if it didn't matter at all; as if the development of tuberculosis infection and its epidemiology did not constitute one of the most important, as well as one of the most elusive, and

* A Paper read before the Tuberculosis Sub-Group of the Society of Medical Officers of Health (Midland Branch), at Derby on February 18th, 1922.

fascinating problems that medical science has been called upon to solve.

PULMONARY TUBERCULOSIS.

I. Primary (or Aerogenous).

Pneumonic.

Catarrhal.

II. Secondary.

(a) *Haematogenous.*

Miliary.

Apical.

Pleuritis.

(b) *Lymphagenous and Mixed.*

"Tuberculose Ganglio-Pulmonaire of Children.

Hilus Tuberculosis of Adults.

There is, of course, nothing original in this classification. But I have never seen it put on paper in tabular form.

It is an attempt to classify all forms of pulmonary tuberculosis according to the routes by which the tuberculous infection reached the part of the lung tissue in which it established the disease. In the *Primary (or Aerogenous)* variety the bacilli are considered to have established themselves from the inspired air on the walls of the air vesicles or bronchioles.¹ In the *Secondary* varieties the bacilli, whether originally inhaled or swallowed, were carried to the lungs in the blood stream² by the pulmonary circulation or possibly, in certain cases, through lymphatics. In the former event the presumption is that they were brought to rest in the capillaries of certain special localities where on account of certain special mechanical or physiological peculiarities the bacilli were filtered off and established themselves. The localities referred to are—the pulmonary apices, the *inter-lobar* clefts, the sub-pleural tissue, in fact, all the usual sites at which we find the early lesions in chronic pulmonary tuberculosis.

One must not, of course, forget that there is also the small bronchial circulation, by which the twigs of the bronchial arteries carry arterial blood from the general circulation to the peri-bronchial tissue. Bacilli may be carried by these vessels in cases of generalised bacillaemia, but there is no evidence that such is a frequent cause of a local pulmonary infection.

For many years after the discovery of the tubercle bacillus it was tacitly assumed that pulmonary tuberculosis invariably arose through the

deposition of tubercle bacilli on the walls of the apical air cells and bronchioles¹—this despite the fact that in other microbic lung diseases such as lobar pneumonia, septic pneumonia, pneumonic plague, actinomycosis, abscess, etc., in which the process undoubtedly begins in the air tubes and vesicles, the basal and central parts of the lungs are those usually infected. If we spray tubercle bacilli into the air of a room, the bacilli gradually settle on the floor, but we were taught that, in pulmonary tuberculosis the ordinary law of gravitation was in some mysterious way reversed; and that in the lungs the tubercle bacilli settled, so to speak, on the ceiling! All sorts of explanations were offered for this phenomenon. But some Sadducees like Cornet, and later Calmette, Pottenger, etc., were not convinced, and now evidence is accumulating to show that after all the miracle does not happen—that air-borne tubercle bacilli do not limit their settlement, as a rule, to the pulmonary apices, but that the bacilli, whether inhaled or ingested, which set up limited apical disease, find their way to the apices in the blood stream.²

It is doubtful whether bacilli can be carried to the lung tissue directly by the lymphatic vessels.³ Obviously tuberculosis of the hilus lymph glands is usually *secondary*—as Prof. Gohn has demonstrated—to a lesion towards the periphery of the lung, and therefore to a previous haematogenous or aerogenous pulmonary implantation. On the other hand, it is conceivable that the hilus glands, or the peribronchial tissue, might be directly infected with bacilli phagocytosed from the tracheal and bronchial mucous membrane, or possibly from the tonsils; and from the hilus glands the neighbouring area of lung slowly involved by inflammation spreading by direct continuity, or reversed lymphatic flow. We could thus admit the possibility of hilus tuberculosis occurring without the necessity of a previous lesion in the periphery of the lung. Hilus tuberculosis in the adult is believed by some to be a recrudescence of a condition established in childhood, but this is not necessarily the case.

In the last edition of his book on the early diagnosis of tubercle, Dr. Clive Riviere gives us an eloquent description of hilus tuberculosis of adults. He points out its benign course, the fact that it extends with extreme slowness, that it rarely kills its victim, but, on the other hand, it is

rarely cured. Once established, it smoulders for years, or even through a lifetime, often disguised as cardiac inadequacy, a chronic bronchitis, or a bronchial asthma; often entirely unrecognised. A facile diagnosis of chronic bronchitis, asthma, or cardiac weakness is made. The condition is found to respond to vaccines of pneumo- and micro-cocci, etc., *i.e.*, the secondary organisms present, and no suspicion arises as to the "wherefore of the why." Sometimes we get a diagnosis of chronic bronchitis with secondary tubercle implantation, when the true condition is probably the other way about—a secondary bronchitis slowly developing on top of an old benign hilus tuberculosis.⁴

Of course, the origin of all secondary tuberculosis infection, pulmonary and general, is in the lymphatic system. As Pottenger points out, tuberculosis is essentially a lymphatic disease. When tubercle bacilli are deposited on a mucous membrane, whether alimentary, respiratory, or other, they are ordinarily swept away in the mucus discharge. If not, and if the mass or virulence of the infective material is not overwhelming, they are quickly phagocyted through the mucous membrane into the subjacent lymphatics, whence they may, at any future date, find their way into the blood stream, should the glandular barrier give way.⁵ Hence we have the seeming paradox that, although the infection is mainly an air-borne one, the lungs are comparatively rarely infected directly from the air.

Various observers have found tubercle bacilli in the tonsils removed from children. In the investigations made at the Derby County Laboratory, by Dr. S. M. Ross, morphological T.B. were found in 47 of 137 tonsils enucleated. In none of the Derby cases did the tonsils show naked eye tuberculous lesions; the bacilli appeared to be merely *en route* to their internment camps in the lymphatic glands. Some, no doubt, would have found their way through the glands to the blood stream to set up the tuberculous bacillaemia which Professor Calmette tells us is so common in children,⁶ and would finally come to rest in the pulmonary filter and set up the beginnings of pulmonary tuberculosis. Much tells us that when a massive focus of tubercle bursts into a blood vessel the majority of the bacilli are filtered off by the lungs.

Without getting too deeply into the labyrinth of sensitisation and immunity, one may say with

some confidence that the following provisional conclusions are justified:—

1. Primary Aerogenous pulmonary tuberculosis is now of comparatively uncommon occurrence amongst adults of the white or immunised races. It appears to become more uncommon every day. When it occurs it is found in infants, or in adults in rural rather than urban districts, who have been subjected to intense and massive infection, and who for some reason are of low resistance or have acquired no immunity. It is still the type of pulmonary tuberculosis met with in certain uncontaminated races, *e.g.*, American Indians, Negroes, North and West Africans, the Kalamucks of the Caspian, etc., when brought into contact with infected peoples, as was shown in the case of certain coloured troops in the late war.

2. The ordinary type of adult pulmonary tuberculosis that forms, shall we say, 70 per cent. of the cases we meet, is the secondary form—developing insidiously in young adults at the sites so well known to you all, and in middle life and later at the hilus and in the peribronchial tissue. If any reference need be made to these sites, it would be to emphasise the visceral pleura and sub-pleural tissue as the sites of early lesions. It is quite impossible to set any limit to the time which may elapse between the original lymphatic infection, and the metastatic deposit in the lungs, or to estimate the number of lymphatic infections which eventually become pulmonary. It is almost as difficult to set a limit to the time between the metastatic pulmonary infection and the appearance of definite symptoms and physical signs referable to the lungs. We cannot fix either a minimum or a maximum. But every day, as our experience accumulates, we find more and more cases in which pulmonary disease manifesting itself in the third and fourth decades of life is associated with a definite exposure to heavy infection in the first decade; and every day our amazement grows at the way in which the husbands of tuberculosis wives, and the wives of tuberculosis husbands fail to develop the disease after years of intimate contact. Whether we like it or not, no matter how much it clashes with our preconceived ideas, we have to recognise that adult pulmonary tuberculosis, as we now meet it, is occasionally a primary lung infection from without, but more commonly a late development of a chronic infection which has existed through half

an average lifetime; often, veritably, the end of a cradle song.

There are, of course, masses and masses of figures, based on tuberculin reactions and post-mortems, which may be quoted to show the proportion of unrecognised tuberculosis in the community. You have heard them over and over again: I don't propose to inflict them on you. The latest I have seen are those quoted by Sir James Kingston Fowler, in his book published in 1921. In over 2,000 autopsies made on British soldiers who died of wounds and from other causes in a military area in France during the great war, in 9.2 per cent. or between 1 in 10 and 1 in 11, gross or macroscopic tuberculosis lesions, unrecognised before death, were found in the lungs. These figures are worth pondering. The lesions were obvious to the naked eye and indicated gross disease. Presumably, the figures refer to Grade A men. They add very positive evidence to that already accumulated to show that the total number of recognised cases of pulmonary tuberculosis is but a small fraction of those whose lungs have been infected.

Now, if these views are even approximately correct, is it not obvious that the battle against tuberculosis has to be fought, and is fought, not only in the case of the obviously ill, but also of the apparently well; that tuberculous infection and the excretion of bacilli over long periods is a condition compatible with comparatively good general health; that we cannot eliminate tuberculosis by confining ourselves to the clinically tuberculosis and their contacts; and that, while making every effort to sterilise sources of massive and overwhelming infection, we must at the same time try to popularise the conditions of living in which, and by which, both the risk and the virulence of the infection are minimised? And so might we not hope to raise the general health and the natural resistance of the whole community to such a degree that the ordinary minute and protecting doses of tuberculosis infection, which in modern conditions are inevitable, and in all probability desirable, may do good rather than harm; may add a specific protection to the natural resistance, and may be put to the credit side rather than to the debit side of our national health account?

Looking back over the past twenty years, one cannot but regret the harm done by half-baked and ill-digested propaganda. Such a to-do was

made about the infectiousness of tuberculosis, that a new mental disease, phthisophobia, has become widespread, on account of which it is now practically impossible for any person who has been to a sanatorium to get employment, or to achieve a career. The sanatorium was boomed as the great "cure" for consumption—nothing was said about sanatorium conditions being a "preventative." We grossly underestimated the extent to which the disease prevails amongst the community, we underestimated its duration, and we underestimated the time and cost necessary for its successful treatment.

We know now that it takes two years, and costs anything from £500 upwards, to bring an established but favourable case of clinical pulmonary tuberculosis to a satisfactory arrest by sanatorium methods. The private sanatorium can do this for its wealthy, educated, and persevering patients; we cannot afford to do it in our State maintained sanatoria. If we could keep our patients for the necessary period, the majority of them would not stay. What then can our sanatoriums do? The answer is that in the short time at their disposal they can teach their patients how to live and maintain themselves assets not liabilities in the community, and sources of health rather than of infection to their families and friends. In the last resort, the justification of State sanatoria is the improvement effected in the health of the community.

The influence which the sanatorium is capable of exerting should not be limited to the patients who go for treatment. The non-tuberculous public need instruction as well as the tuberculous. Much more use ought to be made of the teaching capabilities of sanatoria. All medical students ought to attend a sanatorium course, and a knowledge of sanatorium routine should be an essential qualification for the D.P.H. The junior residential posts in sanatoria might well be held by newly qualified men of the House Physician type reading for a Public Health Diploma, who could stay six to twelve months at a small salary. I hold strongly that every person concerned in the education of the young, whether in the primary, secondary, public, or professional schools, ought to have a course of sanatorium instruction. As Professor Leonard Hill says, "All children ought to receive the enormous advantages to their health which the open air treatment gives the tuberculosis cripples at such a place, for instance, as the

Treloar Home Our schools must be made factories of health, not of disease."7 To effect this the teachers themselves must be taught.

This brings me to the second means to our hand of which more use might be made, namely, the Medical Service of the Schools.

Does it not seem reasonable and logical that every school in the Kingdom, from the infants' schools to the universities, should be given the advantage of the help of the School Medical Service? Some time ago I had the privilege of being shown over a large and fashionable girls' private school. It was a very handsome school, with delightful playing fields, a good gymnasium, a beautiful chapel. But the ventilation of the dormitories was shockingly inadequate. Yet it never occurred to the management of that school that anything was wrong.

It goes without saying that the members of the School Medical Service should have special training on sanatorium lines, and should work in close co-operation with the Tuberculosis Officers. There is a case for the amalgamation of the services. The duties of the School Medical Officers should not be limited to inspection of the pupils; they should advise the management on every detail of hygienic bearing and aspect.

These, I believe, are the lines on which in the future the anti-tuberculosis campaign will develop rather than in concentrating on the unfortunate notified consumptive and his entourage. Education is the key of the situation. Nothing but harm will be achieved by force, or repressive legislation. It is not so much a question of money as of habit. Our appeal must be to the self-respect of the people. We must make it as "bad form" to have an ill-ventilated house as it is to be drunk in the streets. To do this, we must begin with the children. We must teach them, by example in the schools, what sanatorium conditions are, and, as Principal Jack says, we must make "every child a missionary." We must build up informed and balanced public opinion, not by stunts and scares in the baser newspapers, but by broad and liberal education. In this matter the members of the Medical Profession have the opportunity of being truly doctors, *i.e.*, teachers, and one looks to the Society of Medical Officers of Health for a lead in this direction.

May I, to close, sum up and submit to you in condensed form the points I have tried to make:—

1. Tuberculosis infection is much more widely

distributed throughout the community than is commonly realised.

2. The infection is commonly contracted in the early years of life, and is, to begin with, confined to the lymphatic system.

3. In rural areas, and amongst primitive peoples, direct ærogenous pulmonary infection, followed by acute or sub-acute disease, is still of frequent occurrence.

4. In civilised communities, established tuberculosis in adults is very frequently merely a late stage in a chronic tuberculosis infection which has existed from ten to thirty years, or even longer.

5. In many individuals the infection remains latent, and does not cause obvious disease.

6. In others, although disease is established, it is of a mild nature, is concealed or disguised by secondary developments, and it is not recognised as essentially tuberculous in character.

7. We cannot eradicate tuberculosis while we confine our efforts to the obviously tuberculous and their contacts.

8. The function of rate-supported sanatoria is primarily preventative and educational, secondarily the treatment of cases.

9. Sanatorium teaching should not be confined to the tuberculous, but should be available for the members of the medical teaching, and ancillary professions, and possibly for Ministers of religion. Through them it would reach the general public and the schools.

10. Full use should be made of the School Medical Service.

11. Lastly, as up to the present sanatorium treatment and the "sanatorium life" have proved to be the best prophylaxis, as well as the best treatment of tuberculosis, we should adopt as our working principle, until a better is discovered, the motto, "Every Home a Sanatorium."

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3. Halliday Sutherland. "Pulmonary Tuberculosis," pp. 26, *et seq.*

4. Norris and Landis. "Diseases of the Chest," 1918, pp. 529-261.
5. Pottenger. "Clinical Tuberculosis," 1917. Vol. 2, pp. 503-521.
6. A Calmette. *Loco cit.*
7. Leonard Hill. "Chesterfield Address," Oct. 7th, 1920.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.

COUNCIL MEETING.

A meeting of the Council was held at the house of the Society on Friday, September 22nd, 1922. The President (Dr. W. J. Howarth) was in the chair, and there were present: Lt.-Col. Herbert Jones, Drs. Snell, Charles Porter, Gibbons Ward, Duncan Forbes, P. Caldwell Smith, Blackett, McMaster, Woolsey Stocks, Peyton, and Pedley.

Messages of apology for absence were received from Prof. H. R. Kenwood, Drs. G. F. Buchan, A. K. Chalmers, T. Eustace Hill, Thos. Evans, J. T. C. Nash, G. A. Auden, Wheatley, J. J. Buchan, R. A. Lyster, G. H. Pearce, T. W. N. Barlow, Prof. H. Kerr, and Lt.-Col. F. E. Fremantle, M.P.

Correspondence.—(1) From the Ministry of Health and the Ministry of Agriculture, inviting the Society to nominate a representative to serve on the British Committee of the World's Dairy Congress, to be held in the United States, in October, 1923. *Resolved* that Dr. T. Eustace Hill, President-elect, be nominated to this Committee.

(2) From the Ministry of Health.

MINISTRY OF HEALTH,
WHITEHALL, S.W.1.
11th September, 1922.
CIRCULAR 325.

SIR,

I am directed by the Minister of Health to refer to the report and resolution adopted by the Society of Medical Officers of Health in regard to the above Circular, a copy of which was forwarded with your letter of the 12th ultimo.

It appears to the Minister that the report in question is based to some extent upon a misconception of the precise purport and scope of the Circular. I am to point out that the advice given in the Circular is limited to those cases in which a milk vendor has held a good record for a number of years and in which, during that period, constant tests of his milk have given uniformly satisfactory results. It is only in such cases that the Circular deprecates the

institution of a prosecution based upon the results of an isolated test.

I am, Sir,
Your obedient Servant,
H. A. DE MONTMORENCY.

The Secretary,
The Society of
Medical Officers of Health.

(3) From the National Milk Conference, asking that members of the Society should make early application for seats at the Guildhall Conference, on October 16th, and two following days. *Resolved* that the President, Prof. John Robertson, Dr. R. Veitch Clark, Col. Caldwell Smith, and Dr. A. B. McMaster, be asked to attend as official representatives of the Society.

(4) From the British Medical Association, inviting the Society to nominate a representative to serve on their Insurance Acts Committee for the session 1922-23. *Resolved* that Dr. W. J. Howarth be re-elected to this Committee.

(5) From the Central Association for Mental Welfare, inviting the Society to elect a representative to their Council. *Resolved* that the School Medical Group be asked to submit a nomination.

(6) From the Bread and Food Reform League, asking the Society to support certain amendments proposed for the Sale of Bread Bill. *Resolved* that this communication be referred to the Food Committee for consideration and report.

(7) From the Manufacturing Confectioners' Alliance, referring to propaganda in connection with dental caries. *Resolved* that the Executive Secretary should send a suitable reply.

(8) From the North Wales Branch of the British Medical Association, forwarding resolutions in favour of public abattoirs, and the use of Humane Killers. *Resolved* that the Branch be thanked for resolutions which were in accord with the approved policy of the Society.

(9) From the Nestlé Condensed Milk Co., asking the Society to support the movement in favour of a standard for Condensed Milk. *Resolved* that the letter be referred to the Foods Committee for consideration and report.

The Grading of Milk.—Members drew attention to draft proposals in regard to the grading of milk to take effect on and after January 1st, 1923. It was suggested that these draft proposals had been forwarded by the Ministry of Health to various milk trade organisations and other bodies, and had been published in the milk trade journals. *Resolved* that the Executive Secretary should

enquire of the Ministry of Health if the representative bodies of the medical profession would have an opportunity of discussing proposals of such definite interest to those concerned with the health of the community.

Propaganda in regard to Dental Caries.—The leaflet submitted by the Special Committee, appointed to report on this matter, was again discussed. In view of the absence of the chairman of the Committee (Dr. James Wheatley), it was decided to refer back the leaflet for consideration of various suggestions that have been made for its amendment.

Dr. James Wheatley.—The Executive Secretary was directed to convey to Dr. Wheatley, the sincere sympathy of the Council on his misfortune in having to undergo a serious operation, and wishing him a speedy and complete recovery.

The President's Gift to the Society.—Dr. W. J. Howarth asked, as this was the last meeting of the Council for 1921-22, to be allowed to hand over a gift in commemoration of his year of office as President of the Society. The presentation took the form of six silver goblets of choice workmanship, for the use of the officers at the dinners of the Society, suitably inscribed. Dr. Howarth expressed the hope that his gift would long remain to remind his successors of the pleasure he had enjoyed in presiding over the meetings of the Society. Col. Herbert Jones and Dr. R. Veitch Clark expressed the cordial thanks of their fellow members for a munificent gift that would perpetuate the memory of a very successful year in the history of the Society.

Annual Report of the Council.—The following report of the Council for the Session 1921-22 was adopted for submission to the Annual Meeting of the Society.

REPORT OF THE COUNCIL.

SESSION 1921-22.

Your Council report:—

(1) That the progress of the Society has been well maintained during the Session 1921-22. Two hundred and thirty candidates have been elected as Members and Associates, but twelve Fellows and two Members have been lost by death, and forty-eight Fellows, Members, and Associates have resigned. The nett increase on the Roll of Members at the opening of the new Session will be 170. Your Council desire to point out that there are still many members of the Public Health Service outside the Society, who, in the interests

of themselves and their colleagues, should be urged to offer themselves for election.

(2) that the following papers were read at meetings of the Society:

Prof. E.L. Collis: "Tuberculosis—Infection, Immunisation, Sensitisation."

Surg. Rear-Admiral Sir P.W. Bassett-Smith, K.C.B., C.M.G.: "The Development of Hygiene, Pathology and Bacteriology in the Naval Medical Service."

Prof. Benjamin Moore, F.R.S.: "Occupation and Tuberculosis."

Prof. Sir F. W. Andrewes, O.B.E., F.R.S.: "A Review of the present position of laboratory diagnosis in Diphtheria."

Dr. W. Mc C. Wanklyn: "A Review of the present position of Smallpox and Vaccination as affecting this Country."

Prof. Harold Kerr, O.B.E.: "The proposed revision of the Rules of the General Medical Council for Diplomas and Degrees in Public Health."

Dr. C. M. Wilson, M.C.: "The position of Poor-law Infirmarys in future medical developments."

(3) that the Annual Provincial Meeting of the Society was held at the Chine Hotel, Boscombe, on July 27th, when members and their friends were hospitably entertained by the President and Mrs. Howarth;

(4) that nine meetings of the Council have been held during the Session. Committees of the Council have met on twenty-three occasions. The proceedings of the Council have been fully recorded in "Public Health," and have covered matters involving the interests of every branch of the Public Health Service;

(5) that they have had official communications with the Ministry of Health, the Board of Education, the Ministry of Agriculture and Fisheries, the Home Office, the Board of Inland Revenue, and other Government Departments on numerous matters affecting Public Health Administration and Officials;

(6) that they have been in communication with a number of representative bodies concerning matters affecting public health administration, and the Public Health Service, including the General Medical Council, the British Medical Association, the British Dental Association, the Royal Sanitary Institute, the Royal Institute of British Architects, the National Association of Local Government Officers, the Association of Municipal Corporations, the Institute of Municipal and County Engineers, the British Dairy Farmers' Association the National Union of Teachers, the National

Association for the Prevention of Infant Mortality, the College of Nursing, the Central Midwives Board, the Sanitary Inspectors' Association, the Women Sanitary Inspectors' Association, and the Fever Nurses' Association;

(7) that the Special Committee on the Remuneration of Medical Officers of Local Authorities have held six meetings. Throughout the session there has been much correspondence, on lines indicated by this committee, with the Ministry of Health and Local Authorities in reference to pending appointments, bonus awards, security of tenure, compensation for loss of office, superannuation, increase of duties without extra remuneration, inclusion of office and travelling expenses in salary and other matters affecting the conditions and terms of public health appointments. Deputations from the Committee also attended at the Offices of the British Medical Association, at conferences with representatives of the Manchester City, Monmouthshire County, and Southampton Borough Councils, and at a divisional meeting of the B.M.A. at West Hartlepool;

(8) that other Special Committees have reported to the Council on the Duties and Training of Health Visitors, on the Regulations for Diplomas in Public Health, on Food Problems in relation to Public Health, and on Propaganda for the Prevention of Dental Caries;

(9) that representatives of the Society and the British Medical Association, after a series of conferences, have submitted to their respective councils a scheme for closer co-operation between the two bodies, subject to agreement regarding a scale of salaries for the whole Public Health Service.

(10) that representatives of the Society have been nominated to the Central Midwives Board, and to Committees of the British Medical Association, the National Association of Local Government Officers and numerous other bodies dealing with matters affecting Public Health administration;

(11) that after negotiations with the Association of Medical Officers of Fever Hospitals, that body has decided to form a Group for the Fever Hospital Medical Service within the Society. The members of the Association are being elected to the Society and the Group, is now in working;

(12) that Prof. H. R. Kenwood has generously presented Notice Boards for the use of the Groups, the formation of which was sanctioned during his second term of office as President of the Society;

(13) that the annual exchange of officers involves the retirement from the Council of Lt.-Col. P. Caldwell Smith, C.B.E.; Dr. Charles Sanders;

Dr. Duncan Forbes, M.B.E.; Dr. D. C. Kirkhope, Dr. J. F. Blackett; Dr. J. J. Buchan; and Dr. G. A. Auden; all of whom have rendered loyal services to the Society;

(14) that the thanks of the Society are due to Dr. W. J. Howarth, C.B.E., for the great energy and ability he has devoted to the affairs of the Society during his year of office as President, and for his munificent gift of six silver goblets to be used by the officers at the dinners of the Society.

(15) that the unabated interest of the Executive Secretary in the affairs of the Society and his unremitting labours in its behalf are fully appreciated by the Council, and are undoubtedly largely responsible for the great increase in membership since his appointment in 1918.

The Council then adjourned.

BRANCH AND GROUP ELECTIONS: SESSION 1922-23.

METROPOLITAN BRANCH.

President ...	Dr. W. H. Hamer.
Vice-Presidents ...	Dr. W. M. Willoughby.
	Dr. R. King Brown.
Hon. Treasurer ...	Dr. T. S. Higgins.
Hon. Secretary ...	Dr. C. Porter.
Representatives on	
Council of Society	Dr. H. R. Kenwood.
	Dr. T. S. Higgins.
	Dr. C. Porter.

SCOTISH BRANCH.

President ...	Dr. J. Maxwell Ross,
	M.B.E.
Vice-Presidents ...	Prof. Matthew Hay.
	Dr. A. Robb.
Hon. Secretary and	
Treasurer ...	Dr. T. Adam.
Representatives on	
Council of Society	Dr. A. K. Chalmers.
	Dr. T. Adam.

MIDLAND BRANCH.

President ...	Dr. H. Gibbons Ward.
President-Elect ...	Dr. A. Hamilton Wood.
Vice-Presidents ...	Dr. Bostock Hill, Dr. G.
	Reid, Dr. J. Robertson,
	Dr. Ridley Bailey, Dr.
	E. H. Snell.
Hon. Treasurer ...	Dr. Ridley Bailey.
Hon. Secretary ...	Dr. R. H. H. Jolly.
Hon. Auditor ...	Dr. W. H. Davison.
Representatives on	
Council of Society	Dr. E. H. Snell.
	Dr. R. H. H. Jolly.
	Dr. H. Gibbons Ward.

NORTHERN BRANCH.

President ... Dr. Thomas Horne.
 Hon. Secretary and
 Treasurer... Dr. Harold Kerr.
 Representatives on
 Council of Society Dr. Horne.
 Dr. Harold Kerr.

NORTH-WESTERN BRANCH.

President ... Dr. E. W. Rees-Jones.
 Hon. Treasurer ... Dr. H. H. I. Hitchon.
 Hon. Secretary ... Dr. G. W. N. Joseph.
 Representatives on
 Council of Society Dr. T. W. N. Barlow.
 Dr. G. W. N. Joseph.
 Dr. James Wheatley.
 Dr. E. W. Rees-Jones.

WEST OF ENGLAND BRANCH.

President ... Surg.-Captain O. W. Andrews, C.B.E., R.N.
 Vice-President ... Dr. G. Adkins.
 Secretary ... Dr. P. H. Stirk.
 Assistant Secretary Dr. B. A. Peters.
 Treasurer ... Dr. J. F. Blackett.
 Representative on
 Council of Society Dr. P. H. Stirk.

SOUTHERN BRANCH.

President ... Dr. A. M. Moore.
 Hon. Secretary ... Dr. W. J. Hart.
 Representative on
 Council of Society Dr. R. H. Wilshaw.

WELSH BRANCH.

President ... Dr. C. E. Humphreys.
 Hon. Secretary and
 Treasurer... Dr. Thos. Evans.
 Representative on
 Council of Society Dr. Thos. Evans.

HOME COUNTIES BRANCH.

President ... Dr. A. B. McMaster.
 Hon. Treasurer ... Dr. J. Scott Tew.
 Hon. Secretary ... Dr. R. J. Ewart.

Representatives on

Council of Society Dr. Joseph Cates.
 Dr. R. Veitch Clark.
 Dr. A. B. McMaster.
 Dr. R. J. Ewart.

YORKSHIRE BRANCH.

President ... Dr. Joseph Buck.
 Hon. Secretary and
 Treasurer ... Dr. Bertram Hill.
 Representatives on
 Council of Society Dr. G. H. Pearce.
 Dr. Bertram Hill.

EASTERN BRANCH.

President ... Dr. T. L. Lack.
 Vice-President ... Dr. B. D. Z. Wright.
 Hon. Secretary and
 Treasurer... Dr. J. T. C. Nash.
 Auditor ... Dr. H. Cooper Patten.
 Representative on
 Council of Society Dr. J. T. C. Nash.

TUBERCULOSIS GROUP.

President ... Prof. E. L. Collis.
 Chairman of Com-
 mittee ... Dr. T. H. Peyton.
 Vice-Chairman ... Dr. F. G. Caley.
 Hon. Secretary ... Dr. H. A. Ellis.
 Hon. Librarian ... Dr. J. Sorley.
 Representative on
 Council of Society Dr. T. H. Peyton.

NAVY, ARMY AND R.A.F. HYGIENE GROUP.

President ... Maj.-General Sir William Macpherson, K.C.M.G., C.B., A.M.S. (Ret.).
 Hon. Secretary ... Capt. J. Hutchinson Wood, M.C.
 Representative on
 Council of Society Col. H. W. Grattan, C.B.E., D.S.O.

SCHOOL MEDICAL GROUP.

President ... Dr. C. J. Thomas.
 Hon. Secretary and
 Treasurer ... Dr. A. Ashkenny.
 Representative on
 Council of Society Dr. C. J. Thomas.

NON-COUNTY M.O.H. GROUP.

Chairman ... Dr. Herbert Jones.
 Hon. Secretary ... Dr. J. M. Clements.
 Representative on
 Council of Society Dr. J. M. Clements.

MATERNITY AND CHILD WELFARE GROUP.

President ... Dr. Harold Waller.
 Vice-Presidents ... Dr. A. B. McMaster.
 Dr. H. Scurfield.
 Dr. Helen Robertson.
 Hon. Treasurer ... Dr. Flora Shepherd.
 Hon. Secretary ... Dr. R. W. Stocks.
 Representative on
 Council of Society Dr. R. W. Stocks.

FEVER HOSPITAL MEDICAL SERVICE GROUP.

President ... Dr. E. W. Goodall, O.B.E.
 Hon. Secretary ... Dr. A. F. Cameron.
 Representative on
 Council of Society Dr. F. H. Thomson.

DENTAL OFFICERS' GROUP.

President ... Mr. A. E. Baker, M.R.C.S., L.D.S.
 Hon. Treasurer ... Mr. R. H. Cumine, L.D.S.
 Hon. Secretary ... Mr. Grantley Smith, H.D.D., L.D.S.
 Representative on
 Council of Society Mr. R. Denison Pedley, F.R.C.S.Ed., L.D.S.

MATERNITY AND CHILD WELFARE GROUP.

The meetings of the Maternity and Child Welfare Group, during the Session 1922-23, will be held at the house of the Society, at 5.30 p.m., on the following Thursdays:—Nov. 16th, Jan. 18th, March 15th, and May 10th. Dr. H. K. Waller will deliver his presidential address at the November meeting.

The programme for the session will be forwarded to all members of the Group as soon as possible.

HOUSING IN SCOTLAND.

The Scottish Board of Health issued on Aug. 18th a circular informing Local Authorities that the Government had decided to make a grant of £30,000 per annum in aid of expenditure incurred in respect of improvements in unsanitary areas. This grant is additional to the existing scheme under which the liability of Local Authorities is limited to the annual produce of a rate of four-fifths of a penny in the pound.

The amount of the grant appears somewhat ludicrous in view of the unsatisfactory condition of so many of the towns as regards housing, but it represents a very satisfactory beginning of a right principle and it is hoped that it will prove to be an incentive to those councils who have ignored the situation for so long.

In his annual report Dr. Chalmers, Medical Officer of Health for Glasgow, refers to the fact that sixty-six per cent of the city's population are living in one-apartment and two-apartment houses, mostly in congested districts. In one division alone, central division, 11,088 cases of overcrowding were dealt with last year, of which 562 related to one-apartment houses. In no less than 4,476 cases consumptive patients slept with other persons, while an additional 3,626 patients slept in the same room with other members of the family in separate beds.

HEYWOOD M.O.H.

The Heywood Town Council recently decided to reduce the salaries of their officials by ten per cent., but the Ministry of Health does not approve the proposal so far as it affects the Medical Officer of Health, and the Council have decided not to reduce the medical officer's salary.

THE SCHICK TEST.

The Ministry of Health have issued a memorandum on the question of diphtheria, first with reference to the supply and administration of diphtheria anti-toxin, and secondly with regard to the use of the "Schick" test for diphtheria. The memorandum states that the early administration of anti-toxin not only reduces the mortality from the disease, but causes the disease to run a milder and shorter course, while, by lessening the period of the patient's infection to others, it thus reduces the occupation of the isolation hospitals. The memorandum adds that these facts cannot be too strongly emphasised. It also gives some interesting results of experiments with the "Schick" test which go to prove the efficiency of this method. The ministry's memorandum is published at a particularly opportune time, in view of the fact that the diphtheria season is now approaching.

THE MILK ACT.

Criticising the recent Milk Act, a well-known member of the dairy trade stated recently that the Act does nothing to reduce the quantity of tuberculous milk by so much as a single ounce. What it does is to transfer all such milk from one class of user to another—an extraordinary conception for legislation on public health. Bovin tubercle could be definitely eliminated from the milk supply of all large towns within twelve months—and by this Milk Act the Ministry of Health, which is the responsible branch of the Government, refuses to attempt its elimination except for the rich.

The Act utterly stultifies the teaching of eminent medical men and of notable public health officials. The cost of the continued neglect of such teaching will go on being counted in thousands of lives each year—lives which will lie at the doors of countless wire-pullers and log-rollers intent on personal interests.

DR. HOWARTH'S GIFT TO THE SOCIETY.

Below we reproduce an illustration of the gift bestowed upon the Society by Dr. W. J. Howarth, C.B.E., in commemoration of his year of office as President. The gift consists of six silver goblets made by Messrs. Alstons and Hallam, goldsmiths, of 69, Cornhill, E.C. The goblets are hand wrought and hammered throughout, each being beaten up from one flat sheet of silver, entirely by hand. They are exact

replicas of a set in the Lord Mayoral collection of plate at the Mansion House. The President's goblet is fire gilt, those for the other officials being plain silver. Each goblet bears in elegant lettering the following inscription:—

The Gift of
W. J. HOWARTH, M.D., C.B.E.,
to the Society of Medical Officers of Health, in his
Presidential Year,
1921—1922.

The goblets will be used for the first time at the annual dinner of the Society on October 20th.



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Editorial.

THE DANGER OF AN UNDERPAID PUBLIC HEALTH MEDICAL SERVICE.

The third annual report of the Ministry of Health for 1921-2 states that the total cost of medical benefit for the insured for the year 1921 was for England about £8,250,000 of which about £6,885,000 was paid to doctors. The total insured population entitled to treatment was about 12,500,000. For 1921 the remuneration was calculated on a capitation fee of 11s., but from January 1st, 1922, for a period of two years it will be calculated on a capitation fee of 9s. 6d.

The regulations of the Ministry of Health as to medical benefit permit a doctor to have a panel of three thousand patients with private practice in addition. It will therefore be seen that in the view of the Ministry of Health a panel of three thousand does not occupy the full time of a medical practitioner and this is also the general experience. In fact we have heard it stated definitely by experienced practitioners that such a panel involves only "half time." Our object however is not to overstate the case, and it is therefore assumed that a panel of three thousand patients occupies the full time of a medical practitioner. On this basis it will be seen that the rate of pay for full time panel medical service equalled £1,652 per annum for the year 1921 and on a proportionate basis from the 1st January, 1922, for two years £1,427 per annum. If twenty-five per cent of this latter sum is deducted for expenses it will be seen that on the modest assumption that three thousand panel patients occupy the full time of a doctor the panel doctor will be paid at the net rate of £1,071 per annum for whole time service as from 1st January, 1922. The average rate of pay for real full-time employment in the public health medical service

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is at present not more than £650 per annum, including in many instances a falling bonus. If the medical profession is willing to allow public authorities to purchase whole-time medical services at this price, then, on this basis, the Minister of Health could effect great economies in medical benefit in the future. In January, 1924, he could reduce the fee payable to medical men to six shillings per head, and even at this rate the panel practitioner would be paid on a more generous scale than the highly qualified medical men in the public health service having regard to the low figure of three thousand insured persons which are assumed to occupy the full time of a medical practitioner. A reduction to this figure per head would represent an annual saving of over £2,000,000.

The facts which we have stated are fraught with grave danger to the panel practitioner, whose remuneration in our opinion has already been reduced to a minimum. It is our view that there must be a reasonably close relationship between the full-time rates in all branches of medicine if the medical profession is to stand together and if poor pay in one branch is not to be used as an argument for a still further reduction in the rate of remuneration of another. The Society of Medical Officers of Health has for a long time been endeavouring to raise the rate of full-time pay of medical officers of local authorities to an approximate average at the present time of £980 per annum, including a falling bonus calculated on the current cost of living index figure of eighty. It seems to us that unless this scale is adopted immediately by the medical profession generally the arguments which may be used when the capitation fee of panel practitioners comes up for revision will be difficult to weigh against the facts of the actual pay in the public health medical service. We have always been concerned for the medical profession as a whole and we are hopeful that the great discrepancy in the rates of pay of panel medical practice and the public health medical service will soon be remedied. We desire especially to draw the attention of the profession to the aggressive attitude of the approved societies in their expressed desire to be a party to future negotiations in respect of the capitation fee, and we believe this attitude has been adopted not with the intention of giving the panel practitioner more but rather less than he now receives, and we further desire to sound a loud note of warning that the rate of pay in the public health medical service, where

men are required generally to possess greater qualifications than those required in ordinary practice, provides an irresistible argument in favour of the reduction of panel fees.

THE COMBINED UNIVERSITIES ELECTION.

Every Medical Officer of Health will learn with interest the fact that Dr. Sidney C. Lawrence, formerly M.O.H. for Edmonton, and Secretary for many years to the Home Counties Branch of the M.O.H. Society, and Member of the Council, is a Parliamentary Candidate in the coming election, and is contesting the Combined English Universities. We have no doubt that Dr. Lawrence's excellent record as a Medical Officer of Health and as a prominent member of the M.O.H. Society, will induce Medical Officers of Health who happen to be graduates of the Universities of Durham, Manchester, Liverpool, Birmingham, Leeds, Bristol, or Sheffield, whatever political sect it may be to which they belong, to record their votes without hesitation in his favour.

HEALTH INSURANCE DENTISTRY.

Dental treatment will soon be one of the benefits available to the working classes under the National Health Insurance Act, and at the annual Conference of the Incorporated Dental Society a scheme, fixing a standard fee, which has already been approved by the Ministry of Health, was accepted by a very large majority. This agreement places the Dental Society in unison with the British Dental Association, and it only remains for approved societies under the Act to complete their arrangements for putting the scheme into operation. Over 150 approved societies have already agreed to use their large surplus funds to bring dental benefits within reach of their members.

The committee appointed to investigate the expenditure of Hull corporation after interviewing the Medical Officer of Health (Dr. Wright Mason), "who has rendered great service to the city during the past 41 years," have reported that the time has arrived when a younger man should be appointed to deal with the numerous and rapidly increasing duties connected with the post, and they recommend that Dr. Mason's services be retained in an advisory capacity at an inclusive salary of £500 per annum.

Presidential Address.

THE PUBLIC HEALTH: SOME POINTS AS TO ITS PROGRESS AND HINDRANCES.

BY

T. EUSTACE HILL, O.B.E., D.Hy., M.B., B.Sc., President of the Society of Medical Officers of Health; Medical Officer of Health for the County of Durham; a Member of the Consultative Council on Medical and Allied Services.

In the first place I wish to express my deep appreciation of your action in selecting me to preside over the Society for the next twelve months, an appreciation shared by the members of the Northern Branch, with which I have been closely associated for thirty years. Undoubtedly the position of President must rightly be considered the highest and most important honour which can be conferred on a Medical Officer of Health by his colleagues in the Public Health Service. It is a position which in the nature of things only a few of the many eminent members of the service can occupy, and year by year, owing to the development of the Societies' activities and responsibilities and the rapid advances of Preventive Medicine, it becomes more important that your President should possess, in addition to necessary personal qualities, a wide experience in matters affecting the whole medical profession, as well as in those scientific, public and social policies which have a bearing on the welfare of the community. Domiciled as I have been for more than thirty years in the north of England and far removed from this great metropolis, I fully realize how difficult it will be for me to follow successfully under any circumstances our retiring President and his immediate predecessors, who have all been associated for many years with the public life of the greatest city of the world; but in addition circumstances have prevented me from taking an active part in the detailed work of the Society, a knowledge of which is so essential to one who is to preside over its proceedings. I shall strive my utmost to uphold the dignity and traditions of the office, and realizing my shortcomings shall not hesitate to take advantage of the wider experience, in many matters, of the wise counsellors I shall have around me.

One of my first difficulties has been the selection of a suitable subject for my address to you to-day. There are now so many specialist branches of public medicine and so many organizations dealing with health subjects, whose proceedings at meetings and conferences are published freely, that it is very difficult in a short address to a

meeting representative of all branches of Public Health to introduce any new subject or to avoid reference to matters with which most of you are fully acquainted, especially as the Great War and the economic conditions resulting therefrom have with a few exceptions very materially curtailed active progress in schemes which have for their object the welfare of our people. Moreover, in the lucid and comprehensive reports of the Chief Medical Officer of the Ministry of Health on "The State of the Public Health," the objects and future of Preventive Medicine are so ably summarized from all points of view that it seems to me there is little new to add. If only these reports were more widely read and the sound advice acted upon not only by workers in the domain of Public Health and the medical profession generally, but also by the general public, the greatest benefit would undoubtedly follow.

Ten years ago Professor E. W. Hope in his Presidential address to this Society expressed the view that the phenomenal results of sanitary administration in this country deserve a very much closer public attention than they receive, and I think all of you will agree that Professor Hope's statement applies with even greater force to-day, when the necessity for economy is prompting many local authorities to lessen expenditure on essential public services and, among other things, to reduce the already grossly inadequate salaries of their public health officers. All of us are fully agreed that all money used in the public services should be wisely spent and that we should not advise expenditure, nor our authorities act on our recommendations, unless it is practically certain that there will be a good return for our money in reduced mortality and improved health. But as Sir George Newman says, "if the nation desires to secure a high measure of public health it is obvious that we must pay for it"; and again he says, "public expenditure on public health . . . is like a long term investment. It yields its interest with absolute certainty, a thousand-fold, but only in the course of years, and sometimes only in the course of generations." But, unfortunately, many local authorities are unable or unwilling to take this long view of the result of wise expenditure on health services, and there are those who think that in some respects the Government by their own actions have given encouragement to this short-sighted policy. My experience is that the majority of the members of local bodies do not appreciate the improvement in the public health which has resulted from our sanitary administration; they do not understand vital

TABLE "A."
Total Death Rate, Infant Mortality Rate, and Death Rate from Tuberculosis, Enteric Fever, and Diarrhoeal Diseases during the Quinquennial Periods 1881-1920, and during 1921.

	1881-1885.	1886-1890.	1891-1895.	1896-1900.	1901-1905.	1906-1910.	1911-1915.	1916-1920.	1921.
General Death Rate, all causes, per 1,000 population	19.4	18.9	18.7	17.7	16.0	14.7	13.8	13.9	12.1
Tuberculosis, all forms, per 1,000 population	—	—	19.0	18.0	17.8	16.4	15.5	14.3	12.9
Enteric Fever Death Rate, per 1,000 population	2.54	2.32	2.12	1.91	1.74	1.57	1.41	1.45	1.13
Diarrhoeal Diseases, per 1,000 population	—	—	—	2.12*	1.95	1.62	1.39	1.36	1.25
Infantile Mortality, per 1,000 births	0.22	0.18	0.17	0.17	0.11	0.07	0.04	.002	.016
	—	—	0.37	0.23	0.17	0.14	0.09	0.03	.015
	—	—	0.64	0.81	0.65	0.45	0.54	0.25	0.45
	—	—	0.79	0.75	0.66	0.95	0.91	0.39	0.61
	139	145	151	156	138	117	110	90	83
	—	—	163	167	159	139	134	113	109

*1898-1900.
If the death rate which obtained in 1891-5 had continued during 1916-20 over 900,000 more deaths would have occurred in England and Wales, than actually died, or 181,000 yearly.

If the infant mortality rate during 1891-5 had continued during 1916-20, over 225,000 more infants would have died in England and Wales than actually did, or over 45,000 annually.

TABLE "B."
Average Rate of Mortality under One Year per 1,000 Births in England and Wales, and in the Administrative County of Durham during certain specified groups of years.

CAUSE OF DEATH.	1891-1900		1901-1905		1899-1903		1906-1910		1911-1915		1916-1920	
	England & Wales.	Durham County.	England & Wales.	Durham County.	England & Wales.	Durham County.	England & Wales.	Durham County.	England & Wales.	Durham County.	England & Wales.	Durham County.
All Causes	153.3	163.8	137.8	164.2	116.9	134.7	109.6	135.4	89.9	115.1	89.9	115.1
Diarrhoea, Dysentery, Enteritis	27.0	28.4*	25.4	29.1*	18.4	20.9	19.2	22.9	9.3	11.6	9.3	11.6
Tubercular Diseases	7.9	8.7	5.9	9.1	4.4	5.5	3.1	3.9	2.0	1.9	2.0	1.9
Meningitis, Convulsions, Diphtheria	20.8	23.8	16.6	22.5	12.3	14.9	10.3	12.5	7.9	10.9	7.9	10.9
Bronchitis, Laryngitis & Pneumonia	26.4	25.8	23.1	25.8	20.0	22.4	19.4	23.5	18.7	24.8	18.7	24.8
Premature Birth	19.0	21.6	20.2	22.6	19.9	23.1	19.7	23.3	19.3	23.7	19.3	23.7
Atelectasis and Debility	21.0	36.3†	17.9	35.2†	14.9	20.7	13.5	19.6	10.4	18.2	10.4	18.2
Scarlet Fever, Diphtheria, Measles, and Whooping Cough	9.9	8.3	8.5	7.8	7.4	7.1	7.4	8.9	5.0	4.9	5.0	4.9
All Other Causes	21.3	10.6	20.0	11.8	19.3	19.9	15.4	20.5	15.7	18.9	15.7	18.9

* Includes Gastritis.

† Includes Wasting Diseases.

statistics and do not realize that a permanent reduction in the death-rate of even 1 per 1,000 population means the saving of many lives and improved health for a still larger number. I think, therefore, that good may result from drawing attention to the opposite table (Table A), the figures of which are well known to most of you, and which is an extension of a table included by Professor Hope in his presidential address. I have included in the table, statistics for the Administrative County of Durham, one of our most populous industrial counties, as in the course of my remarks I desire to put forward one or two deductions from them also. Included in the table are mortality rates for three infective diseases which are known to be very largely due to preventable causes, of which the chief is probably bad environment. The figures are extraordinary and instructive and prove conclusively that the expenditure on the public health services has not only been fully justified, but highly remunerative in terms of lives saved alone, apart from the improvement in the general health of the community and increased vigour of the nation. As regards England and Wales there has been, with the exception of the last quinquennium, a progressive reduction in the general death-rate during each five yearly period of the last forty years, and but for the exceptional mortality from influenza the rate for the five years 1916-20 would have shown a further marked reduction as compared with the previous quinquennium. Since it commenced, which was not till the beginning of this century, the decrease in the infant mortality rate has been even more marked. The statistics for Durham County show a very similar decline, though, unfortunately, especially as regards infant mortality, the rates are on a higher plane. As a matter of public interest it is worth noting that the reduction in the death-rate during the last twenty-five years represents the saving of over 900,000 lives in the last five years alone in England and Wales. In other words, had the death-rate which obtained during the quinquennium 1891-5 continued at the same level during the five years 1916-20, over 900,000 more deaths would have occurred during the latter period. Similarly, if the infant mortality-rate during the quinquennium 1891-95—a rate which it should be noted was considerably exceeded in the same level during the last five years shown in the table, 225,000 more infants would have died, or 45,000 annually. If the figures for 1921 are compared with those for 1891-5, the annual saving of life is considerably greater. Could there be any greater tribute to the services of those who have

devoted themselves to the improvement of the health and the social life of the community, or any greater encouragement for further effort in this direction?

As regards Tuberculosis, this devastating disease has, with the exception of the period 1916-20, shown a marked and progressive decline in prevalence and mortality during the last forty years, and to such an extent that the death-rate for 1921 was considerably less than one-half of that for the period 1881-5. The slight rise in the mortality during the war period has been shown by the statistics of the last three years to have been only temporary and the result of exceptional influences, and it is encouraging to note that there has since been a progressively lower mortality-rate from Tuberculosis than ever before experienced. None the less I fear that in our efforts during the last ten years to grapple with this disease we have put the cart before the horse and have concentrated on its treatment rather than on the causes which produce it. Few who have studied the subject will doubt that the reduction in the prevalence of Tuberculosis, and especially of its pulmonary form, is the result of the betterment of industrial conditions and of a gradual improvement in the education and social life of the community. There is also, I think, a consensus of opinion that if we are to effectively control the disease we must comprehensively deal with the housing problem and ensure that our milk supply does not disseminate its germs. Provided we deal with the environmental conditions which favour tuberculosis, I am satisfied that our schemes of sanatoria, hospitals and dispensaries are on the right lines, and are, in fact, indispensable; but in very many districts, and particularly in an industrial county like Durham, where the housing conditions are bad and the overcrowding of dwellings deplorable, the expenditure incurred in sending tuberculous patients to a sanatorium or hospital, except for the purposes of segregation, is not remunerative, seeing that the patient must in the course of a few months return, in very many instances, to home conditions, which favour a relapse or a recurrence of the disease at an early date. Personally, I hold a strong opinion that if the large expenditure on the provision of sanatoria, etc., had been devoted to improving the housing of the people more permanently, satisfactory results would have accrued. It is very doubtful, however, whether this money spent on tuberculosis schemes would in any case have been utilized for providing better houses, for at the time the housing needs of the country were not generally appreciated; and if the comparative

failure of our recent efforts to control pulmonary tuberculosis has the effect of hastening the solution of our housing problems, the financial outlay might almost be justified on that score alone. It must be admitted that our efforts for the improvement of the public health and for social betterment are very seriously prejudiced by the bad housing conditions which prevail in most districts, and especially in our industrial areas, and though the 200,000 houses built or to be provided under the National Housing Scheme are of the greatest value, they only touch the fringe of the problem. In many districts these houses do not even provide accommodation for the natural increase of the population since the war, and they will have but little effect in reducing the previously existing overcrowding and in diminishing the number of insanitary dwellings. In my own county area, where, according to the census 1911, over 28 per cent. of the dwellings were overcrowded as compared with a percentage of 9.1 for the whole of England and Wales, the overcrowding is much greater and the standard of housing lower than it was before the war, and the houses built or building under the Government Scheme represent only 18 per cent. of the number required to raise the housing conditions to a reasonable level. However necessary it may be to reduce expenditure in other directions, and the need is evident to all thinking persons, it is false economy to delay a moment longer than necessary in dealing with the housing problem in a comprehensive manner. The slum problem of our towns is one quite apart from the proper housing of our rural and industrial populations, but is also of the greatest importance from a health, moral and social standpoint.

One of the most remarkable and satisfactory features of recent vital statistics is the continuous decline in the mortality from enteric fever, and it is not easily explainable. The rate for England and Wales is less than one-tenth of what it was forty years ago, and even in districts where the disease was almost endemic and the mortality high, the reduction in prevalence and mortality has been as marked. At one time water borne epidemics were of frequent occurrence, but during the last twenty or more years there has been very little evidence that our water supplies have been responsible to any great extent for the prevalence of this disease. In such districts as Nottingham City, some of the industrial towns in Lancashire, Middlesbrough and the North of England generally, the persistently high incidence of enteric fever has been largely attributed to the ash privy or pail system of excrement disposal and to bad

sanitary environment, but in almost all these areas the decline in the prevalence of the disease has been so great that its death-rate now approximates that for England and Wales, although this objectionable system of excrement disposal still largely prevails. In the administrative county of Durham, for instance, which for very many years had the invidious distinction of the highest county death-rate in the country, the mortality has fallen from 0.37 per 1,000 population in the quinquennium 1891-95 to 0.03 during the five yearly period 1916-20, and for 1921 the rate fell to 0.015, which is lower than that for England and Wales. During the year 1893 there were 447 deaths from enteric fever in Durham County, while in 1921 with a very much larger population only 15 deaths occurred, and yet the ash privy system is still generally in evidence, and during the war period scavenging was much neglected owing to the depletion of the sanitary staffs of the local authorities. It has been suggested that the reduced prevalence of enteric fever is attributable in part to favourable climatic conditions, but the summer of 1921 was very warm and dry, and yet there was practically no increased prevalence or mortality taking the country as a whole, and in fact in Durham county there was a further marked decline. It may be that the type of the disease is changing and that the virulence of the infecting organism is less, but there is some evidence that in the North of England at any rate, the case mortality has not declined, and the serious water borne epidemic last year at Bolton-upon-Dearne in the West Riding of Yorkshire, does not appear to support this view. I am inclined to attribute the decline in the prevalence of enteric fever during recent years very largely to the better education and habits of the people, as the result of the attention paid to the health of the individual, but it is an interesting subject of study for the epidemiologist.

The death-rate from epidemic diarrhoea, another disease largely attributable to bad sanitary environment, and also to faulty domestic hygiene, has also decreased considerably, since 1900, for England and Wales, though an excessive mortality was maintained from 1906-15 in Durham county; but from 1916-20 the death-rate showed a remarkable reduction as compared with previous quinquennial periods. Admittedly there were no markedly dry warm summers during those years, but I am convinced that this improvement in the diarrhoeal death-rate is very largely the result of the attention given to maternity and infant welfare. Support for this view is obtained from the diarrhoea mortality figures for 1921, a year com-

parable, so far as the great heat and excessive dryness of its summer months are concerned, with that of 1911 when the highest diarrhoeal death-rate was recorded. Yet the diarrhoeal death-rate for England and Wales was only 0.45 per 1,000 in 1921, as compared with 1.29 in 1911, while for the county of Durham the rates were 0.61 and 1.65 respectively. The figures for diarrhoeal deaths in Durham Administrative County during these two years are instructive, viz.—1347 during the third quarter of 1911, and 302 during the corresponding quarter of 1921. There had certainly been no material improvement in the sanitary circumstances of the county between 1911 and 1921, and I have no doubt that this saving of over 1,000 lives among young children was the direct result of our maternity and infant welfare activities which had not commenced in 1911.

I have already referred to the marked diminution throughout England and Wales in the mortality among infants under one year of age, and it is well known that this reduction has been relatively much less during the first three months of life, and especially during the first month, than during the last nine months of the infant's first year. If we take the two quinquennia 1896-1900 and 1916-20 for comparison, we find that during the first three months of life the mortality per 1,000 births fell from 74 to 54, from 34 to 15 between three and six months, and from 48 to 23 between six and twelve months; but when we compare the deaths at each of these age periods with the total deaths occurring under one year we find that the deaths under three months have increased during the later quinquennium from 477 to 595 per 1,000 deaths, while between three and six months they have decreased from 215 to 150 per 1,000 deaths, and between six and twelve months from 308 to 245 or a total of 405 per 1,000 deaths for the last nine months as compared with 595 for the first three months. I have prepared a table (Table B, p. 34) which compares the infant mortality from certain causes in England and Wales and Durham Administrative County, and it will be noted that there has been practically no reduction in the mortality from Premature Birth over a period of thirty years, and that the death-rate from the acute lung diseases shows only a small reduction, these two groups being responsible for an infant mortality rate of 38 per 1,000 births for England and Wales, and 48.5 for Durham during 1916-20. There has been a marked reduction in the mortality from the group of diseases which include "atelectasis and debility," and also from the group "Dentition and Convulsions," but these two groups caused a

mortality during the last quinquennium of 18.2 per 1,000 births for England and Wales, and 29.1 for Durham. The most notable reductions are from diarrhoeal diseases and tuberculosis, though the decrease in the former was chiefly during the last five yearly period.

The next table (C) gives the infant mortality rates in the chief industrial counties during the last twenty-five years, and, in my opinion, is of general interest in showing the influence of maternity and child welfare activities on the mortality, though it is of special interest to me as indicating the evil effect of overcrowding of dwellings which is much more serious in Durham than in any of the other counties with which it is compared, with the possible exception of the mining districts of Northumberland. It will be noted that the reduction in Durham is considerably less than in the other counties in England and Wales.

TABLE "C."

Infant Mortality Rate per 1,000 registered births in the Administrative County of Durham, in certain other Counties and in England and Wales for the decennial periods 1896-1905, 1906-1915, and for the quinquennium 1916-1920.

	1896-1905.	1906-1915.	1916-1920.
Durham	164	136	115
Glamorganshire	167	129	94
Staffordshire	163	123	92
Lancashire	171	131	97
Northumberland	159	122	99
West Riding of Yorkshire...	158	122	100
Derbyshire	141	111	89
Warwickshire	165	109	77
Worcestershire	133	102	75
Essex	138	91	68
England and Wales	147	113	90

The two following tables (D and E) relating to Durham Administrative County are, I think, of statistical interest as showing the infant mortality at different periods during the first years of life from various causes. They indicate clearly that the heaviest mortality is during the first week and during the first three months of life, and that the decline in the infant mortality rate which has taken place is very largely at the period of life 3-12 months. During the first week of life, over 80 per cent. of the deaths are the result of Premature Birth, Atelectasis and Debility, and cannot to any extent be attributed to post natal causes, while in the later months acute lung diseases, dentition and convulsions, atrophy and marasmus, and diarrhoeal diseases still exact a heavy toll, and were responsible for 43 per cent. of the total infant deaths under one year during the last quinquennium. Very many of these later deaths are the result of post natal influences, although

TABLE "D."
Administrative County of Durham.
Infant Mortality Rate at varying Age Periods under One Year per 1,000 Births for the three years 1908-10 and for the quinquennial periods 1911-1915 and 1916-1920.

DISEASE.	Under 1 Week.					0-3 Months.					0-6 Months.					0-9 Months.					Under 1 Year.				
	1908-1910.	1911-1915.	1916-1920.	1908-1910.	1911-1915.	1916-1920.	1908-1910.	1911-1915.	1916-1920.	1908-1910.	1911-1915.	1916-1920.	1908-1910.	1911-1915.	1916-1920.	1908-1910.	1911-1915.	1916-1920.	1908-1910.	1911-1915.	1916-1920.				
	34.0	34.3	32.7	74.2	72.4	67.4	98.4	95.8	86.2	118.3	116.0	101.4	134.7	135.5	115.1	134.7	135.5	115.1	134.7	135.5	115.1				
All Causes ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...				
Scarlet Fever ...	...	...	...	0.02	...	0.02	0.04	0.02	0.02	0.05	0.03	0.04	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1				
Diphtheria ...	...	...	...	0.01	0.05	0.02	0.1	0.1	0.04	0.2	0.2	0.04	0.2	0.3	0.2	0.2	0.3	0.2	0.4	0.3	0.2				
Measles ...	...	...	...	0.02	0.05	0.1	0.2	0.3	0.2	0.8	1.4	0.6	1.9	3.9	1.5	1.9	3.9	1.5	1.9	3.9	1.5				
Whooping Cough ...	...	...	...	1.1	0.8	0.5	2.3	1.9	1.4	3.5	3.1	2.3	4.7	4.6	3.2	4.7	4.6	3.2	4.7	4.6	3.2				
Diarrhoeal Diseases ...	0.1	0.1	0.1	5.2	5.3	2.9	12.3	12.8	7.2	17.5	18.7	9.4	21.0	23.0	11.6	21.0	23.0	11.6	21.0	23.0	11.6				
Gastritis ...	...	0.03	0.03	0.04	0.6	0.8	0.1	1.0	1.2	0.1	1.2	1.4	0.1	1.4	1.6	0.1	1.4	1.6	0.1	1.4	1.6				
Tubercular Diseases ...	0.02	0.01	0.01	0.6	0.5	0.2	2.2	1.6	0.8	3.8	2.8	1.4	5.5	3.9	2.0	5.5	3.9	2.0	5.5	3.9	2.0				
Pneumonia, Bronchitis and Pleurisy ...	0.3	0.1	0.2	6.4	5.8	6.3	11.6	11.5	12.3	17.4	17.5	19.0	22.4	23.6	24.9	22.4	23.6	24.9	22.4	23.6	24.9				
Premature Birth ...	17.4	17.6	17.2	22.9	23.0	23.3	23.1	23.2	23.7	23.1	23.3	23.7	23.1	23.3	23.7	23.1	23.3	23.7	23.1	23.3	23.7				
Meningitis and Convulsions ...	2.1	1.7	1.6	7.2	6.1	5.7	10.3	8.6	7.5	12.9	10.7	9.4	14.9	12.5	10.9	14.9	12.5	10.9	14.9	12.5	10.9				
Wasting Diseases (Atrophy and Marasmus) ...	0.5	0.4	0.3	4.1	3.3	2.2	6.4	5.1	3.4	7.6	6.0	3.9	8.2	6.6	4.1	8.2	6.6	4.1	8.2	6.6	4.1				
Suffocation and Over-laying ...	0.1	0.02	0.03	0.3	0.2	0.1	0.5	0.3	0.1	0.5	0.3	0.1	0.5	0.3	0.1	0.5	0.3	0.1	0.5	0.3	0.1				
Burns and Scalds ...	...	...	...	0.01	...	0.03	0.03	0.03	0.1	0.05	0.05	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.2				
Atelectasis and Debility ...	9.1	9.9	9.0	18.1	17.9	16.4	19.9	19.1	17.6	20.4	19.5	18.0	20.7	19.7	18.2	20.7	19.7	18.2	20.7	19.7	18.2				
Congenital Syphilis ...	0.03	0.1	0.05	0.3	0.5	0.6	0.6	0.6	0.7	0.6	0.7	0.7	0.6	0.7	0.8	0.6	0.7	0.8	0.6	0.7	0.8				
Rickets ...	...	...	0.01	...	0.02	0.03	0.03	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.2				
All other causes ...	4.4	4.4	4.2	7.8	8.1	8.2	8.8	9.5	9.7	9.5	10.4	10.9	10.1	11.2	11.7	10.1	11.2	11.7	10.1	11.2	11.7				

the effects of syphilis must always be borne in mind when considering the causes of infant mortality.

That much of our present infant mortality is preventable is not to be questioned. Much of it is due to faults of environment which must be tackled, and the most serious fault is bad housing, including overcrowding of dwellings; but I do not believe that in also concentrating on the individual we are taking the wrong turning in Public Health, or lessening individual responsibility, and the remarkable decline in our infant death-rate during the last twenty years strongly supports this belief. There is still a great lack of knowledge on the part of the average mother as to the essentials of personal health and domestic hygiene, and to remedy this ignorance it is important that well-educated health visitors trained in social work should get into close touch with the mothers in the home. The welfare centre, the ante-natal clinic, the hospital, the maternity home and the various voluntary agencies are all of great value, but only a comparatively small proportion of our mothers outside the large centres of population can take advantage of them. I entirely agree with the opinion of Sir Arthur Newsholme that "there is little reason to believe that the average ignorance in matters of health of the working class mother is much greater than that of mothers in other classes of society—but the ignorance of the working class mother is dangerous because it is associated with relative social helplessness." To remedy this danger tactful personal help is necessary and we have also to teach the mother (and the father) the art of living. Every social worker knows that whatever the family income of the working classes, much of it is wastefully expended on food owing to the lack of knowledge of food values, and the proper preparation of food; and in the purchase of clothing, furniture and other necessities, money is very often badly laid out. There has undoubtedly already been a considerable improvement on the part of our working mothers in their knowledge of the feeding and management of infants, but comparatively few give sufficient attention to their own health during pregnancy, or make adequate provision for their confinements. To effect an improvement in this direction the establishment of a service of properly trained midwives available to every mother is also of great importance, and although I have no definite figures I am of opinion that both the maternal and infant mortality are favourably influenced in those districts where there is an efficient midwifery service. In the North of England where the infant mortality is relatively high, the

percentage of births attended by certified midwives is very much smaller than in other parts of the country, and although in recent years a considerable number of trained midwives have been appointed in the more populous parts of Durham by the County Council and nursing associations only 30 per cent. of the confinements during the year 1921 were attended by midwives, the greater proportion of the cases coming under the care of the medical attendant or the handy woman. I think few will dispute that the attendance of a trained midwife or maternity nurse is desirable at every confinement even if a doctor is present, as most medical practitioners in our industrial districts have not the time to give that advice, and continuous attention to the mother and child during the lying-in period which is so valuable, and which an efficient midwife can and usually does give. It is interesting to note that of the 24,429 births in Durham Administrative County supervised last year by the health visitors, 2,558 or 10.4 per cent. took place without either a doctor or a midwife being in attendance, and under such circumstances it is not surprising that the maternal and infant mortality are high. We have to educate the prospective mothers as to the importance of good midwifery. At present, in some districts, and particularly in the North of England, many look askance at the trained midwife and her cleaner and more modern methods and continue to rely on the services of the handy woman, and perhaps the doctor, tradition and custom appealing to them more than their own welfare. In some districts, unfortunately, the medical men oppose the introduction of a trained midwife into the district in which they practise, even though there is no certified midwife available, and owing to such action, the development of an adequate midwifery service has been considerably impeded. This difficulty will, I trust, disappear in the near future, as a result of the greater attention likely to be given by the medical profession to preventive medicine.

The inter-dependence of the curative and preventive branches of medicine has received considerable attention during the last few years as well as the relations of the medical practitioner and the public health officer, and came into special prominence on the issue of the first report of the Consultative Council on Medical and Allied Services, a report which came in for considerable criticism by our Society. Whether some of the recommendations in the report, viewed from the public health officers' standpoint, are desirable or not, I think it will be agreed generally that the report has proved valuable in stimulating discussion

on these important matters. In his Presidential address our retiring President dealt with them at some length and it is very gratifying that some of his suggestions are likely to take practical form in the near future, for as a result of joint consideration of the matter by Committees of the British Medical Association and this Society a scheme has been formulated which will tend to remove any differences which existed between the points of view of the medical practitioners and public health officers and to lead to that close co-operation which is so essential for the success of Preventive Medicine. The medical practitioner has not in the past realized the enormous influence he can exercise in the prevention of disease, and we shall all agree with the statement of Dr. Addison that "If Society had had available in some practical form during the last fifty years, the guidance of the medical profession in the prevention of disease, a much larger advance towards national fitness would by now have been made." Up to the present, one of the greatest obstacles has been the lack of proper training in the principles of preventive medicine during the medical curriculum, but this difficulty is likely to be removed as a result of the resolutions adopted by the General

Medical Council, which take effect next year. One of these resolutions is "that throughout the whole period of study the attention of the student should be directed by his teachers to the importance of the Preventive aspect of Medicine," and another states "that instruction should be given in the courses of Forensic Medicine and Public Health, or otherwise, on the duties which devolve upon Practitioners in their relation to the State, and on the generally recognised rules of Medical Ethics," and it is notable that the British Medical Journal in its recent Educational number emphasizes that all the earlier subjects in the medical curriculum and notably Physiology, Pathology, Bacteriology and Therapeutics afford opportunities from the very beginning for instilling into the mind of the student the necessity for his constantly keeping in view, in all the advice and treatment he may give throughout his life, the primary importance of promoting the general health of those who entrust themselves to his care and of preventing trivial ailments from developing into definite disease. Moreover, the new and more stringent regulations for degrees and diplomas in Public Health will have the effect of increasing the standard of education and experience of new

TABLE "E."

Administrative County of Durham.

Percentage of Deaths of Children at Various Age Periods to Total Deaths at All Ages for the years 1908-1910 and for the quinquennial periods 1911-1915 and 1916-1920.

DISEASES.	Under 1 Week.			0-3 Months.			0-6 Months.			0-9 Months.		
	1908-1910.	1911-1915.	1916-1920.	1908-1910.	1911-1915.	1916-1920.	1908-1910.	1911-1915.	1916-1920.	1908-1910.	1911-1915.	1916-1920.
ALL CAUSES	7.5	6.7	5.9	16.4	14.2	12.2	21.8	18.8	15.6	26.2	22.8	18.3
Scarlet Fever	—	—	—	.00	—	.00	.00	.00	.00	.01	.00	.01
Diphtheria	—	—	—	.00	.01	.00	.01	.02	.01	.05	.03	.01
Measles	—	—	—	.00	.01	.01	.04	.05	.04	.2	.3	.1
Whooping Cough	—	—	—	.2	.2	.1	.5	.4	.3	.8	.6	.4
Diarrhoeal Dis.	.01	.01	.01	1.1	1.0	.5	2.7	2.5	1.3	3.9	3.7	1.7
Gastritis and Other Digestive Dis.	—	.00	.00	.01	.1	.1	.02	0.2	0.2	.03	.2	.3
Tubercular Dis.	.00	.00	.00	.1	.1	.03	.5	.3	.1	.8	.5	.3
Pneumonia, Bronch. and Pleurisy	.06	.03	.03	1.4	1.1	1.1	2.6	2.2	2.2	3.9	3.4	3.4
Premature Birth	3.9	3.4	3.1	5.1	4.5	4.2	5.1	4.6	4.3	5.1	4.6	4.3
Atelectasis and Debility	2.0	1.9	1.6	4.0	3.5	2.9	4.4	3.7	3.2	4.5	3.8	3.2
Convulsions and Meningitis	.5	.3	.3	1.6	1.2	1.0	2.3	1.7	1.3	2.9	2.1	1.7
Wasting Dis.	.1	.1	.1	.9	.6	.4	1.4	1.0	.6	1.7	1.2	.7
Overlaying and Suffocation	.01	.00	.00	.1	.04	.02	.1	.1	.02	.1	.1	.02
Burns and Scalds	—	—	—	.00	—	.00	.01	.00	.01	.01	.01	.02
Congenital Syphilis	.01	.01	.01	.1	.1	.1	.1	.1	.1	.1	.1	.1
Rickets	—	—	.00	—	.00	.00	.01	.01	.01	.02	.03	.02
All Other Causes	.9	.9	.7	1.7	1.5	1.5	1.9	1.9	1.7	2.1	2.0	2.0

entrants into the Public Health Service, and will encourage the general practitioner to regard them in due course as specialists in their particular work. Some few years must, however, elapse before the improved training in Preventive Medicine can become fully effective in the direction desired, and in the meantime the medical practitioner can in many ways assist to a greater extent than at present his public health colleagues in fighting disease and improving the health of the community.

In expressing the opinion that many medical practitioners do not realise in how many little ways they can assist the public health officer in his health work I wish it to be understood that I am not bringing the point forward in any complaining spirit, but it is a fact, known to all medical officers of health, that their work is often seriously hampered by little acts of omission or neglect on the part of medical practitioners. For example, many medical men, though they can in most districts obtain diphtheria antitoxin free of expense from the Medical Officer of Health, either omit to do so, or if they do utilise it, often apply the remedy when the disease has passed the early stages, with the result that the patient does not benefit. Moreover, some practitioners instead of being guided by clinical symptoms and at once administering the antitoxin if there is a suspicion

of diphtheria, often delay until they obtain bacteriological confirmation, much to the patient's detriment. I am convinced, and have on several occasions expressed the opinion in my reports, that if medical men would at once administer an adequate dose of antitoxin to their patients who have suspicious symptoms of diphtheria, the persistently high mortality from that disease would be reduced to a minimum, and it is satisfactory to note that the Minister of Health in a recent circular has specially drawn attention to this matter. In phthisis as well as diphtheria medical practitioners not infrequently rely for their diagnosis on the results of bacteriological examination rather than on clinical symptoms, and I have known cases where these diseases have been spread because the patient had been informed by the doctor, who had relied on the report of the bacteriologist, that he was not infective, when a careful observance of clinical symptoms should have enabled the doctor to advise necessary precautionary measures against infection.

With regard to the notification of births and of pulmonary tuberculosis, some medical practitioners are notoriously slack, and in consequence the Medical Officer of Health is hampered in his preventive measures. The notification of cases of tuberculosis has never been altogether satisfactory, and there is clear evidence in many districts that the number of notifications are annually

TABLE "E" (continued).

Total Under 1 Year.			1-2 Years.			2-5 Years.			Total Under 2 Years.			Total Under 5 Years.		
1908-1910.	1911-1915.	1916-1920.	1908-1910.	1911-1915.	1916-1920.	1908-1910.	1911-1915.	1916-1920.	1908-1910.	1911-1915.	1916-1920.	1908-1910.	1911-1915.	1916-1920.
29.8	26.6	20.8	7.7	8.1	6.0	5.4	6.2	6.2	37.5	34.8	26.8	43.0	41.0	33.0
.02	.03	.01	.07	.1	.04	.2	.4	.2	.1	.1	.1	.3	.5	.3
.1	.1	.03	.2	.1	.1	.5	.6	.5	.3	.2	.1	.8	.8	.6
.4	.8	.3	.7	1.3	.6	.5	1.0	.5	1.1	2.1	.8	1.7	3.1	1.3
1.0	.9	.6	.7	.5	.4	.4	.4	.3	1.7	1.4	.9	2.1	1.8	1.3
4.6	4.5	2.1	1.1	1.4	.8	.2	.4	.3	5.8	5.9	2.9	6.0	6.2	3.2
.03	.3	.3	.05	.05	.1	.04	.04	.04	.1	.3	.4	.1	.4	.4
1.2	.8	.4	1.0	.8	.4	0.8	.8	.7	2.2	1.4	.8	2.9	2.2	1.5
4.9	4.6	4.5	2.3	2.4	2.3	1.3	1.4	1.9	7.3	7.0	6.7	8.6	8.7	8.5
5.1	4.6	4.3	.01	.00	.00	—	—	.00	5.1	4.6	4.3	5.1	4.6	4.3
4.6	3.8	3.3	.06	.03	.04	.03	.01	.01	4.6	3.9	3.3	4.7	3.9	3.3
3.3	2.5	1.9	.8	.6	.5	.4	.4	.3	4.1	3.0	2.5	4.5	3.4	2.8
1.8	1.3	.7	.21	.2	.1	.05	.04	.04	2.0	1.5	.8	2.1	1.6	1.0
.1	.1	.02	—	—	—	—	—	.01	.1	.1	.02	.1	.1	.02
.02	.02	.03	.1	.1	.03	.1	.2	.2	.1	.1	.1	.2	.3	.3
.1	.1	.1	.01	.01	.01	.00	.00	.01	.1	.2	.2	.1	.2	.2
.04	.05	.03	.05	.07	.1	.3	.05	.05	.05	.1	.1	.1	.2	.1
2.2	2.2	2.1	.3	.4	.5	.6	.6	1.1	2.6	2.6	2.7	3.2	3.2	3.1

decreasing out of all proportion to the decline in the prevalence of the disease.

In respect of the notification and proper treatment of ophthalmia neonatorum, medical practitioners in my experience are often remiss. Prompt notification of this disease, especially when it is of gonorrhoeal origin, is essential in the interests of the patient, especially where hospital treatment is available, but often notification is delayed, efficient treatment is not given, and advantage is not taken of available hospital accommodation until the infants' eyes are sometimes permanently injured. An anomaly in respect of the notifications of cases of ophthalmia neonatorum and also of puerperal sepsis is that although in many administrative counties the County Council is the authority mainly responsible for Maternity and Infant Welfare, the notifications are required to be sent to the district medical officer of health, and not to the County Medical Officer, though the latter does indirectly receive information of cases of these diseases occurring in the practice of midwives. In the interests of efficient administration and of the patients it is important that the notifications should be sent to the Medical Officer of Health of the authority responsible for maternity and infant welfare.

In the promotion of a more efficient midwifery service the medical practitioners can exert a powerful influence and materially assist our efforts to improve the health and lessen the mortality of our mothers and infants. As I have already indicated, the medical practitioners in some districts have rather impeded than encouraged schemes for providing trained midwives, and it is satisfactory to note that in the valuable report of the Medico-Sociological Committee of the British Medical Association on "The Value of Maternity and Child Welfare work in relation to the reduction of Infant Mortality" issued last year—a report which should be carefully studied by every member of our profession, the opinion is expressed that the intention of the Ministry of Health to increase the provision of sufficient and suitable midwives, and to secure the availability of skilled medical attendance when required, deserves the active support of the public and the medical profession; and the report also recommends that "every effort should be made to improve the economic position and prospects of midwives and midwifery nurses; and encouragement should be given to them by local authorities wherever there is difficulty in securing a sufficient supply." It is a reproach to this country that there has been very little decline during the last twenty years in the high maternal mortality, and that the number

of deaths from puerperal sepsis tends to increase.

In the best interests of Public Health it is of great importance that only wise and well considered schemes affecting the welfare of the community should be encouraged, and the profession generally, but particularly our own Branch of it, should discountenance those fads and revolutionary proposals which tend to undermine our accepted moral and social standards. We are all agreed as to the importance of eugenics, and I maintain that we are wisely directing our efforts to that end by the attention we are giving to environment and the education of the individual. But it has been urged by a certain section of the Eugenists that our public health efforts are having the effect of keeping alive the weakly and unfit, and thereby deteriorating the nation's stock, and if this view be correct, then, to take one instance, our Maternity and Infant Welfare schemes are undesirable, and should be scrapped. Fortunately, our vital statistics point to quite a different conclusion, and public opinion, supported by unbiased scientific evidence, has disregarded this extreme view. Disease produced or favoured by insanitary surroundings and neglect of personal health is no respecter of stock, and takes its toll both of the virile and the weakly; and what is of equal importance, its prejudicial influence on the parents leads to the birth of weakly infants. Quite recently at a conference held in London, still more extreme views were advanced and received the support of Eugenists. The proposals included the general use of contraceptives and the sterilization of the unfit, and it was also seriously suggested by more than one responsible speaker that compulsory sterilization might be desirable in respect of parents who produced more children than they could maintain. It was stated in favour of sterilization that legislation authorising voluntary sterilization had been adopted in certain American States, so by parity of reasoning we may expect that other extremists before long will advocate polygamy in this country. It is remarkable that we should have such proposals put forward to-day, when we remember that only a few years ago the high infant death-rate, the low birth-rate, and our war losses were universally accepted as reasons why we should concentrate on maternal and infant welfare. Possibly this more recent activity on the part of the Eugenic extremists was encouraged by a slight temporary rise in the country's birth-rate and by the lack of employment for so many of our work-people; but our birth-rate is unfortunately again falling, and it is inevitable, if the proposals as to birth control are generally adopted, that at no distant date our

population will become stationary or even decline; and after all great wars there has been a more or less prolonged period of trade depression. There is evidence already that unemployment is decreasing and trade improving, and the Government proposals for dealing with our surplus population by emigration to our Colonies, a policy which has now taken practical form and has the support of the Governments of some of our Colonies, is in every way preferable to that of birth control. The one will strengthen and consolidate our Empire, the other will inevitably lead to its decline and gradual disintegration. The advocates of Birth Control appear to disregard the past history of nations, and also the more recent experience of France, where the effects of birth control have been most noticeable, and where the Government is now offering financial inducements to parents to produce children. There is no doubt whatever that a nation's strength is very largely dependent on the growth of its population, and that a restriction of its population must in time be detrimental to its future.

The proper control of mentally defective persons is admittedly desirable, but the proposals as to human sterilization are objectionable from a medical, moral and social standpoint, and I personally wish to dissociate myself from them. I go further than this and say that the suggestions and supporting arguments as to the sterilization of those who produce too many children is an insult to a large population in this country. Such proposals can only do harm to the whole Eugenic cause, and I quite agree with the view expressed in one of our best provincial newspapers that "to put such powers into the hands of a human and fallible agent is unthinkable."

In concluding this somewhat discursive address may I express the view that the future of Preventive Medicine is full of encouragement and that the general situation, both central and local, is steadily improving, in spite of the limitations which are at present, and I believe only temporarily, imposed owing to the country's financial circumstances. The improvement in the health of the people of this country has been remarkable, and when we are feeling despondent at the delay in carrying out our proposals for the advancement of the public health, I suggest that some comfort will be forthcoming if we review the results of our efforts during the last fifty years, and especially during the present century. There is still much need for research into the causes of diseases which are productive of great suffering and mortality; for prevention of disease must be based on an

accurate knowledge of its cause. There is also much suffering and mortality from diseases which we know are preventable and from conditions which are removable. Dr. Fremantle has recently pointed out that the increased expectation of life in this country in consequence of the reduction in the death-rate has a money value of £200,000,000 annually, but he also estimates that sickness and disability at present costs the country £150,000,000 annually, and it is stated that in the United States of America the loss caused by preventable sickness and mortality, based on our present knowledge, exceeds £200,000,000 per annum. These figures are both an encouragement and a reproach and should stimulate not only us public health officers, but also the whole medical profession and the responsible local authorities, to co-ordinated efforts in the interests of Preventive Medicine. Of the faults of environment, defective and insufficient housing is undoubtedly the one most urgently in need of solution, for it militates, *inter alia*, against the complete success of our efforts to promote temperance, to improve the health of our mothers and children, and to prevent tuberculosis and venereal diseases. The proper housing of the people is a national question, and though every encouragement should be given to the private builder to meet the present deficiency, it is certain that in many important districts, owing to local circumstances, private enterprise will, as in the past, fail to solve the difficulty and that some form of financial assistance from the Government will be necessary.

At the same time we must continue our efforts for the education of the individual in the essentials of personal and domestic hygiene by keeping in personal touch with him and his home life, utilising for this purpose to the fullest extent not only the public services, but also the many valuable voluntary agencies.

There can be no doubt but that the sustained advance of Preventive Medicine depends upon a proper relationship between environment (housing, water supply, sewerage, etc.) and the more personal services as exemplified by our schemes in connection with Tuberculosis, Maternity and Child Welfare, School Hygiene and Venereal Diseases.

Mr. Thomas Philips Cole, M.B., Lond., D.P.H., has been appointed Medical Officer of Health for the Bognor urban district. He will retain his appointment as an Assistant School Medical Officer under the West Sussex County Council.

"THE POSITION OF THE DISTRICT NURSE AND MIDWIFE IN RELATION TO PUBLIC HEALTH SERVICES IN RURAL AREAS."

BY

W. A. BULLOUGH, M.B., M.Sc., D.F.H.,
County Medical Officer, Essex.

(1) What do we mean by "Public Health Nursing Services"?

Generally speaking, this is intended to mean (a) school nursing, which includes attendance at school clinics, attendance at the schools with doctors, making home visits; (b) tuberculosis nursing which involves attendance at dispensaries, domiciliary visits, etc., (c) child welfare work, comprising attendance at Maternity and Child Welfare Centres, visiting expectant and nursing mothers and their homes, infant life protection work under the Children Act. In addition, there are special duties such as following up of Measles, Whooping Cough, Ophthalmia Neonatorum, Puerperal Fever, Influenza, etc. Other fevers are, generally speaking, within the province of the Medical Officer of Health and Sanitary Inspector, but a good deal of this work in certain districts is now being done by the Health Visitors who hold the Sanitary Inspector's certificate.

District Nursing and Midwifery are not usually regarded as Public Health Services, but I fail to see why these important classes of service should be so differentiated. A nurse undertaking district nursing work or attending at confinements is doing just as much, if not more, for the Public Health Service as when she is attending school clinics or tuberculosis dispensaries. Public Health Authorities are not able to make grants for ordinary District Nursing work, but they may make grants to midwives whether acting under the ægis of an Association or working on their own responsibility. There is ground for satisfaction in the fact that National Health Insurance Societies are now subsidising district nursing work.

(2) What do we mean by "Rural Areas"?

Generally speaking, we may define a rural area as a locality in which the population is less than 1 per acre. It will be found in most urban districts that this number is greatly exceeded, whereas in rural areas there are generally 2, 3 or more acres per person.

In urban districts it is not claimed that it is altogether desirable to combine the duties previously referred to, but my point is that in rural areas we are forced, by financial considerations and also on

the ground of efficiency, to combine the duties of a nurse.

(3) What is the alternative?

The alternative is a whole-time Health Visiting Service in rural districts in which no part whatever is played by the District Nurse-Midwife. The average population of the area covered by a whole-time Health Visitor in rural districts would be 10,000 or less, and this would generally mean an area of some 30,000 acres. If the Health Visitor lives in the centre of this district she will have some 20 or 30 parishes under her supervision and a radius of about 8 or 9 miles. Under the best of systems she will not be able to visit each parish more than once a fortnight, and in all probability some of the parishes will not be visited once a month. A peripatetic visitation of this sort at such long intervals does not give the Health Visitor an opportunity of getting into close touch with the homes and mothers under her supervision. They look upon her as a "bird of passage," without any definite association with the village life, and, worse still, they look upon her as an official and, therefore, even with the greatest tact and cordiality, she never reaches the hearts of the people. Theoretically, this should not be so, but we are not dealing with inanimate objects but with human beings, and I think it will be found that this is the real state of affairs in most counties. All educationalists, no matter what their sphere of action, know that before any good can be accomplished they must secure a sympathetic hearing from the people whom they are trying to influence. As previously stated, the whole-time Health Visitor is looked upon as an official, not as a friend, whereas the bulk of District Nurse-Midwives, for obvious reasons, are looked upon as guides, philosophers and friends in their areas, and they "mother" the whole district.

Apart altogether from the question of advantages, or disadvantages, of a District Nurse-Midwife taking part in Public Health Services, so called, it is essential to Public Health Authorities that every parish, no matter how small or how isolated, should have a District Nurse and a Midwife available for its inhabitants. When we have assessed the value of Maternity and Child Welfare Centres and the education of mothers in Mothercraft we cannot ignore the tremendous advantage which has been and is being gained by the more efficient attention mothers now receive at confinements from trained nurses and midwives, and it should be our object to provide a District Nurse and Midwife for every mother and her child. In

a rural area a District Nurse-Midwife cannot efficiently cover a larger area than one of three miles radius, which would usually mean a population of between 1,000 and 1,500. She would have from 20 to 30 confinement cases a year and a fluctuating amount of District Nursing work. The present mode of travelling prevents her nursing effectively a wider area, but financial considerations often compel her to do so.

If Midwifery and District Nursing are her sole duties it means that during considerable periods of the year the village nurse has not enough to employ her time profitably, and this is bad economically and bad for the nurse personally. We are, therefore, forced to consider in what other way we can usefully employ the Rural District Nurse-midwife, and the obvious answer is—secure her help in what are now called the Public Health Services, i.e., school nursing, tuberculosis visiting, child welfare work, and so forth.

(4) Objections.

The first objection is that the District Nurse-Midwife is not fully trained, but the answer is that under present conditions we have not enough trained nurses to cover all the parishes in England and Wales, and experience shows that fully-trained nurses are not sufficiently attracted by the scope of the work in rural areas with its absence of social amenities and so forth, and they will not stay in such a district.

Practical people will make the best of our present personnel by giving the District Nurse-midwife as much training as possible, which will enable her to carry out the ordinary duties of Health Visiting. With regard to training, there is no reason why a District Nurse-midwife, after receiving her twelve months' training in Midwifery and General Nursing, should not continue for an extended period of, say, three or preferably six months in which she could have specialised training in these Public Health duties.

I look forward to the time when a new type of District Nurse-midwife, of, say, 18 months' training altogether will be definitely recognised as a suitable Health Visitor for rural areas. For the present we have to work with some District Nurses who have not had sufficient training and experience, and it will take many years before all District Nurse-midwives are sufficiently trained for the work that we contemplate. Therefore, some supervision is required, and this can be accomplished by a whole-time Health Visitor supervising a large rural area and assisted by the District Nurse-midwives in the preventive and remedial work. The whole-timer could probably

easily supervise 10 or more District Nurses, and as the latter became more experienced and efficient the number of whole-time supervising Health Visitors would gradually diminish.

Another objection might be put forward that District Nurse-midwives have not sufficient time for all these various Public Health duties. This, of course, will depend upon the size and nature of the area, and there is no doubt that at the present time many District Nurses are covering too large an area or too big a population. The obvious remedy is to adjust the boundaries of the existing Nursing Associations. An important point for consideration is that as a rule Public Health Services have not to be carried out as matters of urgency, differing in this respect from midwifery cases and from much of the work which a District Nurse carries out. With a little management the Public Health duties can be undertaken when a nurse is having a comparatively slack time and thus assist in keeping her continuously employed.

It might also be said that a District Nurse, for obvious reasons, would refrain from doing her duty in regard to reporting insanitary property and other cognate matters. This is no doubt a difficulty, but it already exists with the local sanitary officials; there are at the present time a great number of unremedied sanitary defects, and yet I do not often hear this difficulty raised in reference to a Medical Officer of Health or Sanitary Inspector. A District Nurse-midwife would wisely refer these matters privately to the whole-time Health Visitor and allow her to report to the responsible authorities.

Essex Scheme.

I may be pardoned for introducing Essex to illustrate what I have been trying to place before you, and for the sake of convenience I am only taking those 25 Sanitary Areas which cover an acreage of 591,131 and have a population of 224,320, and for which the County Council is the authority for Maternity and Child Welfare. For the whole of the County there are 130 District Nurse-midwives, and in the 25 Sanitary Areas referred to there are 80.

The Combined Nursing Scheme in these areas is carried out by co-operation between the 16 whole-time Health Visitors who chiefly undertake the educational and supervisory duties in connection with school, tuberculosis and child welfare and other public health work, and 80 District Nurse-midwives, whose duties are chiefly remedial and clinical.

To all the District Nursing Associations participating in the Combined Nursing Scheme the

County Council make a grant up to £40 per annum, payable through the County Nursing Association, and this amount is allocated as follows:—

(a) Midwifery	£30
(b) Public Health Duties...	£10
	£40

For the year ended 31st December, 1921, the County Council paid the sum of £4,577 16s. 3d. in connection with this grant, which at that time was £45 per Association instead of £40, and during this period the following visits were made by the 124 District Nurse-midwives then belonging to affiliated Associations:—

Midwifery	21,961
Maternity Nursing	25,486
District General	123,027
District Tuberculosis	3,081
Health Visiting	4,762
Home Visiting (School Children) ...	1,991

Total No. of Visits 180,308

Average No. of Visits per District

Nurse 1,454

Conclusions.

The conclusions I have arrived at are as follows:—

(1) That it is imperative in the interests of Public Health that District Nurse-midwives be provided to cover every parish throughout the country.

(2) That owing to financial considerations the nurses performing only District Nursing or Midwifery would have to take charge of a much wider area than they could efficiently cover.

(3) That by combining their duties, such as assisting in the school, tuberculosis and child welfare work, etc., under the general supervision of a County Health Visitor, the District Nurses could be fully occupied in an area of reasonable size.

(4) That the inhabitants are more likely to benefit by the instruction and suggestions made by a homely District Nurse than by an official Health Visitor.

(5) The advantages are as follows:—

(a) *To Mothers.*—That there is only one visitor invading the home and one who has already a good knowledge of the family history and one who is readily accessible at all times.

(b) *To Infants or Children.*—That the same nurse supervises them throughout child life.

(c) *To the Nurse.*—That it increases her prestige in the village and gives her a broader outlook on preventive and remedial measures and gives variety to her work.

(d) *To the County Council.*—That it establishes a localised nursing service on the same principle as we have found so successful in the Combined Medical and Combined Clinical Services in Essex. A great reduction in travelling expenses and a saving of time whilst travelling are effected, and the nurses are not over-fatigued by long journeys.

On the whole, from the experience of the last three years, I am of the opinion that in rural areas there are considerable advantages in employing District Nurse-midwives for certain duties appertaining to health visiting (school and tuberculosis nursing, child welfare work, etc.), but that under present conditions it is necessary that it should be done under the general supervision of a whole-time Health Visitor.

SHOULD MEDICAL EXAMINATION BE REQUIRED BEFORE MARRIAGE.*

BY

T. E. FRANCIS, M.D., M.O.H., Barnsley.

For many years the State has recognised a certain amount of responsibility for the health and well-being of its citizens, and its concern has been shown by the organisation of the Poor Law Medical Service and the Public Health Service, with their branches dealing with general sanitation, isolation hospitals, school inspection, clinics, maternity and child welfare, insanity, and amentia. I am not dealing now with factory legislation and Trade Boards.

The State or municipality has conferred many benefits upon the citizens, a large proportion of whom have not been direct tax-payers or rate-payers, many of them being frankly paupers.

It has not claimed much in return from its poorer citizens in the public health sphere beyond requiring them to submit to temporary isolation and treatment when suffering from some dangerous infectious disorder or from marked insanity or amentia, to submit to vaccination once in a lifetime (now easily evaded) to keep

* Read at a Meeting of Yorkshire Branch, at Leeds, 26th May, 1922.

themselves reasonably clean and free from vermin, and not to get very drunk (in a public place).

The recent campaign for economy in imperial and local government expenditure must cause us to inquire whether the State is getting a fair return for its large outlay, and whether different methods might be adopted to obtain equally good or better results.

I am sure that many of us have felt that the State has been adopting methods of treatment too rapidly, instead of developing true preventive measures.

I have been particularly uneasy as to whether we are on the right lines in dealing with child-welfare work and with mental deficiency.

In child welfare much has been done to preserve the lives of the children of our lowest stratum of population, where the birth-rate is high and where the death-rate was also very high in former days. The infant mortality rate in this class has been reduced by 30 or 40 per cent.

Again in cases of mental deficiency, by means of special education and training, and by careful guardianship, we endeavour to enable these so-called lesser-gifted to become wholly or partially self-supporting. In view of the undoubted fact that mental inefficiency is very largely inherited, are we on right lines?

You are probably aware that in these days of economy pressure is being exercised to secure the discharge from institutions of border-line cases of mental deficiency and of insanity.

The problem of the regulation or prevention of the propagation of the unfit has exercised the minds of thinking men and women for many centuries. Sir Thomas More, about 400 years ago, considered and wrote about this question perhaps in irony, and the Catholic Church in France about the same time discouraged the marriage of the epileptic.

About a hundred years ago that much-abused and misunderstood genius, the Rev. T. R. Malthus, wrote his wonderful essay, "On Population," where he enunciates the theorem that under natural conditions population tends to increase beyond the means of subsistence.

In more recent years laws have been proposed and considered in several of the American States, Switzerland, Austria, and Armenia, and in some have been enacted and are in force now (to the best of my knowledge), prohibiting the marriage of epileptics, insane, mental defectives, sufferers from venereal disease or tuberculosis, deaf and dumb, habitual drunkards, etc.

One of the best known is the Chilton Marriage Act (Minnesota State) under which a person who marries or assists in marrying an epileptic, imbecile or feeble-minded person is liable to a penalty of £200 or imprisonment for three years. Women over the age of 45 are exempt from the prohibition.

In North Dakota the Act of 1899 requires a medical certificate that the candidate for marriage is free from infectious venereal disease.

In Michigan it is a felony since 1899 to marry if suffering from uncured syphilis. In New Jersey since 1904, the marriage of defectives (epileptics, insane or feeble-minded persons) is prohibited unless two physicians certify that there is no probability of transmission of the defect to descendants.

In Wisconsin it is stated that the Eugenic Marriage Act of 1913 is unpopular because a decrease of marriage resulted (B.M.J., 1915, I., p. 488).

Marriages, 1913 ...	21032
" 1914 ...	17252

In Oregon it is also stated that the State officials are against the retention of the Eugenic Marriage Laws of that State (B.M.J., 1915, I., p. 232).

If the officials of the State are interested in marriage fees, I can quite understand that the law would not be extremely popular among them.

Perhaps some of you who have had experience of life in the United States will be able to give us a resumé of your impressions of these or similar laws in actual practice. I regret that when I was in the United States I made no inquiries on the question.

Now to consider whether these or similar enactments are practicable in Great Britain; a leading article in the "Lancet" of 1904 gave it as their opinion that compulsory medical examination before marriage should be deprecated, but that a custom should be initiated that all young men before marriage might take out a Life Assurance Policy after medical examination.

Since that date much water has flowed under London Bridge, and how many of us would have believed 10 years ago that compulsory military service would have been enforced in Great Britain, or that the whole of the United States would have been rendered practically "dry" by Act of Congress?

Any serious interference with the existing marriage laws might result in a great increase in the proportion of illegitimate births, and an amendment of the Bastardy Law would probably

be necessary somewhat on the lines suggested by the recent Bill promoted by the Council for the Unmarried Mother. Punishment for sexual offences against defectives should be severely enforced.

In considering the practical details of a scheme for enforcing medical examination before marriage, one would have to decide whether an examination by one or even two general practitioners (*not in partnership or related to the examinee*) would be sufficient; or whether special examiners appointed by the Government or by Local Authorities would be necessary; also what fee, if any, should be charged against the examinee; the scope of the examination, should it require more or less than an ordinary Life Assurance Examination or an examination for fitness for general military service; should any age or class be exempt, say women over 45 or men over 60 years; whether the certificate of fitness should specifically mention freedom from certain diseases, for instance, syphilis and gonorrhœa; whether women should be examined by women doctors only; how long the certificate would remain in force, say one or two months.

There are about 300,000 marriages per annum in England and Wales, so that there would be required over 600,000 medical examinations to be performed annually. There are about 27,000 medical practitioners in England and Wales, of whom about one half are in general practice, so if the work was equally divided amongst the latter, they would undertake about 40 examinations each per annum, but one would expect that women practitioners would get a much larger number per head and the men practitioners rather less. If certificates were required from 2 independent practitioners these figures would be doubled.

Now looking at the above proposal broadly, what are the alternative suggestions?

1. Compulsory sterilisation of defectives. This can be dismissed at once.
2. So-called Constructive Birth Control or limitation of families after marriage. This is mostly in favour with the classes who need it least. It is unlikely to be favoured by the defective or pauper class, and I cannot see how it could be applied compulsorily.
3. To continue as we are doing, which is in the aggregate a considerable amount, by the maintenance of asylums, workhouses, infirmaries, institutions for mental defectives, sanatoria, and lock hospitals in ever-increasing numbers.

NOTES FROM BRANCHES.

THE MIDLAND BRANCH.

SWEATING IN BIRMINGHAM.

The Birmingham Education Committee have failed in a second attempt by advertisement in the daily press to obtain suitable candidates for the post of assistant school medical officer.

The scale of salary for the post was £500 per annum, by annual increments of £30 to a maximum of £650, until April, 1922, when it was reduced to a commencing salary of £450 with £25 increments to £600. One of the officers resigned as a protest against the cancellation of increments of salary accruing under the terms of his appointment.

The advertisement, at a commencing salary of £450, was refused by the medical journals and was sent to six leading daily newspapers. Suitable candidates failed to respond and the Education Committee, who appeared determined to break down the resistance, decided to defer making the appointment until the summer brood of graduates had been hatched.

This second failure will no doubt result in a victory for the School Medical Service.

WEST BROMWICH.

In July last, the county borough of West Bromwich endeavoured by advertisement in the lay newspapers to obtain the services of a first assistant medical officer of health and clinical tuberculosis officer at a less salary than £700 per annum. At this time the salary of the medical officer of health was also below this figure, and unsuccessful attempts had been made to induce his council to realise that a substantial increase was indicated in order to bring his salary in a line with that paid for similar services in other county boroughs. By the joint action of the British Medical Association and the Society of Medical Officers of Health, the whole question of the medical services at West Bromwich have been considered, and the following recommendations have been approved by the council.

(1) To increase the salary of the medical officer of health to £700 per annum without bonus. This is of course grossly inadequate.

(2) To appoint a First Assistant Medical Officer of Health and Clinical Tuberculosis Officer at a salary of £700 per annum, without bonus.

To appoint a second Assistant Medical Officer of Health, Maternity and Child Welfare Medical Officer, and Assistant School Medical

Officer at a salary of £500 per annum, without bonus.

While the position of the Medical Officer of Health has been improved financially, he is still grossly underpaid for his services to a Borough of approximately 80,000 population. One of the Councillors who voted against the recommendation to appoint what was called a First Assistant Medical Officer of Health at the same salary as the Medical Officer of Health himself, said: "He would suggest that the Committee who had this in hand were to be congratulated if they were likely to satisfy the Medical Officer of Health."

SPECIAL POWERS IN BIRMINGHAM.

Birmingham Corporation have succeeded in obtaining from Parliament an extension for a further period of five years of powers originally obtained in 1914.

1. Making it compulsory on the parent or guardian of a school child, who is known, or thought to be suffering from measles or German measles, whooping cough or chicken pox, to notify the head teacher. This applied to a child attending a private or an elementary school, but not a Sunday school. There is also a penalty for exposing a child so suffering, without proper precautions, in any street, public place, shop or public conveyance.

2. For compulsory removal to a suitable hospital or sanatorium for a period of three or six months on an order of the Justices, of any person suffering from pulmonary tuberculosis who is in an infectious state and who is certified by the Medical Officer of Health not to be taking proper precautions against the spread of infection, or who is living under such conditions that the proper precautions cannot be taken.

The section is of great value in dealing with a certain type of consumptive patient. Only in a very few cases has an application to the Justices been necessary.

In addition, fresh powers have been obtained

(a) Enabling the Corporation to make bye-laws requiring the covering of meat or other articles intended for food of man, while being conveyed through the streets and for securing the cleanliness of the vehicles employed for this purpose.

(b) Extending the provisions of Section 91 (7) of P. H. Act, 1875, to emission from any chimney of any grit or gritty particles, as if such grit were smoke arising from furnaces.

Dr. Robertson, Medical Officer of Health, Birmingham, has issued an interesting report on his recent visit to American cities in regard to milk supplies. He was accompanied by a representative from the Milk Distributors in Birmingham, and by the Chairman of the Dairy Section of the National Farmers' Union. He points out how the control of the milk supply differs in the two countries, and explains in detail the methods of production and distribution employed, the standards adopted, and the action taken by each State or City to control its own milk supply without interference from the Central Government. He advises pasteurization on the best lines as necessary and unobjectionable for a town supply, and insists that the most important first step in the distribution of this milk is to supply it in glass bottles.

HANLEY—DENTAL OFFICER.

Mr. T. H. Roberts, L.D.S. (Liverpool), Assistant Public Dental Officer, Cambridge, has been appointed School Dental Officer, Hanley.

THE METROPOLITAN BRANCH.

INFANTILE MORTALITY IN KENSINGTON.

An infantile mortality rate of 110 per 1,000 births in Kensington has been regarded as sufficiently serious to warrant close investigation, and in his latest report on the sanitary condition of the Royal Borough, Dr. James Fenton gives as the chief factors which are operative in maintaining the high infantile mortality rate in the district, the ignorance, carelessness, and sometimes even the indifference of certain mothers; the poverty in many households; the unsuitable and insufficient feeding and clothing of mothers and children; the crowded homes with domestic dirt, their insufficient food storage accommodation and sanitary arrangements, and the difficulties of home nursing—faults largely inherent to the tenement house system.

BATTERSEA'S VITAL STATISTICS.

With a birth rate of 22.12, a death rate of 12.17, an infantile mortality rate of 73.8, and a death rate from the principal infectious diseases of 1.02, Dr. Quin Lennane certainly has good reason for referring in the introduction to his annual report to the high standard of health maintained in the Borough of Battersea, during the year 1921. The opening of

a maternity hospital and new ante-natal and special clinics and the inauguration of a district midwifery service, marked further progress in maternity and child welfare work, which it is now considered includes practically all the elements of a comprehensive scheme. Notwithstanding the restricted scope which housing measures had to assume owing to the curtailment of assistance from the central authorities, Dr. Lennane is able to report that considerable progress was made in the provision of additional housing accommodation, and the repair of unfit houses in Battersea, but great regret is expressed that no further progress was made with any of the scheduled insanitary areas in the district.

FIFTY YEARS HEALTH WORK IN MARYLEBONE.

An interesting innovation is introduced by Dr. Charles Porter in his report on the health of St. Marylebone for last year, in the form of a foreword entitled "Fifty Years Ago," which contains a brief survey of health conditions as they existed in the Borough in the year 1871, with comparative statistics for that year and 1921. During the last half a century, the birth rate has fallen from 32.50 to 18.42, the death rate from 24.16 to 12.87, and the infantile mortality rate from 173 to 66. This instructive review shows that except perhaps in the matter of population the movement in St. Marylebone during the last 50 years, has been very definitely forward. Once more Dr. Porter draws attention to the divorce existing in the Metropolis at the present time between the general public health work, for which each borough council is responsible, and the school medical work, which is the concern of the county council. Because of the existence of the two authorities there is, he states, frequently duplication of work, a quite unnecessary amount of interchange of correspondence, and other serious drawbacks which militate against the best interests of the public health locally, and particularly those of the children. Dr. Porter looks forward to the time when a re-organisation of public health in London will place school medical work in the hands of the local health authority—the borough council.

VITAMINS AND CHILD WELFARE.

Following the publication of his report on Cancer, noted in this column recently, Dr. F. W. Alexander, Medical Officer of Health of Poplar, has now brought out a further special report

under the title of "Vitamins—Accessory Food Factors: What are they? Consideration of their value in Maternity and Child Welfare Work: Their Influence upon Health." In this, as in the previous report, Dr. Alexander quotes from many authorities, and after considering the preservation, in the preparation of food, of the three accessory food factors, at present recognised, and their bearing on the deficiency diseases, concludes with a suggestion for supplying the accessory growth-vitamin "B" to mothers and infants in the form of "yeast extract and autolysed," to be given at the same time with a food rich in vitamin "A," viz., Cod-liver oil. Dr. Alexander also commends the use of the yeast extract in the case of patients attending the tuberculosis dispensary.

NEW M.A.B. MEMBERS.

A perusal of the Society's new Roll of Members reveals the gratifying fact that many medical officers of the Metropolitan Asylums Board's Fever Hospital Service have intimated a desire to join the Metropolitan Branch. In the deliberations of the Branch matters affecting the Asylums Board form no small part, and the close and cordial co-operation which has always existed between the Board and the Society will be still further strengthened by the addition to the membership of these officers, to whom individually and as a group a warm welcome is extended.

INFANT WELFARE FACILITIES AT WESTMINSTER.

Special facilities are now available at the Infants' Hospital, Vincent Square, S.W.1, for teaching, research and treatment in connection with infant welfare, and those interested (medical officers of London centres in particular) would do well to send to Dr. Eric Pritchard at the hospital for details of these new activities.

HOME COUNTIES BRANCH.

THE NEO-MALTHUSIAN LEAGUE.

On Friday, July 14th, 1922, a well-attended session for medical men only, of the Conference of the Neo-Malthusian League was held at the Kingsway Hotel and the Home Counties Branch appeared to have been well represented.

It would seem that there is a desire on the part of the organisers of this movement to use the Maternity Clinics as centres for distribution of reliable information on birth control. The speaker (Dr. Norman Haire, M.B., Ch.B.) mainly

concerned himself with the technique rather than the morals of such practices. It must be admitted that considerable doubt and uncertainty might justifiably exist in the mind of an impartial judge as to the reliability of any of the methods used. There appeared to be no perfect method known and that all required an amount of self-inhibition and care if any degree of success is to be achieved and risk of serious injury avoided. All chemical substances were ruled out and it was hinted that a very large proportion of such material sold was useless. Of mechanical means, all those which interfere with the cervix uteri were spoken of as being either useless or dangerous. The only methods that obtained the blessing of the speaker were the "condome" for the male and the "dutch pessary" for the female.

It is said that as soon as you can measure a thing you begin to know something about it. Unfortunately no carefully collected data were given as to the results of the use of any of these methods. In fact much statistical work that has been done, on this subject, was apparently avoided.

It will be remembered that in a paper by Drs. Brown, Wood and M. Greenwood, in the "Eugenics Review" of 1917, based on data obtained from old Cambridge students, that the mean size of a family was larger amongst those who admitted the use of contra-ceptive methods. The difference was not great. The contention might be made that the family would have been larger still had they not been used. T. H. G. Stevenson, in the "Statistical Journal" for 1919 analyses some aspects of the Registrar General's report on "Fertility of Marriage," and from comparison of the various occupations evidence does arise which suggests that such methods are effective. He also refers to a curious aspect of pre-married life.

"In the various periods of marriage are the following numbers:—

	Marriages
Under one year's duration	167,720
One to two years' duration	225,184
Two to three years' duration	227,770
Three to four years' duration	228,010
Four to five years' duration	233,870
Six years' duration	219,400

These figures should diminish as the variations in the marriage rate for previous years will not account for the differences. In so far as all inmates must be accounted for in the census, the person filling in the return, has in

many instances overstated the period of marriage. The number missing in the first year is about 50,000, and the four to five years' period contains about 20,000 too many.

For brides of nineteen and under there were 8,752 with 3,015 children born to them. Now the marriages of nine months' duration and over must be 8,752 divided by 4 = 2,188, that at least (3,015—2,188) = 827 (that is 827 of 2,188 or thirty-eight per cent) must have been fertilised before marriage. Thus, the error dependent on overstating the period of duration is about 2,000, or approximately, a quarter of all marriages, where the bride is twenty years or under. If the number admitting the fact be added to the number that have overstated the duration of marriage, then the proportion that anticipate the formal ceremony must be about fifty per cent, and for the younger ages even larger than this. Now there is every inducement to the use of "contra-ceptives" under such conditions and if it is fair to assume that the large increase in the sale of such during the last sixty years is evenly distributed over the period of sexual life, then some of the increase must be apportioned to the unmarried. If that is the case then it must be admitted that the effect is extremely limited as the mean age at marriage has only altered about nine months in the period given. This is assuming that the whole of the delay is dependent on the use of "contra-ceptives," a proposition which could be hardly accepted.

The final impression must be that, all such methods are unreliable and are only likely to be of use in that class of society which would do a useful social service if it doubled its output

THE NORTHERN BRANCH.

1. OPENING OF F. PEILE CONVALESCENT HOME.

In these difficult times the Durham County Council is to be congratulated on the recent opening of the above Convalescent Home for Nursing Mothers, and Children under 5, at Shotley Bridge, County Durham. The realisation of the scheme has been due to generous gifts from many sources, including the house and part of the furnishing from the late Mrs. Peile, and other members of the family, large gifts in money and kind from numerous welfare centres in the County, Miners' Associations, school children, and others.

Only mothers actually nursing babies not over 6 months are admitted, and children suffering

from rickets and other debilitating diseases, but not hospital cases, are received.

The maintenance fee has been fixed at 25s. per week for nursing mothers, and 15s. for children without their mothers. Patients will be admitted mainly through the Durham County Welfare Centres, under the guidance of the Medical Officers and the Health Visitors, and the general management is vested on the Maternity and Child Welfare Committee of the County along with six co-opted women members.

In addition to the ordinary work of the institution, it is intended to make the Home a training centre for nursery nurses, while mothers in residence will also be trained in mothercraft.

The progress of the Home will be watched by all workers in maternity and child welfare with much sympathy and interest.

2. FOOD POISONING.

An isolated outbreak of food poisoning occurred in Newcastle-upon-Tyne recently, due to bacillus enteritidis of Gartner, three persons being affected, and one dying.

On the 30th August, soup was prepared from three ham shanks, and was partly consumed that evening by all the members of the family, five in number. The remainder of the soup was left in the pan on a gas stove, and only partially covered.

It was warmed up for dinner the following noon and partaken of by three of the family only. Each of these became ill the following day, and one died on the Saturday morning.

Bacillus Enteritidis of Gartner has been recovered from the stools of all the patients, and also from the two members of the family who were not affected. It is obvious that the soup became infected between the meal on the Wednesday afternoon and the one on Thursday mid-day, though from what actual source has not yet been ascertained.

It is possible that one of the two who were not affected, but who are now excreting bacillus enteritidis in large numbers, was a carrier, but unfortunately there is no evidence as to their bacteriological conditions previous to the outbreak.

WEST OF ENGLAND BRANCH.

THE LATE SURGEON-COMMANDER WALLIS, R.N.

With great regret we announce the death, at Plymouth, of Surgeon-Commander James Garfitt Wallis, R.N., who was a member of the West of

England Branch of the Society. He was educated at the London Hospital, where he was Buxton Scholar, taking the English Conjoint qualification in 1897, and the London M.B. two years later.

After filling the posts of House Physician and Clinical Assistant in special departments at the London, and Assistant House Surgeon at Poplar Hospital, he entered the Navy as Surgeon, taking the prize for tropical diseases at Haslar. In 1914 he reached the rank of Surgeon-Commander, and was appointed Health Officer at the Port of Devonport in 1920.

SWEATING BY THE SOMERSET COUNTY COUNCIL.

The following is taken from the "British Medical Journal":—"The campaign for 'economy at any cost' has broken out in an aggravated form in the County of Somerset. The County Council is advertising for an Assistant School Medical Officer at a commencing salary of £300, plus bonus of £149 13s., the basic salary to rise by increments of £12 10s. to £350. It should not be forgotten that the Association's pre-war basic salary for an Assistant S.M.O. was £350 per annum, so that the County Council's proposals should serve as a useful reminder of what the future has in store if members of the medical profession submit to any tampering with the present modest standard demanded by the Association. It is hoped that the full strength of the B.M.A. and the M.O.H. Society will be used to combat these proposals.

THE NEW SESSION.

There was a record attendance at the Guildhall at Bristol, on October the 6th, when Surgeon Captain Andrews, R.N., delivered his Presidential Address on "The Teaching of Hygiene in Schools." Members and friends had previously been taken in two char-a-bancs to various centres connected with the School Medical Service in the City. The programme of the tour included inspections of the Open Air School at Knowle, and of the Portland Square Clinic, an address by the Lord Mayor, a demonstration on the X-ray treatment of ringworm and a short paper on the diagnosis of adenoids.

During the afternoon those attending the meeting were hospitably entertained to tea by the President and Mrs. Andrews.

Cordial vote of thanks were accorded to Surgeon Captain Andrews, R.N., and Mrs. Andrews, to the retiring President and Secretary,

and to Dr. Askins, who had left no stone unturned to ensure the success of the meeting by making the most careful arrangements to cover every detail of the programme.

Reference to certain matters discussed during the afternoon is deferred.

A LECTURE ON BOTULISM.

By the courtesy of the British Medical Association, Branch Members living near Bristol were invited to attend what proved to be a most interesting discussion on Botulism, held on October the 3rd, at the University. Dr. Savage and Mr. Bruce White described the findings in connection with the Loch Maree outbreak. The actual infected material consisted of a little dried powder scraped from the corners of an otherwise empty tin, but this was virulently toxic, and from it was easily obtained an anaerobic culture of *B. Botulinus*, Type A.

Dr. Meyer, a distinguished American authority, then gave a lecture illustrated by lantern slides on recent investigations on the subject at the University of California. About 110 outbreaks had been studied, of which more than two-thirds were found to have been caused by tinned vegetable products and less than one third to be of animal origin.

APPOINTMENTS.

Dr. A. D. Symons, M.D., D.P.H., has resigned his position as Assistant Resident Medical Officer at the Bristol City Fever Hospital, Ham Green, to take up an appointment as Assistant Medical Officer to the Shropshire County Council. His place has been filled by Dr. Tehan.

Dr. A. Hiley has been appointed Assistant Resident Medical Officer at the Winsley Sanatorium in place of Dr. M. E. Willcock, who has resigned.

POOR LAW MEDICAL SALARIES.

Some interesting information concerning the privileges of poor law officers as regards salaries was forthcoming at a recent meeting of the Aberystwyth Board of Guardians when three medical officers were reported to have declined to accept the reductions recently made in their salaries. A letter from the Ministry of Health was received stating that the Guardians were not legally empowered even with the consent of the Ministry, to reduce the salary of any official during the legal continuance of his office, without the consent of such official, unless the appointment or contract was in such terms as to reserve the right of altering the salary.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.

PROCEEDINGS.

ANNUAL GENERAL MEETING.

The Annual General Meeting was held at the house of the Society on Friday, October 20th, 1922. At the commencement of the proceedings the chair was taken by the retiring President, Dr. W. J. Howarth, and there was a very large attendance.

The minutes of the last annual general meeting having been approved and signed, messages of apology for absence were received from Dr. H. Cooper Pattin, Maj.-Gen. Sir W. G. Macpherson, K.C.M.G., Dr. A. K. Chalmers, Dr. T. Ridley Bailey, and others.

Dr. Howarth then called upon Dr. Eustace Hill to occupy the presidential chair, and invested him with the badge of office. Dr. Howarth welcomed his successor as a worthy recipient of an honour that had already been enjoyed by his father, the late Dr. Alfred Hill, and by his brother, Prof. A. Bostock Hill. In assuming office Dr. Hill expressed his gratification at being singled out by his colleagues for what every member of the Society must regard as a high distinction.

On the proposal of Prof. A. Bostock Hill, seconded by Lt.-Col. Herbert Jones, a vote of thanks was accorded by acclamation to Dr. W. J. Howarth for the great services he had rendered to the Society during his year of office as President.

Annual Reports.—The annual reports of the Council, the Hon. Editor and the Hon. Treasurer, as published in the Council Minutes (see *Public Health*, October and November, 1922), were duly received, and the President expressed the indebtedness of the Society to the Council and officials.

Election of Auditor.—Mr. J. T. Harris was unanimously re-elected as Auditor of the Society for the session 1922-23, with thanks for his past services.

New Members.—The following candidates having been duly nominated, were elected to the Society:—

As *Members*.—Ballion, Maurice, M.D., Ghent.; Bjorkegren (Mrs.), Margaret Eliza, M.R.C.S., L.R.C.P.; Bruce, Robt. Marston, M.R.C.S., L.S.A.; Byles, John Beuzeville, M.B., B.Ch. Cantab., F.R.C.S., L.R.C.P., D.P.H.; Cameron, Archibald Fawns, M.A. St. And., M.D., C.M. Edin., D.P.H.; Collier, Howard

Ebenezer, M.C., M.B., Ch. B. Edin.; Comyn, Kenneth. Major R.A.M.C., B.A., M.D., B.Ch., Cantab., M.R.C.S., L.R.C.P., D.P.H., D.T.M.; Court, Dorothy, M.B., Ch.B., Edin.; Cubley, Arthur, M.R.C.S., L.R.C.P.; Dawe, Charles Henry, Surg. Cdr., R.N., M.R.C.S., L.R.C.P., D.P.H.; Elliott, Wm. Marley, M.B., Ch.B., Glasg., D.P.H.; Elliston, Chatterton Eric, M.D., Ch.B., Ed.; Farthing, Thomas, M.B., C.M., Edin.; Fisher, Wm. Henry, M.A., M.B., B.C., Cantab.; Furniss, Austin, L.R.C.P. and S., Ed., L.R.F.P.S., L.M.S., S.A., D.P.H., L.D.S.; Garvie, Beatrice, L.R.C.P. and S. Ed., L.R.F.P.S., D.P.H.; Griffiths, John Howell, M.D., B.S., Lond., M.R.C.S., L.R.C.P., D.P.H.; Haigh, Ethne, M.B., B.S., Durh., M.R.C.S., L.R.C.P.; Hayes, Arthur Herbert, Major, R.A.M.C. (ret.), F.R.C.P., M.R.C.S., D.P.H.; Healy, John Weston, M.B., B.Ch., B.Sc., N.U.I., D.P.H.; Hinds, Thos. Walter, M.D., Lond., M.R.C.S., L.R.C.P.; Hotson, Wm. Andrew, M.R.C.S., L.R.C.P.; Hunter, Alexander, M.B., Ch.B.; Jackson, Herbert Montgomery, B.A., M.B., B.Ch., Belf., D.P.H.; Jones, David Morris, M.R.C.S., L.R.C.P.; Jones, William Forsyth, M.R.C.S., L.R.C.P.; Kelly, Oswald Robert Michael, M.B., B.S., Lond., F.R.C.S.; Ker, Claude Buchanan, M.D., C.M., Edin., F.R.C.P. Edin.; Kitchen, James Tyson, M.D., C.M. Edin., D.P.H.; Laurent, Louis Jacques Maurice, M.R.C.S., L.R.C.P.; Le Blanc, Louis Gaston, M.R.C.S., L.R.C.P.; Liddendale, Wm. Guy, M.B., B.S., Durh.; Litt, John Percy, Capt. R.A.M.C., M.D., B.Ch. Edin., D.P.H., D.T.M.; MacIntyre, Donald, M.C., M.D., Ch.B. Glasg., D.P.H.; Middlemiss, Kenneth Chisholm, M.B., Ch.B., Glasg.; Mitchell, George Stanley, M.R.C.S., L.R.C.P., L.M.S., S.A.; M'Kay, Donald Walter, M.B.; Morrison, Wm. Watson, M.B., Ch.B. Glasg.; O'Donovan, Louis Jerome, L.R.C.P. and S., I., L.M.; Pearson, Albert Edward Alex., M.R.C.S. Eng., L.R.C.P. Ed.; Pereira, Henry Manning, L.R.C.P. and S. Ed., L.R.F.P.S., D.P.H.; Phillips, Harold James, M.B., B.Ch., N.U.I.; Randall, Philip Nicholas, M.B., Lond., U.S.A.; Stewart, William J. J., M.D., C.M., Edin., D.P.H.; Sutherland, Donald Sage, M.D., Ch.B., Glasg.; Swainston, Eliot, M.D., B.S., Durh., D.P.H.; Swan, James Douglas Carnac, M.B., B.Ch.; Swyer, Robert, M.R.C.S., L.R.C.P., D.P.H.; Thompson, George Lewis, M.B., Ch.B., Ed.; Thomson, Fred. Holland, M.B., C.M., Aberd., D.P.H.; Tyrrell, William, D.S.O., M.C., Squad. Ldr., R.A.F., M.S., M.B., B.Ch., Belf.; Unsworth, Dorothy Madeline, M.B., Ch.B., Liv., D.P.H.; Walmsley, Norman Walmsley, M.D., Ch.B., Liv., D.P.H.; Whitaker, Joseph Henry, M.D., B.Ch., R.U.I., L.S.A., D.P.H.; Wilkins, John, M.R.C.S., L.R.C.P.; Williams, H. J. Egerton Hutchins, M.D., Brux., M.R.C.S., L.R.C.P., D.P.H.; Woodfield, Thos. Harold, M.D., Lond., M.R.C.S., L.R.C.P., D.P.H.

As Associate.—Barrie, Mary Gertrude, L.D.S., Glasg.

Upwards of twenty nominations were received for the November elections.

The Society and Local Authorities.—Lt.-Col. Wm. Butler drew attention to an occasion when the Society addressed a recommendation directly to a County Council, and suggested that such communications should only be sent through the Medical Officer of Health of the Council. The President thanked Col. Butler for bringing this matter before the Society, and promised that it should be discussed at the next meeting of the Council.

Dr. Eustace Hill then delivered his presidential address, which appears in full in *Public Health*, November, 1922, p.

Sir George Newman, in proposing a vote of thanks, said how much pleasure it must give the members of the Society to see a third member of the Hill dynasty occupying the presidential chair. Owing to the political situation, he (Sir George) was for the first time for many years without a Minister, and he felt more at liberty therefore to talk freely to his old colleagues. Sir George closed an interesting little speech with an assurance that although he was a departmental official, he continued to regard himself as one with his old colleagues in the Public Health Service.

The vote of thanks was seconded by Dr. W. J. Howarth and carried by acclamation.

The meeting then adjourned.

COUNCIL MEETING.

A meeting of the Council was held at the house of the Society on Friday, October 20th, 1922. The retiring President (Dr. W. J. Howarth) was in the chair, and there were present: Dr. T. Eustace Hill (President-Elect), Profs. H. R. Kenwood and H. Kerr, Lieut.-Cols. F. E. Fremantle, M.P., and Herbert Jones, Drs. G. F. Buchan, Charles Porter, Shadick Higgins, Pearce, Buck, Snell, Garstang, Barlow, Rees-Jones, Evans, Wheatley, Stirk, Kerr, McMaster, J. T. C. Nash, Lyster, Cates, Stocks, F. H. Thomson, Jolly and Clements.

The minutes of the last meeting having been approved and signed, apologies for absence were received from Dr. A. K. Chalmers, Dr. G. W. N. Joseph, Dr. T. H. Peyton, Dr. H. Gibbons Ward and Mr. R. Dennison Pedley.

Correspondence.—(1) From the Ministry of Health forwarding for the information of the Society a copy of a memorandum setting forth particulars of the proposed scheme of milk grading, which is to commence operation under Section 3 of the Milk and Dairies (Amendment) Act, 1922, on the 1st January, 1923. The

Minister expressed his readiness to consider any observations which the Society might desire to offer, but such observations should be submitted before October 24th. The Exec. Secretary reported that in view of the short time available for replying to this communication, he had referred it for preliminary consideration to the Special Foods Committee. On behalf of that Committee Dr. Wheatley submitted certain criticisms of the Memorandum. After discussion it was referred to the Committee to draw the attention of the Ministry of Health to certain alterations desirable in the Memorandum, and to express regret that sufficient time had not been allowed for full consideration of the matter by the Council.

(2) From the British Medical Association stating that their Medico-Political Committee had reappointed Parliamentary, and Maternity and Child Welfare Sub-committees, and had again allotted two representatives on each Sub-committee to be filled by nominees of the Society. Last year the nominees on the Parliamentary Sub-committee were Dr. W. J. Howarth, C.B.E. and Dr. G. F. Buchan, and on the Maternity and Child Welfare Sub-Committee Dr. T. W. Naylor Barlow, O.B.E., and Dr. G. F. Buchan. *Resolved:* That the nominees for the session 1921-22 be re-appointed for session 1922-23.

(3) From the School Medical Group nominating Dr. G. A. Auden to represent the Society on the Council of the Central Assoc. for Mental Welfare (*vide* minutes of Council, September 22nd, 1922).

The Royal Commission on London Government.—The Special Committee appointed (*vide* Council Minutes, January 20th, 1922) to watch the proceedings of the Royal Commission on the Local Government of London, submitted a report suggesting certain principles which should guide the policy of the Society in relation to the re-adjustment of local government areas.

It was decided that the report should be circulated to members of the Council and be placed on the agenda for the November meeting.

Committee of the Council.—It was proposed by Lt.-Col. Herbert Jones and seconded by Dr. Snell, "That the Council revert to the former practice of appointing Standing Committees." After some discussion it was agreed that with monthly meetings of the Council, the need for Standing Committees had disappeared, and that committees appointed

from time to time to deal with special matters were a more efficient assistance to the work of the Council.

The following committees were appointed for the session 1922-23:

Special Committee on Remuneration of Medical Officers of Local Authorities.

Dr. G. F. Buchan, Prof. H. R. Kenwood, Drs. Howarth, Peyton, Sanders, Lyster, Joseph, Petgrave Johnson, E. W. Goodall, Stocks, and G. A. Auden.

Special Committee on Food Problems in Relation to Public Health.

Dr. James Wheatley, Profs. Kenwood and Robertson; Drs. Howarth, Porter, Veitch Clark, Orr, Barlow, Snell and Peyton.

Journal Committee.

Dr. R. A. Lyster, Profs. Bostock Hill and Kenwood, Lt.-Col. Herbert Jones, Drs. Howarth, Snell, Shadick Higgins, Porter, and H. P. Newsholme.

Special Committee for the Revision of the Society's Articles of Association.

The President, Vice-Presidents, Hon. Editor, and Hon. Treasurer, and Prof. Kenwood, with power to co-opt.

Report of the Hon. Editor of "Public Health."—Dr. R. A. Lyster, Hon. Editor, submitted the following report:

During the past year the enlargement of the Journal, which had been commenced during the two previous years, continued. It may be interesting to show the course of this enlargement by the following table, which gives the total number of pages published during the twelve issues in each of the years shown, viz:—

1918-1919	144 pages
1919-1920	206 "
1920-1921	242 "
1921-1922	334 "

The Journal, therefore, during the past year has averaged nearly 2½ times its size during the year 1918-1919. It is also gratifying to be able to call special attention to the excellent assistance which has been forthcoming from some of the Branches. The Notes from the Branches have been a feature which the Editor understands is much appreciated at the present time. The total value of these Notes would be greatly increased if every Branch would set itself to find a suitable correspondent for this purpose.

At the last two meetings of the Journal Committee certain financial resolutions have been passed, and these have not apparently been put before the Council. One of these resolutions places in the hands of the Editor a small amount of money to be made available for payment for special contributions, etc., and the need for such an arrangement is becoming more and more pronounced. In fact, the Editor, relying upon the recommendations of the Journal Committee, has led some correspondents to understand that some small payments would be made for the past twelve months.

The attention of the Society should be drawn to the proportion of the total income of the Society that is being spent upon the Journal as compared with pre-war conditions. The following figures are instructive. During the years 1907-1915 (nine years) the average income from subscriptions was £946, while the average sum spent upon the printing of the Journal was £445, and the average amount disbursed in editorial expenses was £151. Comparing this with the similar items of expenditure under the present editorial arrangements, we find that during the years 1918-1920 (three years) the average income from subscriptions was £1,269, the average sum spent upon printing of the Journal was £458, and the average amount disbursed in editorial expenses was £8, thus:—

Income from Subscriptions, years 1907-1915, £946. Years, 1918-1922, £1,269.

Printing of the Journal, years 1907-1915, £445. Years 1918-1922, £458.

Editorial Expenses, years 1907-1915, £151. Years 1918-1922, £8.

A comparison with similar figures during the past twelve months gives still more striking results, but the above will suffice to shew that the Journal is not now receiving the same consideration and expenditure as was the case in pre-war years.

The report was received, and the Editor thanked for his services during the past year.

Report of the Hon. Treasurer.—Dr. C. F. Buchan, Hon. Treasurer, submitted the following report:

FINANCIAL YEAR, 1921-22.

I beg to submit my Annual Report for the year ended 30th September, 1922.

The year's working shows a credit balance of £121 14s., compared with a deficit of £249 8s. 8d. during the preceding year. The credit balance for the year's working is the highest credit balance since 1909.

My estimate of income and expenditure presented to the Council on January 20th, 1922, was £2,650 and £2,620 respectively. The actual income has been £2,662 19s. 8d., and expenditure £2,541 5s. 8d.

INCOME.

With regard to income, subscriptions have increased £497 16s. 3d., and this is the principal source of increase over last year's income, which was £2,165 2s. 10d.

EXPENDITURE.

Increased expenditure is to be noted under travelling expenses of deputations amounting to £45 16s. 9d. These expenses represent the expenses of deputations to various local authorities in connection with the campaign for improved salaries to Medical Officers in the Public Health Service.

Subscriptions to Branches have increased by £65 11s.

GENERAL.

The Society is now faced with a normal expenditure of not less than £2,500 per annum, and there are certain items of expenditure which are likely to increase year by year.

Journal.—The needs of the Journal are considerable, and the desirability of a weekly publication by the Society is a matter which requires careful consideration.

Salaries Campaign.—This is proceeding, and is likely to entail increased expenditure during the years it is actively in progress.

Subscriptions to Branches.—The present subscription to Branches is 2s. 6d. per annum, and during the year I have received communications from two Branches, one asking for an increased subscription and the other asking that its adverse balance should be wiped out by the Society. The question of adjustment of Branch contributions is difficult, for while one Branch is in funds another Branch may be in debt. I think the question of Branch and Group expenses should be considered by the Society during the course of next session when the revision of the Articles of Association are under discussion.

Reserve Account.—During the year £20 has been placed to this account as a provision for doubtful debtors. The total of this account stands at £274 10s., the remaining £250 being in reserve against the removal of the Society from its present premises. The lease expires in December, 1925, and a considerable sum of money requires to be in hand for the re-instatement of the premises if need be, and for the acquisition and equipment of other suitable accommodation.

The Increased Subscription.—The year under review is the first year in which the added additional subscription has been in operation. Subscriptions have not been coming in as well during 1922-23 as during the previous year, but that is probably accounted for by economic circumstances generally. It is hoped that with rigid economy in respect of all the services of the Society the balance sheet to be presented next year will be as good as that now submitted for the approval of the Society.

Need for New Members.—It appears to me desirable that an active campaign for recruitment to the Society should be undertaken with the view of securing as Fellows all who are eligible. Propaganda work of this description means considerable clerical labour, but it would appear to me likely that any expenses on clerical labour would be recouped by the additional membership which would accrue. This matter should, I think, be also considered during the year 1922-23, when the articles of association are under revision.

Executive Secretary.—I desire to tender my thanks to the Executive Secretary, who has helped me on every possible occasion, and has spared himself in no way in the interests of the Society.

The report was received and the Hon. Treasurer thanked for his services during the past year.

The meeting closed with a vote of thanks to Dr. Howarth for his skilful conduct of the Council's business during his year of office as President.

ANNUAL DINNER.

The annual dinner of the Society of Medical Officers of Health was held at the Hotel Cecil on Friday, October 20th. The members and guests, who were received by the President and Mrs. Eustace Hill, included:—

The Dean of St. Paul's, Sir Herbert Nield, K.C., M.P., Sir Antony Bowlby, P.R.C.S., Sir Genge Newman, Prof. R. A. Bolam, Sir Humphrey Rolleston, P.R.C.P., Dr. Wallace Henry, Sir Arthur Robinson, Dr. and Mrs. W. J. Howarth, Lt.-Col. F. E. Fremantle, M.P., Dr. T. W. H. Garstang, Prof. H. R. Kenwood, Lt.-Col. Herbert Jones, Dr. G. F. Buchan, Prof. E. W. Hope, Dr. W. H. Hamer, Dr. W. G. Willoughby, Sir William and Lady Smith, Dr. and Mrs. Sidney Barwise, Dr. R. Denison Pedley, Prof. A. Bostock Hill, Maj.-Gen. Sir W. B. Leishman, K.C.M.G. C.B., F.R.S., Major R. W. H. Jackson, Sir Bruce Bruce-Porter, K.B.E., C.M.G., Harold Jevons, Esq., Major A. G. R. Foulerton, O.B.E., Dr. D. S. Davies, Dr. E. D. D. Davies, Lt.-Col., Mrs. and Miss Butler, Mr. George Thomson, Miss Cox-Moore, Dr. C. T. Neve, Mr. William Fisk, Dr. A. E. Baker, Mr. Ken Koike, Mr. and Mrs. Grantley Smith, Dr. D. M. Connan, Mr. C. E. Thomas, Dr. R. H. Vercoe, Dr. W. F. Corfield, Dr. and Miss Scurfield, Dr. Elizabeth McVail, Dr. J. C. McVail, Dr. A. G. R. Cameron, Dr. R. M. Bruce, Miss Cameron, Dr. and Mrs. R. J. Ewart, Dr. and Mrs. Major Greenwood, Dr. R. W. Stocks, Dr. and Mrs. W. Johnstone, Mr. and Mrs. D. P. Dickson, Mr. W. H. Savory, Mr. and Mrs. Rupert Allen, Mr. R. S. Howarth, Dr. and Mrs. Middleton Hewat, Dr. John Tate, Dr. P. H. Stirk, Surg. Capt. O. W. Andrews, C.B.E., R.N., Miss Herbert Jones, Alderman F. A. Dod, J.P., Mr. W. W. Marks, Dr. Sidney Davies, Miss Davies, Mr. Arthur Murby, Dr. F. B. Skerrett, Dr. Rose Hudson, Dr. Ethel Cassie, Dr. R. J. Maule Horne, Dr. Laura K. Horne, Dr. and Mrs. J. Buck, Dr. G. H. Pearce, Dr. Thomas Carnwath, D.S.O., Col. J. Gardiner Austin, C.B., C.M.G., Dr. J. M. Clements, Dr. D. Rocyn-Jones, C.B.E., Dr. R. J. S. Verity, Dr. and Mrs. W. Mc C. Wanklyn, Mrs. Wanklyn, Dr. Ruby Thomson, Dr. and Mrs. Bond, Dr. W. Lock, Dr. and Mrs. Cates, Dr. Dorothy Unsworth, Dr. A. T. Nankivell, Prof. Harold Kerr, O.B.E., Dr. A. T. Paterson, Dr. Marion Archibald, Dr. A. B. Mc Master, Dr. Charles Sanders, Dr. and Mrs. F. J. Allan, Dr. and Mrs. Ruddock-West, Dr. Alice Stewart Stalker, Dr. W. Stewart Stalker, Dr. Charles Porter, Dr. and Mrs. Veitch Clark, Dr. Frank Hauxwell, Dr. T. W. Naylor Barlow, O.B.E., Miss Margaret Royle, Dr. N. G. Horner, Dr. E. C. Morland, Dr. T. Shadick Higgins, Dr. H. W. Barnes, Dr. Cuthbert G. Welch, Dr. Welch, Dr. Horace Welch, Mr. H. Owen Williams, Dr. J. Finch Haines, Dr. Douglas Wright, Dr. H. Sanguinetti, Dr. E. W. Rees-Jones, and the Executive Secretary.

The President having proposed the health of the King, it fell to Dean Inge, owing to the change of Government, to give the toast of "The Society." After Dr. Eustace Hill had made a happy response, the Ex-President (Dr. Howarth) proposed "The Guests," Sir Herbert Nield, Sir Humphry Rolleston and Sir Anthony Bowlby replying. The health of the President, proposed by Dr. Sidney Barwise, was the last toast of the

programme, and a brief response from Dr. Eustace Hill concluded a very successful evening.

MIDLAND BRANCH.

The first meeting of the session was held at the Council House, Birmingham, on October 5th, 1922, at 3.30 p.m. Twenty-four members were in attendance.

The induction of Dr. H. Gibbons Ward as President for the session 1922-23 was performed by Dr. Snell, the retiring President.

Apologies for absence were read from Drs. Cyriax, Edwards, Ridley Bailey, Cowie, Burton, and Petgrave Johnson.

The minutes of the previous meeting were taken as read.

A letter was read from Dr. A. Bostock Hill, thanking the Branch for electing him as Hon. Vice-President.

Correspondence which had passed between the Hon. Secretary and a member of the branch with reference to the vacant appointment of Medical Officer of Health to the Nuneaton Rural District was read to the Branch, and the Hon. Secretary's reply was approved.

The President then delivered his presidential address, "Prospects of the Municipal Medical Officer." After reviewing in detail the positions of Medical Officers in every Branch of the Public Health Service, Dr. Gibbons Ward came to the conclusion that the outlook for those holding junior posts could not be deemed a very hopeful one. The higher appointments obtainable in the School Medical Branch, the V.D. Branch, and the Tuberculosis Branch, for which they might qualify, were few and most of them did not constitute a goal for an ambitious man.

The speaker then discussed the prospects that a whole time Medical Officer of Health had of obtaining a reasonable income, which he defined as one which was sufficient to educate a family, and to make provision for retirement at a suitable age. In his opinion there were very few posts at the present time which came up to this standard.

Having referred to recent legislation on superannuation and security of tenure, Dr. Ward outlined the advantages of a Medical Officer in the Public Health Service, and concluded his remarks on a note of optimism as to the future.

A vote of thanks to the President for his address was proposed by Dr. Snell, seconded by Dr. Stocks, and carried by acclamation.

Dr. Watt then moved, and Dr. Rose Molloy seconded, an alteration in Bye-Law No. 3 of the Branch, so as to read as follows:—

"Meetings of the Branch shall be held in the months of October, November, December, February, March and July, on Thursday or Saturday, consideration being given to the meetings of Sub-Groups. The Annual Meeting shall be held on a convenient date in July, and the meeting in October shall be reserved for the President's Address."

An amendment was proposed by Dr. Snell, seconded by Dr. Newton, "that the Hon. Sec. be instructed to write all the Medical Officers of Health and School Medical Officers belonging to the Midland Branch of the Society, and inquire if they can arrange for their assistants who are members of the Branch to get away for the Thursday afternoon meetings, or if there is any difficulty in making such arrangements; and that the consideration of Dr. Watt's resolution be deferred until the Hon. Secretary's report on the replies has been received." The amendment was declared carried.

NORTH-WESTERN BRANCH.

An ordinary meeting of the North-Western Branch was held in Manchester on Friday, October 13th, 1922. There were present eighteen members.

The honorary secretary reported that he had received a letter from Dr. Milligan, Glossop, inviting any member of the branch to attend at the Town Hall, Glossop, on Friday, October 20th, to hear a lecture on "Public Health and the Individual," by Dr. F. E. Wynne, of Sheffield.

A resolution from the Southern Branch re the salaries offered in advertisements for public health appointments was considered and it was decided to support it with the following addition: "That it is necessary for a scheme to be devised for placing the remuneration of existing M.O.H.'s on a proper basis."

Dr. Talent (retiring president) then introduced Dr. Rees Jones (Blackpool) as president for the ensuing year.

A hearty vote of thanks was unanimously accorded to Dr. Talent on the proposition of Dr. Peck, seconded by Dr. Wilkinson, for his valuable work as president during 1921-2, to which Dr. Talent replied.

Dr. Rees Jones then delivered his presidential address on "The Work of a Health Department," in which he dealt with the various branches of the work undertaken in Blackpool, a county borough with a population fluctuating annually between 75,000 and 275,000.

The president was heartily thanked for his interesting address by Dr. Barlow, supported by Dr. Paget Moffatt and Dr. Stephenson.

The following recommendations from the committee were submitted to the meeting and approved.

(1) That the presidents of all sub-groups be "ex-officio" members of the Branch Committee.

(2) That the proposed alteration in the constitution of the society, as detailed on page 261 of "Public Health," June, 1922, be approved and supported at the council meeting.

(3) That instead of the annual dinner a luncheon be held in Manchester on Friday, December 8th, 1922.

The honorary secretary gave notice that he would be glad of offers of papers from members or suggestions for discussions or visits for inclusion in the session's programme.

METROPOLITAN BRANCH.

A meeting of this branch was held at the society's house in London, on Friday, 29th September, 1922, the president (Dr. W. H. Hamer) occupying the chair. Twenty-one other members were present.

A letter from the Central Council for Rescue and Preventive Work in London, reporting progress in connection with the administration of the council, and forwarding a copy of a scheme for the carrying out of a survey of existing conditions in the Metropolis, was received.

Consideration was given to the communication of the London County Council regarding the delegation to the Metropolitan Borough Councils of certain powers (a) under the Children Act, 1908, relative to boarded-out infants and children; and (b) under the London County Council (General Powers) Act, 1921, as to lying-in homes. The branch were strongly of opinion that nothing short of complete delegation would be satisfactory; in particular it was felt that a delegation which ignored the borough council and placed an assistant in one of their departments, viz., the health visitor, under an officer who is not an executive officer of the borough council was bad. It was decided

to communicate these views to the Metropolitan Boroughs' Standing Joint Committee.

The London County Council (General Powers) Act, 1922 (with particular reference to Part III, Filthy or Verminous Articles and Premises); the Milk and Dairies (Amendment) Act, 1922; and Ministry of Health Circulars with regard to the Training of Health Visitors, and the prosecution of vendors for selling milk deficient in fat, were received by the branch.

"The London Epidemics of Cholera" formed the title of the presidential address to the branch, which was greatly appreciated by all members present. A cordial vote of thanks was unanimously accorded to Dr. Hamer for his interesting paper, which will be published in the journal in due course.

HOME COUNTIES BRANCH.

An interesting paper was read before a meeting of this Branch held on June 2nd, 1922, by Dr. Alice Stalker, on the "Treatment of Enlarged Tonsils and Adenoids."

The causation of post-nasal adenoids and enlarged tonsils was first discussed, and among the factors stated to be responsible for the defects, the following were mentioned:—(1) The smallness of the naso-pharynx, (2) the activity of the naso-pharyngeal function in young children, (3) heredity, (4) poverty and unhygienic surroundings and their attendant evils, (5) rickets, rheumatism and the exanthemata, (6) thumbsucking, etc.; and pap-feeding. The relationship between digestive disturbances and adenoids was also discussed.

Abnormal tonsils were stated to be due to (1) hypertrophy of the normal tissue of the tonsils, (2) hypertrophy as a result of chronic inflammation causing (a) soft and more or less vascular tonsils with crypts and much secretion and (b) hard and tough tonsils with irregular cryptic surface or small tonsils with much diminished vascularity, and thus very susceptible to infection.

The symptoms of enlarged tonsils and adenoids were reviewed and an account of the various methods that have been adopted for dealing with these defects was given. Treatment was discussed under two headings, operative and non-operative. The non-operative measures described included prophylaxis, medicinal treatment, both general and local, and such remedial measures as breathing exercises, handkerchief drill and sneezing exercises. Special mention was made of the

methods of treatment by administration of Lymphatic gland extract and Thyroid extract, satisfactory results having been noted after the prolonged use of these extracts. Various forms of operative treatment were described, the procedure in one method (that adopted by the author) being given in detail. The results obtained by the adoption of operative measures were found to compare so favourably with any other forms of treatment, that on this score alone the advocacy of operative treatment was considered to be justifiable. Another side of the question to be considered was that of expediency, and in connection with this the difficulty of getting any continued form of treatment, either by the administration of drugs or the practise of breathing or sneezing exercises, efficiently carried out, was emphasized and compared with the speedy removal of the defect by operation with but little resultant trouble to the patient or his parents.

The President opened the discussion by expressing the thanks of the Branch to Dr. Stalker for a very interesting paper. He emphasized the fact that the relative distribution of Lymphoid Tissue during young life was very variable, and that it was modified under certain conditions. He was of the opinion that the operation, if necessary, should be done before the child goes to school.

Dr. Forbes, in continuing the discussion, expressed an opinion that tonsilectomy was an operation of considerable seriousness, and that preparation and post operative treatment were required. The condition in many homes was such that the return of a child immediately after the operation was attended by risk. He stated that he had had eight cases of serious bleeding, during the year.

The routine of the Brighton area was outlined, from which it appeared that some portion of the work was done at the Isolation Hospital.

Dr. Borland referred to the conservative method of treatment, as conducted by the Mesdames Hancock and James, and of which he had had some experience.

Dr. Veitch-Clark referred to the part played by mechanical causes. He seemed to favour the view that the Lymphoid Tissue associated with the immunisation against the varieties of organised life against which protection has to be acquired.

Dr. Buchan briefly outlined the relation of the Lymphoid Tissue to embryonic life and the association of its life and its growth, with the symptoms produced. He also favoured the view that the operation should be done before the child entered school life, and from his experience, he also thought that operation at out-door clinics were done with risk.

Dr. Smythe dwelt on the good results that could be obtained by prophylactic measures. He also dealt with the problem from the point of view of an inspecting officer, and showed how many cases of enlargement seemed to disappear of their own accord.

Dr. McIntosh expressed considerable doubt as to the influence of "mechanical causes." He outlined the methods by means of which excessive nasal discharge was dealt with by the average school child.

Dr. Stalker, in her reply, dealt with the risks of blood entering the lungs, and the experience at the Tottenham area. She also considered the question of hospital accommodation, which, in her opinion, could be overcome by preliminary reports made by the Health Visitors, and at least two hours detention after the operation.

At the meeting of the Home Counties Branch, held on October 6, Dr. Nash, M.O.H. of Heston and Isleworth, read an interesting report on "Lead Poisoning in Beer." He stated that on July 10th he was notified by Dr. Darke of a case of lead poisoning and that several other men who frequented a certain public house, complained of abdominal pain. The doctor also supplied the information that certain new tanks recently installed, were the probable cause of the trouble. Following up this line, the following facts were discovered.

(1) That the beer was delivered to a large number of public houses (fifty-one in number) under the control of the Isleworth Brewery Company, in bulk, in the same manner as petroleum and other oils are handled. A consignment of tanks were distributed to the houses in question, the date of delivery being from May 16th to July 14th. The tanks were glazed with a lead composition containing about twenty-eight to forty-one per cent of lead.

(2) That samples of beer taken from these tanks showed the following percentage of lead after the following period:

24 hours	0.8 per cent.
48 hours	1.26 per cent.

72 hours	2.66 per cent.
96 hours	3.08 per cent.
120 hours	2.24 per cent.
144 hours	2.52 per cent.
160 hours	2.80 per cent.
192 hours	3.36 per cent.

The distribution of lead was mainly in the bottom layers. That the removal of these tanks on July 14th was followed by the disappearance of the trouble within a fortnight.

The symptoms of lead poisoning showed no marked difference from the classic descriptions; case note showed abdominal pains, anaemia, jaundice and constipation, etc. Some points of interest were noted.

(1) That in some instances the tanks were used for two months before symptoms were noticed and that cases may have been missed during this period, though they cannot have been numerous.

(2) That the incidence was mainly on heavy drinkers. The dosage of lead amounting to five-six grains per week, an amount which might have been expected to cause more disturbance than actually happened.

(3) That the incidence of the number of cases depended on the nature of the trade done at the particular house.

Subsequent investigation as to the nature of the glaze in the tanks seemed to suggest that the solvent in the beer was dependent on the sugars and acids. In the course of a month, a yellowish glistening powder could be obtained from the used tanks. No deaths were reported.

The President opened the discussion by drawing attention to the doses of lead. He commented on the fact that it was surprising that such a process should have been overlooked by the Home Office. He moved a vote of thanks to Dr. Nash for a very valuable paper.

Dr. Kirkhope in continuing the discussion, complimented Dr. Darke on his diagnosis and his suggestion as to the cause of the trouble.

Dr. Orr spoke of three cases with which he had been connected in his district; one of which was supposed to be an unemployed man taking only one pint of beer per day. He also dwelt on basophilia in the blood as in early symptoms.

Dr. Nash in his reply, pointed out that the Home Office protects the worker only and not the consumer. He also dealt with the question of tolerance and showed how this was upset by anything undermining the general health.

YORKSHIRE BRANCH.

The annual meeting of the branch was held at St. Luke's Municipal Hospital, Bradford, on Friday, September 29.

Eighteen members were present, together with several visitors, members of local authorities in the district.

Previous to the meeting the president, Dr. Buchan, kindly entertained the members to tea. They were then shown over the hospital by Dr. Buchan and the superintendent, Dr. Slater.

Dr. Joseph Buck, M.O.H., Hunslet R.D.C., was unanimously elected president for the session 1922-3. Drs. Buck and Pearce were elected the representatives on the Central Council and Dr. Bertram Hill was re-elected honorary secretary and treasurer. The retiring president, Dr. J. Buchan, then delivered his presidential address, which was listened to with great interest by the members.

Later the members dined together, the chief guest of the evening being the Lord Mayor of Bradford.

NORTHERN BRANCH.

At a meeting of the Northern Branch at the Medical Institute, Newcastle-upon-Tyne, on the 13th of October, 1922, there were present:—The Vice-President (Dr. J. A. Hislop), the President Elect (Dr. Thos. Horne), and twelve other members.

After confirmation of the Minutes Dr. Hislop introduced Dr. Thos. Horne into the Presidential chair, and referred to the new President's long and varied experience in the Public Health Service and his old association with the Northern Branch. Dr. Horne replied thanking the members for the honour they had done him.

The Annual Report of the Honorary Secretary, and his official statement and balance sheet as Treasurer, having been previously adopted as the Report of Council was presented and received.

Dr. T. Eustace Hill, the retiring President, was nominated and duly elected Vice-President, and the following were elected by ballot members of Council:—

Drs. Mabel Brodie, G. R. Bruce, S. J. Clegg, W. H. Dickinson, J. A. Hislop, W. Hudson, R. F. Lunn, S. G. Mostyn, H. Renney, A. Smith, Senior, J. W. Smith, and A. F. G. Spinks, together with the President, Vice-President and the Honorary Secretary, ex-officio.

It was decided to hold the Annual Dinner in the Institute, and arrangements were left in the hands of the President and Honorary Secretary.

The principal remaining item of business was the consideration of the recommendation of the Branch Council that the Branch approve the recommendations of the Special Committee of the Society as to the Constitution.

After some discussion upon the Council's report, Dr. Hislop moved, Dr. J. W. Smith seconding, that the recommendations of the Special Committee be approved, and this was agreed to without dissent.

By invitation of the President, the members were subsequently entertained to tea.

REPORT OF THE HONORARY SECRETARY AND TREASURER FOR THE YEAR ENDED 30TH SEPTEMBER, 1922.

The fully paid up membership at the end of last year was 134.

During the period under report 10 members and 3 associates were elected.

The Branch lost 12 members through resignations and transfers.

The total membership is now 135.

The Branch met 6 times, and the average attendance was 16, as against 22 last year.

The Annual Dinner was held in the Medical Institute on the 16th December, 1921, and 27 members were present.

Two papers were given during the session, and the subjects were as follows:—(1) "Some Infections of the Gastro-Intestinal Tract" (Dr. W. Hudson); (2) "The Present Position of Isolation Hospitals in Preventive Medicine" (Dr. G. R. Bruce).

A discussion on the following resolution from the Midland Branch was opened by Dr. W. Campbell Lyons:—

"That representations be made in appropriate quarters that there shall be transferred to the Ministry of Health all the powers and duties of the Board of Education with respect to medical inspection and treatment of children and young persons in accordance with the wish expressed by Parliament in the passing of the Ministry of Health Act."

The resolution was carried nemine contradicente.

A demonstration by Messrs. Meldrums (Manchester) of the portable "Sack" Disinfector was given at a meeting at the College of Medicine, there being, by invitation of the Branch, a representative attendance of Sanitary Inspectors from the northern counties, and of Medical Students. An introductory address upon "Disinfection by Steam" was given by Dr. H. Kerr.

The Summer Meeting was held at the Dinsdale Spa Golf Club, Dinsdale, on the 7th July, 1922, and proved to be one of the most successful and enjoyable that

the branch has ever held. The attendance was the same as last year, viz., 16. The Durham County Council's School for Mentally Defective Children, adjoining, was inspected, and a party of the members proceeded after lunch to Middlesbrough, where Dr. Dingle demonstrated cases of modified smallpox at his smallpox hospital.

Questions of appointment or remuneration in connection with the following were under consideration by the Council of the Branch:—

Haltwhistle R.D.C.—M.O.H.

West Hartlepool—M.O.H. and Asst. M.O.H.

Hexham R.D.C.—M.O.H.

Newcastle Education Authority—School Dentist and Asst. S.M.O.

Local notes have been contributed more or less regularly to "Public Health" by Dr. G. R. Bruce, Jar-row, and Dr. S. J. Clegg.

Your representatives attended 5 of the 9 meetings of the Council of the Society in London, and kept in intimate touch with the policy and proceedings at Headquarters.

A paper was read by Dr. H. Kerr at a meeting of the Society in London on "The Proposed Revision of the Rules of the General Medical Council for Diplomas and Degrees in Public Health."

It is subject for real gratification that the President (Dr. T. Eustace Hill) received the high honour of election as President of the Society for the forthcoming year, thereby adding yet another to his own numerous distinctions, and also bringing prestige to the Branch. Dr. Hill's election has special significance at the present time. In the great advance that has been effected in the organisation of the members of the Public Health Service for their own protection, and during the past year in particular, Dr. Hill by his intimate connection with and prominence in the B.M.A., not only in the North Eastern Branch, of which he is Ex-President, but centrally, is in a position to exert powerful influence in the consolidation of the interests, which are undoubtedly mutual, of these two great representative bodies. The Public Health Service is comparatively small relatively to the rest of medicine, and is quite unable unaided to fight its own battles, and the considerable degree of success that has attended the resistance to a number of injustices by local authorities has been the result of the B.M.A.'s adoption of our cause. Your Hon. Secretary has been elected to the Chairmanship of the Newcastle Division of the B.M.A. for the year now entered upon, and it is most desirable that other members of the Society should also identify themselves as actively as possible with the work of their local divisions.

NORTHERN BRANCH SCHOOL MEDICAL OFFICERS' SUB-GROUP.

The following is a statement for the year ending September 30th, 1922. The meetings were held in the School Clinic, Northumberland Road, Newcastle-upon-Tyne.

(1) *Friday, November 25th, 1921.* Dr. Frank Wilson, Assistant Surgeon, Ear, Nose and Throat Department, Royal Victoria Infirmary, Newcastle. "Ear Conditions in Children, with special reference to Otorrhoea and its Complications." (11 present.)

(2) *Thursday, February 2nd, 1922.* Dr. Frank Wilson. "Tonsils and Adenoids, with special reference to the Functions of the Tonsils." (8 present.)

(3) *Thursday, May 25th, 1922.* Dr. W. H. Dickinson, Tuberculosis Medical Officer, Newcastle-upon-Tyne. "Tuberculosis in Children." (12 present.)

(4) *Thursday, September 28th, 1922.* Dr. Arthur T. Paterson, Deputy School Medical Officer, Durham C.C. "Eye-work in connection with School Children." (10 present.)

Four meetings held—average attendance 10.

(Signed) R. F. LUNN,

Honorary Secretary and Treasurer.

NORTHERN BRANCH TUBERCULOSIS SUB-GROUP.

During the past session eight meetings were held, viz., five ordinary meetings and three special meetings.

The following papers were read:—

December 1st, 1921. "Tuberculosis Affections of the Skin," by D. Wells Patterson, O.B.E., M.D., M.R.C.P.

March 2nd, 1922. "Tuberculosis of the Genito-Urinary System," by R. J. Willan, M.V.O., M.S., F.R.C.S.

April 6th, 1922. "Diagnosis and Differential Diagnosis of Pulmonary Tuberculosis," by Dr. W. H. Dickinson.

May 4th, 1922. "Recent Observations on early Diagnosis of Tubercle," by Dr. H. A. Ellis, London.

The special meeting held on November 3rd, 1921, was attended by Dr. F. J. H. Coutts, of the Ministry of Health, for the purpose of discussing Memo 37 T with the members of the Society, and Dr. Coutts was subsequently entertained to dinner at the Medical Institute by the members.

A special meeting was also held on March 2nd, 1922. This was called in order to give Dr. Leslie Lyall, D.C.M.S. (Tuberculosis) an opportunity of discussing the policy of the Ministry of Pensions in regard to tuberculous pensioners, with the members of the Society.

The summer meeting was held on July 1st, 1922, at Englethwaite Industrial Colony, Cumberland, and thanks to Drs. F. H. Morison and Mark Fraser, those who attended were given an excellent opportunity of seeing the various activities of the tuberculous men in training.

The average attendance for the ordinary meetings was twelve and for the special meetings eighteen.

The amount expended in postages and stationery is 36/-

(Signed) W. H. DICKINSON,

Honorary Secretary.

Public Health

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Editorial.

THE SCHOOL MEDICAL SERVICE.

It will be remembered that in February last a joint deputation from the British Medical Association and the Society of Medical Officers of Health waited upon the Minister of Health to point out the present unsatisfactory position of the School Medical Service. The prime cause of the deputation was an amazing document which emanated from the Association of Directors of Education, claiming for the Director a complete control of all the activities of the School Medical Officer. It was pointed out by various members of the deputation that the real difficulty and danger of the position lay in the co-existence in every area of two committees dealing with what is essentially a single question, viz., health. In his latest report as Chief Medical Officer of the Board of Education, Sir George Newman returns to this subject, to which he devotes several pages. He maintains that the present system of a somewhat indefinite co-partnership between the Board of Education and the Ministry of Health, with a single liaison medical officer between the two departments is a middle course which secures all the advantages of unification without the disadvantage of a complete separation of their respective spheres of function. With this point of view we cannot agree. It introduces a divided responsibility which is never satisfactory, least of all where Government departments are concerned. Let us examine the ingenious arguments which Sir George Newman considers himself compelled to adduce in favour of the present arrangement for which his remarks are intended as an apologia.

In the first place, he states that medical inspection and treatment were placed by Parliament in an Education Act, to be carried out by a Local Education Authority, and under the

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Board of Education. This we grant, but the history of Section 13 of the Education (Administrative Provisions) Act, 1907, must be borne in mind. It was only at the last minute that this clause, which initiated medical inspection, was inserted into the Bill, being lifted from a Private Members' Bill introduced by Mr. Russell Rea. This clause instituted inspection only, and it was not until after experience had proved the futility of inspection without treatment that the Medical Treatment Act, 1909, was passed. But the chief point to be remembered is that at that time the Ministry of Health was not in existence, and therefore the Board of Education was a *pis-aller*. When, however, the Ministry of Health Bill was before the House of Commons, in spite of certain strenuous opposition from a small minority, an amendment was adopted to transfer at once, instead of "at some subsequent date," to the proposed Ministry all the powers and duties of the Board of Education, in relation to medical inspection and treatment." The intentions of Parliament were thus clear and definite that these were duties which should pertain to a Ministry of Health and not to the Board of Education. It is implicit in this intention that the local authority responsible for carrying out the duties thus transferred must be that Committee which is responsible to the Ministry of Health and not the Committee responsible to the Board of Education. Circular 576, issued in November, 1907, practically admits this contention. "The application of this principle (i.e., that school hygiene is an integral factor in national health) requires that the work of medical inspection should be carried out in intimate conjunction with the Public Health Authorities and under the direct supervision of the Medical Officer of Health. . . . It is unnecessary to emphasise the objections to a dual jurisdiction in such matters as the sanitary control of school premises and the notification and prevention of infectious disease. . . . School hygiene cannot be divorced from home hygiene, and this in turn is intimately bound up with the hygienic conditions of the community. . . . The Board are convinced that this is the only practicable method, and that which is most likely to promote economy, harmony and efficiency." But the Medical Officer of Health can only secure this unification at the direction of the committees which he serves. To the Health Committee appointed as it is for the prime purpose of supervising the health conditions of the area, he is the ad-

viser appointed by Statute, but to the Education Committee, for which health problems form a very small part of its duties, he can never be in the same position under existing circumstances. Education authorities cannot visualise the whole problem of preventive medicine, for they see only a small part of the vast field, and too often "they cannot see the wood for the trees."

Sir George Newman's second argument is that the work must be carried out at school age, on school premises and in school hours; and that therefore it must be performed by officers of the Local Education Authority. But he forgets that the medical officer of health has long had the right of entry in the elementary schools and that it is one of his duties to report officially upon their sanitary condition. He further omits to mention that it is the council, whether county or borough, which is the real administrative authority, and that this body delegates certain powers to the different committees, including the Education Committee, and that the servants of that committee, whether director, teacher or medical officer, are primarily servants of the council, who must fulfil the directions and carry out the duties given to them. To write therefore that: "It would be possible to deal with a few sick or selected children by removing them from school for medical inspection and treatment by the sanitary authority or other agency, but we cannot thus deal with all the school children," is an argument the transparent falseness of which can hardly escape detection by the simplest intelligence.

Much stress is laid on the fact that out of 316 school medical officers, 283 are also medical officers of health. This is true, but it should call attention to the fact that there is a small army of assistant school medical officers who are directly under the local education authority. These too should possess that "organic relationship between the daily work of the school authority and of the authority responsible for the wider branches of public health," which can only be obtained when they have other duties than those of school medical officer. It is so easy to be misled by a catch phrase, and "co-operation" is one of those loose terms which has no real precision of meaning. It is not enough to have one officer responsible to two administrative bodies, whether central or local, there must be an identity of aim. This can only come by a unification of all the manifold activities which centre

round the administration of preventive medicine into one central department, to which is directly responsible one local executive agency for carrying out the policy initiated there. A new Minister of Health now reigns at Whitehall. We commend these arguments to his earnest consideration, in place of those which Sir George Newman has felt impelled to put forward officially to support the existing thoroughly unsatisfactory position.

SCOTTISH BOARD OF HEALTH SCANDAL.

It is time that some strong and definite official action was taken by the British Medical Association and the Society of Medical Officers of Health with regard to the scandalous action of the Scottish Board of Health in connection with salaries in the public health service. The Lanarkshire Education Authority recently offered a commencing salary of £500 for an assistant medical officer, but received a letter from the Scottish Board of Health stating that the Board regarded that figure as unnecessarily high, and suggesting that the commencing salary should be £450. Fortunately, the Lanarkshire authority declined to consider the suggestion that that part of the public for which it was responsible could be adequately dealt with by members of the medical profession who were content to declare themselves of opinion that they would be adequately paid for their services by a salary below the minimum which had been fixed by a united medical profession.

A somewhat similar event has occurred in Stirlingshire as the result of an advertisement by that authority for an assistant school medical officer at a salary of £500 per annum. The Scottish Board of Health intimated that they considered the salary unnecessarily high, but the Stirlingshire authority replied that, "Considering the duties to be performed by the officer, they were of the opinion that the proposed salary was no more than fair or reasonable."

The Scottish Board of Health are apparently of the opinion that public health work is of such minor importance that inexperienced or unsuccessful practitioners are quite competent to fill the posts, and they are, therefore, prepared to abuse their position in order to incite reactionary local authorities to cut down their public health expenditure to danger

point. The matter should be very seriously considered by the whole public health service in Scotland, and also by the universities and licensing bodies there. We have never heard of a public officer from an English school obtaining a public post under a Scottish local authority, and so this action of the Scottish Board of Health practically amounts to a statement that Scottish graduates are worth less than is being obtained as a minimum salary in England. If energetic action could be taken by the Scottish universities and licensing bodies as well as by the members of the public health service, who have very considerable powers in bringing these scandals to the notice of the public, it is quite possible that the Scottish Board of Health might be brought to their senses.

INSURANCE AGAINST SMALLPOX.

One of the best practical arguments in favour of vaccination is afforded by the hard-headed business gentlemen who undertake insurance work at Lloyds. No one can charge these gentlemen with being affected by sentiment, and they can usually be relied upon to regard any proposition from a cold business standpoint. They have made up their minds that vaccination is a thoroughly reliable protection against smallpox, having had to consider the matter because a brisk business in smallpox insurance has recently sprung up.

The demand for these policies has gradually increased since public attention has been called to the outbreak of the disease in London, but until the last week or so the business has been practically confined to policies covering individuals for small amounts rarely exceeding £1,000 each. These insurances provide for the payment of a claim for total loss should the assured become attacked by smallpox within twelve months.

The maximum rate charged is 2s. 6d. per £100 if the proposer has not been vaccinated within the last ten years. A rebate of 20 per cent. is usually granted on sums exceeding £100.

In the case of individuals who have been vaccinated within ten years the minimum rate is as low as 1s. per £100 on policies exceeding £200.

Another class of smallpox insurance at present in demand is the collective or group system issued for the benefit of employers.

Under this scheme underwriters render themselves liable for a total loss on the full amount insured in the event of a single member of the employer's staff falling a victim to the disease within twelve months.

The object of this insurance is to provide indemnity to employers on the assumption that their business would be dislocated by reason of the isolation of other members of their staffs. Policies under this class have been issued for sums varying from £5,000 to £10,000 at an average rate of 20s. per cent. without regard to the question of vaccination.

These collective policies were much in favour during the war, when a number of employers on patriotic grounds insured the whole of their staffs against loss of life or personal injury consequent upon air raids. As it turned out, these insurances proved very profitable for underwriters.

THE CROYDON VACANCY.

Every effort has been made by the combined forces of the British Medical Association and the Society of Medical Officers of Health to persuade the Borough Council of Croydon to offer a reasonable salary for the new medical officer of health. We understand that these efforts have met with a considerable amount of support in the council itself, but a majority of the town council have decided to advertise the post at the utterly inadequate salary of £1,000 per annum. Every member of the Public Health Service should realise that if £1,000 per annum is considered to be sufficient for an important appointment of this kind, then the position of the rank and file of the service will indeed be a hopeless one. No possibility for the proper remuneration of the great bulk of the Public Health Service can exist so long as it remains possible to fulfil important posts such as this at such a salary. Every self-respecting member of the profession will refrain from making an application, and if any member has already made such an application, owing to a misunderstanding of the position, he will undoubtedly, on knowing the facts of the case, withdraw the same without hesitation. The loyalty of the service is now being tested and if the test proves that the loyalty of the service generally is unequal to the strain, then the service will have to make up its mind to be grossly underpaid for another generation. On the other hand, united and forceful action of the whole

service at the present time will undoubtedly secure terms and conditions of a perfectly satisfactory nature.

SALARIES AND THE MINISTRY.

On many occasions we have been compelled to criticise the action of the Ministry of Health with regard to the salaries paid to medical officers appointed under local authorities. The approval of the Ministry has been obtained for salaries which are so grossly inadequate that they constitute a serious menace to the whole profession of medicine. On other occasions, when a progressive authority has proposed an adequate salary, the Ministry has actually gone out of its way to suggest a lower one. These actions are strongly resented by the public health service.

It is satisfactory to be able to assume, however, that there is a limit beyond which even the Ministry will not go. There is at the present time an interesting struggle going on between the Ministry and the Mitford and Launditch (Norfolk) Rural District Council, the members of which are making a determined effort to reduce the present salary (£150) of the medical officer of health. This seems to be the Ministry's limit, and up to the present the suggestion has met with their refusal.

The anxiety of many rural district councils to appoint medical officers of health who will do nothing, and to pay them an appropriate salary for doing it, is notorious, and is, perhaps, realised even by the Ministry, but we feel impelled to ask the Ministry whether there is any district in the whole country where the *reasonable* performance of the manifold duties of medical officer of health is adequately recompensed by the salary of £150.

The Harben Lectures for 1922 will be delivered in the Lecture Theatre at the Royal Institute of Public Health by Professor Theodore Madsen, M.D., Director of the State Serum Institute, Copenhagen. All interested are invited to attend. The lectures will be held on Friday, December 1st, Monday, December 4th, and Tuesday, December 5th, commencing at 5 p.m., and the subjects dealt with will be: "Specific and Unspecific Antitoxin Production" (December 1st); "Antitoxic Treatment" (December 4th); "The Influence of Temperature on Antigen and Antibodies" (December 5th).

THE CARRIER PROBLEM.*

BY
SURGEON-COMMANDER S. F. DUDLEY, O.B.E.,
R.N.

I have chosen this subject because I think it of vital importance to all workers in preventive medicines, and also because, by force of circumstances, "carrier hunting" has formed a large proportion of my duty during the last ten years. The subject is especially worthy of consideration by this Group of the Society, as, in the Services, where large bodies of men live closely together, in ships and barracks, the "carrier" question often becomes acute. In the Services, too, the population is more under control, and therefore Naval and Military doctors have better opportunities for studying the "carrier" state in its epidemiological aspect than their civilian colleagues.

It has frequently been pointed out that the knowledge of how to prevent many diseases, which are still only too common, is in our possession, but public opinion is, as yet, not sufficiently educated to allow preventive medicine to use to full advantage the truths she has wrung from Nature. Nearly all those parasites that spread disease by the alvine discharges, by insects, or by direct contact, could be controlled, as, for example, the parasitic causes of enteric fever, yellow fever, and syphilis.

There remains, however, a great group of diseases that, even if preventive medicine had a free hand, it could, at present, do little to control. These are those infections which invade via the respiratory tract and are usually spread from person to person by means of droplet infection. The best, if most hackneyed, example of this type is epidemic influenza.

When the nature of infectious disease was understood, arrangements were made to isolate infectious patients, and it was hoped early isolation would greatly diminish the incidence of zymotic diseases. To a certain extent this isolation may, nay must, have had some effect, however small, in diminishing the number of those infections, but on the whole the results have been very disappointing. Why is this? One reason, and probably the chief reason, is that all diseases, almost without exception, are accompanied by more or less numerous "carriers."

* Read at a Meeting of the Naval, Military and Air Force Group of the Society of Medical Officers of Health, the 9th June, 1922.

What is a "Carrier"? I think the best definition for our purpose is:—

"A 'Carrier' is any individual who, while presenting no marked symptoms of disease, harbours a parasite capable of producing a recognisable disease in certain susceptible people."

For convenience, "carriers" can be divided into four groups:—

(1) Precocious; (2) Contact; (3) Convalescent, and (4) Chronic.

The Precocious "Carrier."—This class of "carrier," also known as the "incubation carrier," has been the least studied. Just lately Dr. Fletcher,¹ of Kuala Lumpur, reports that three men were accidentally fed with paratyphoid bacilli. In two of the cases he recovered the organism from their stools within a fortnight, three and nine days respectively before symptoms of paratyphoid fever developed. The third case discharged bacilli for some time, but never developed clinical symptoms. These two cases furnish undoubted proof that it is possible for a case of paratyphoid fever to be dangerous during the incubation period and are important, as I know of no other such definitely proved examples in other diseases. Ledingham² mentions in his book, similar cases of precocious carrying of *B. typhosus*.

On the whole, there is little evidence to be found in the literature showing that infectious diseases can be spread during the incubation period. Measles is infective very early, but in the absence of a known biological cause it is hard to prove definite infectivity before the onset of symptoms. During the incubation period the organisms must be in the patient and multiplying somewhere, but it almost seems that by the time they are numerous enough to be found by the bacteriologist they will either have produced symptoms or the "carrier state." A corollary of the rarity of demonstrating "precocious carrying" is the observation that discovered "carriers" very seldom develop the diseases they carry. For example, among thousands of meningococcus "carriers" there is scarcely an authenticated case of one of them developing meningitis. Yet if "precocious carrying" were common, many instances would surely have occurred. Auto-infection of a "carrier" is, after all, not to be expected, as in order to be a "carrier" he must have a high degree of resistance to the parasite he harbours. Many cases of so-called auto-infection may well be due

to re-infection with a different variant of the same parasite, while others will not bear severe criticism.

The "precocious carrier" is interesting, but probably not very important in most infectious diseases. Before leaving this type there are one or two interesting observations on syphilis I think worth examining. It has been reported³ that (1) the seminal discharges from apparently cured syphilitics are infectious, and (2) in rabbits *S. pallidum* can be found in the lymph nodes within 48 hours of experimental inoculation.⁴ Combining these two reports it is possible that the seminal discharges of a man may be infective before the appearance of any chancre, that is to say, a factor in the spread of syphilis may, perhaps, be the "Precocious carrier." It is only fair to add, however, that Noguchi,⁵ still more recently, reports that he found spirochetes similar to *S. pallidum* in 30 per cent. of a batch of apparently normal rabbits he examined. This rather discounts the previous observation unless confirmatory work shows the rabbits used are free from spirochetes before experimental infection. Still, to my mind, it has always seemed almost essential that syphilis must often be conveyed by males without any obvious lesions, that is to say, by "carriers."

Let us now consider the so-called "contact carrier." If a textbook on infectious diseases is referred to, the clinical types of an infection are almost invariably divided up as follows:—Ambulant, mild, severe, and fulminating. This indicates that there are gradations in the signs by which we recognise a disease—from a patient so little disturbed as to be walking about, to the man suddenly struck down by a rapidly fatal illness. Yet this gradation of infection is not complete from a bacteriological point of view. There is a yet milder form of infection which in many parasitic conditions is the commonest of all types. It is the "contact carrier." Therefore, to complete our classification of types of parasitic infection, we must insert "carrier" and read—"carrier": ambulant, mild, etc.

Because the "carrier" cannot be recognised without a bacteriological examination, his frequency and importance are not as clearly realised as he deserves. The "contact carrier" is presumably called "contact" because he is usually discovered among those who have been in contact with an infectious disease. As a matter of fact,

he may be responsible for the patient or the latter may be responsible for him. The mildest type of infection is the "carrier" state, which usually runs its course just as the obvious disease does. The "contact carrier" responds to infection in many cases by producing recognisable immunity substances in his blood, and he throws off the infection in a comparatively short time, only, in his case, the outward and visible signs, such as fever or a rash, are absent. Meningococcal infections demonstrate the relation of the "contact carrier" to actual illness. During cerebro-spinal fever epidemics there are hundreds of people who harbour organisms in the naso-pharynx, indistinguishable from meningococci, which are the presumed cause of dangerous meningitis. Undoubtedly the common form of meningococcal infection is an insignificant catarrh of the naso-pharynx causing no symptoms—meningitis being a rare type of the same infection. It is interesting to note the analogy with the gonococcus, a closely related organism which causes a severe catarrh, but in a different locality, with septicaemia and meningitis, rare, but not unknown, types of infection.

We now come to the "convalescent carrier," who is the case of disease who does not lose his parasite with his symptoms, but takes it with him into convalescence. This type of "carrier" is responsible for the return cases of the fever hospitals and is a large factor in the spread of epidemics.

Finally, if a "contact" or "convalescent carriers" remain infectious over a long period, for convenience generally fixed at three months, they become "chronic carriers." The "chronic carrier" may or may not give a history of a specific disease according as he originates from a "convalescent" or a "contact" carrier. The "chronic carrier" is of great importance, as he is often the link which connects one epidemic to the next and who is responsible for the peculiar appearance of sporadic cases distributed in time and space without any apparent relation to other cases of the same nature.

The "chronic carrier" may be a dangerous source of infection for years or even life. He is an instance of a permanent mutual adaptation between two organisms—man and a pathogenic bacterium.

As an example of the "chronic carrier" at work, let me relate a naval experience.⁶ We will

start with three apparently unconnected events. First, during the year 1900, a ship serving in the China Seas returns a few cases of typhoid fever. Secondly, after a lapse of nine years, a ship based on Gibraltar reports half-a-dozen cases of typhoid fever. Finally, in 1914, a battleship in Home waters returns many cases of typhoid fever. Casually it looks extremely unlikely that these three typhoid outbreaks, separated so widely in time and space, can have anything to do with each other. The only point they possessed in common is that the ships' medical officers, writing at the time of the occurrence of the cases, were at a loss to explain them and even commented on the absence of typhoid fever in the rest of the squadron. However, this is the explanation. In 1898 a ship's cooper was sick in Chatham Hospital with typhoid fever. He returned to the same hospital in 1914 and was found to be carrying *B. typhosus*. Between these two visits to Chatham Hospital he served in 12 ships and establishments, every one of which returned cases of typhoid fever (53 in all) during the time of this man's service. The outbreaks with which I started this story were undoubtedly his fault. I know of no better example than this of the manner in which epidemics and sporadic cases of disease may be linked together in time and space by the "chronic carrier."

The foregoing remarks attempt to summarise the relations of the different types of "carrier" state to the definite diseases whose germs they carry.

The practical discovery of "carriers" is the next question that demands attention. First there is the selection of cases most likely to be "carriers," such as people with a history of the disease in question, disease "contacts," known carrier contacts, people with catarrhs, chronic discharges, and those who deal with food. This is all common sense public health administration, and I will not dwell on it. The suspects being obtained, the onus of proving them guilty of "carrying" rests with the bacteriologist. Most medical men, even if not technical bacteriologists, realise by this time that the difficulty of distinguishing dangerous micro-organisms from the numerous similar harmless ones, invariably in the same environment, is by no means an easy task, even in marked cases of illness. The task becomes even of greater difficulty in the case of

"carriers," and unless great care is taken mistakes must be frequent. The diphtheria swabbing controversy is a good illustration of this difficulty. To a great extent it is a matter of personal equation what a "morphological K.L.B." looks like. Yet I think as one gets more experience the atoxic diphtheroid bacilli returned as possible K.L.B. becomes less and less. But every bacteriologist must admit there still remain many atoxic diphtheroids indistinguishable from true *B. diphtheriae* except by an animal experiment. And all "carrier" statistics as regards diphtheria are absolutely useless unless the organism has been isolated and tested on a guinea-pig. With meningococci the poor bacteriologist is in just as great a predicament as with diphtheria. Those who studied technical bacteriological literature at the time of the Cerebro-spinal Fever epidemics must have realised that the question "What is a meningococcus?" was as strenuously contested in the laboratories as questions such as "What is a sardine?" were debated in the law courts.)

The difficulty of distinguishing harmless organisms from dangerous ones resembling them is so important that I make no apology for introducing a third example—*B. influenzae*. *B. influenzae* is a group of organisms very hard to grow on artificial media, but if a suitable medium is used it can be found in half the population. I think I may claim to be among the first to point this out.⁷ It may or may not be the cause of epidemic influenza. But it is an extremely variable organism both in its morphology and seriological reactions. Maitland and Cameron⁸ recently isolated 38 strains, nearly all of which showed a different seriological individuality, and varying strains could be obtained from the same person. From my point of view this plasticity is a great point in favour of Pfeiffer's bacillus being the specific cause of influenza. From the more conservative point of view the fact that it is so ubiquitous in healthy throats militates against its pathogenicity. If one of this group, known as Pfeiffer's bacillus or *B. influenzae* causes "flu," the numerous "carriers" and the variability of the group explain the epidemiology of epidemic influenza straight away.

The crux of the whole problem is the fact that it is impossible to differentiate the pathogenic organisms on morphology only. Systematic biologists, without exception, prefer to diagnose species by morphological rather than functional

characters, as the latter are extremely variable and react easily to any change of environment.

Owing to the minuteness and lack of obvious structure in the bacteria, biochemical and serological reactions are chiefly depended on for specific differentiation, and these characters are functional and therefore very plastic. From the medical point of view the characters of virulence and infectivity are the most important; they are probably the most recently acquired and therefore the most variable, and, anyhow, the hardest to define or detect by present day methods. None of the reactions of the pathogenic bacteria, taken as a whole, are fixed, or correlated with the power of producing disease. For instance, Bell⁹ has demonstrated that the serological groups of the diphtheria bacilli show no relation to their power of producing toxin. *B. abortus* is non-pathogenic to man, yet it is said to be indistinguishable, serologically or by any other means, from *M. miltensis*, except that the latter is more harmful to rabbits.¹⁰

For most practical purposes an experienced bacteriologist will make few mistakes if he is given time, but here again the time taken to return a report must be reduced as much as possible or, however accurate the findings may be, they will be too late to be of much service to the clinician or administrator. The correct diagnosis of the organism is essential in examining "carriers," as it often means curtailment of liberty or loss of employment to a strong, healthy individual. On the other hand, a negative result does not necessarily mean that a man is not a "carrier," because the more efficient the technique the greater the number of "carriers" found. For example, suitable media must be used, as was well shown in the influenza prevalence and accounted for many discordant reports of the presence or absence of *B. influenzae* in patients or others. In looking for *B. influenzae* one may use a media on which stock laboratory strains will grow well and never find one specific bacillus, whereas with suitable technique *B. influenza* can be isolated from 50 per cent. of the population.

In diphtheria swabbing, too, I have tried many media on which pure cultures of K.L.B. may grow more luxuriantly than on coagulated ox serum, but, in my hands, the latter is the best for primary cultures from the throat. It is the only one I have used where K.L.B. is very rarely outgrown by other bacteria and, when present, is in

most cases the predominant organism, at any rate in the cases of clinical diphtheritic throats. For instance, from among 75 cases of diphtheria 72 typical morphological diphtheria bacilli were found easily, though in most cases the bacteriologist did not know whether he was dealing with a "case" or a "contact," and only found 5 per cent. "carriers" among over 1,500 swabs. In the diphtheria "carrier state" I must confess the bacilli are not always as easy to find. Still many "carriers" show cultures as profuse as those from "cases," and probably these are the dangerous ones.

Suppose the technical difficulties just indicated are non-existent, there is yet another important question to answer, viz., "If a community is to be kept free from 'carriers,' how often must it be examined?" This introduces one of the big but apparently often little recognised fallacies in un-repeated mass examination for "carriers."

During the cerebro-spinal meningitis epidemic I did a few experimental swabbings on the same batches of men at short intervals and arrived at the following conclusions. Suppose 10 "carriers" are found among 100 men and segregated. Examine the other 90 in a few days and probably five more "carriers" will appear. A few days later again and further "carriers" will be found among the 85 negatives left. Meanwhile the "carriers" first isolated are clearing up. Therefore it seems quite possible that during the epidemic the majority of the original 100 men at one or more times are infected. In other words, the wave of incidence and cure of "carriers" passes over the population in exactly analogous fashion to the epidemic wave of actual cases. The actual proportion of "carriers" to "cases" may vary enormously with different infections, and different variants of the same infection. As regards C.S.M. "carriers," I came to the conclusion that the only way to keep the Royal Navy free from them would be to swab the whole personnel every morning and return the report by noon, as any man may become a "carrier" on the morrow of the day the examination is negative.

Intermitting or relapsing "chronic carriers" are another difficulty. Enteric "carriers" have been most studied on this point. Ledingham² mentions intervals in the discharge of *B. typhosus* ranging from weeks to years. In the naval "carrier," previously referred to, in 10 examinations out of 18 I was unable to demonstrate

typhoid bacilli in his stools. This same "carrier" also illustrates how the presence of immunity bodies in the blood may help in searching out a "carrier." This man's blood was the only one among some 50 men to give a positive Widal reaction. For this reason the examination of his stools was twice repeated before a positive result was obtained. Unfortunately all "carriers" do not produce recognisable immunity bodies.

Here is an instance suggested of an "intermittent carrier." While investigating an unexplained outbreak of typhoid at a naval air station I came across an uninoculated cook whose blood agglutinated *B. typhosus* in dilutions as high as 1:1,000. In spite of repeated efforts no enteric organisms were ever recovered from his discharges. He had no history of any disease resembling enteric fever. No further cases of typhoid occurred after his removal from the air station galley. This incident suggests that the cook with the strong Widal reaction was a "carrier" examined in a free interval.

When we consider these cases and also remember that probably over a third of enteric "carriers" do not give specific agglutination reactions, we realise what a real trouble intermittency may be. Intermittency is also seen in the respiratory group of organisms, such as those of diphtheria, meningitis and pneumonia.

It can now be seen that the control of epidemic spread by the isolation of "carriers" is severely handicapped by the continual arising of fresh "contact carriers," the intermittency of "chronic carriers," and technical bacteriological difficulties, all of which limit the value of swabbing as a public health measure. Swabbing done thoroughly, early, and repeatedly may stop an outbreak in an institution where the numbers are not too unwieldy, but in my opinion, in the case of an epidemic well under way among large bodies of men, promiscuous swabbing by a few already overworked bacteriologists is a rather hopeless procedure. To make any impression the number of individuals to be examined becomes so large and the examinations require such frequent repetition as to make swabbing an impractical proposition. Probably the most swabbing can do is to flatten the curve of incidence of disease, at the same time prolonging it. In plainer language, though the total number of cases in the epidemic is not diminished, they are spread over a longer interval of time by the segregation of some of the

sources of infection in the shape of those "carriers" found. I think I have an example of this effect in a comparison of the scarlet fever and diphtheria incidence at Greenwich School. In six months there were 100 cases of diphtheria spread out fairly evenly. All this time "carriers" and sore throats, not clinically diphtheria, but containing diphtheria bacilli, were being found and segregated. In the midst of this period 129 cases of scarlet fever were reported, but the vast majority occurred during six weeks instead of six months. During this period the number of sore throats, negative as regards *B. diphtheriae*, increased, many of which were probably abortive scarlet fever cases, i.e., scarlet fever "carriers," but luckily for the bacteriologist, we cannot detect these latter yet. Thus the result of removing the diphtheria "carriers" and not the scarlet fever "carriers" was one of the factors which caused the diphtheria to last four times as long as the scarlet fever. I do not mean to say there are not other factors, in fact I think there are more important ones in this case, but I cannot touch on them here.

A few remarks must now be made on the danger of infection from "carriers." It is undoubtedly a fact that many "carriers" of real pathogenic micro-organisms seem to be perfectly harmless, so much so that some people scoff at the whole question of "carrier" infection, and go back to the ancient view that the fact of an organism being found in healthy people is proof in itself that it is not pathogenic. However, to most minds, this proposition is no longer tenable. In some diseases, as for example diphtheria, we actually know why the "carrier" is immune by finding anti-toxin in his blood.

Certain "carriers" may be harmless because: Firstly, the parasite, though pathogenic by our tests, has adapted itself to the "carrier" state and produces "carriers" rather than "cases" of disease.

Secondly, the concentration of the organism in its host's discharges may be too low for the germ to be sprayed about in doses sufficient to cause infection. Practical "carrier hunting" rather supports this idea, as it is generally, but by no means always, more difficult to isolate pathogenic organisms from the "carriers" than from the actual case of a disease. If this is so it is fortunate, as it means that the "carrier" hardest to

detect and easiest to miss is probably a harmless one.

Thirdly, the habits and employment of the "carrier" are important. The man who cannot talk without "splashing" is an example of a dangerous habit, and it is a fact that practically only those enteric "carriers" who handle food are dangerous. In this connection there is the child's habit of sucking things. I recently recovered virulent K.L.B. from a penholder which had been chewed by a diphtheria case a fortnight previously. Though a "carrier" may be ordinarily harmless, he may at any time become dangerous. A "carrier" becomes secondarily infected with another germ and gets a catarrh. This gives a chance for the organism he "carries" to multiply to a dangerous concentration, either because more pabulum in the way of mucus, etc., is available, or because of the lowered vitality of the host, or perhaps owing to complex relations with the other infecting microbes. The latter, perchance, by causing coughing and sneezing helps the "carried" germ in its dispersion.

During the prevalence of diphtheria and scarlet fever at Greenwich Naval School there were many sore throats not clinically diphtheria which harboured K.L.B. in large numbers. For example, K.L.B. were found in 7 out of 18 mild cases of scarlet fever where there was no suspicion of clinical diphtheria. In four cases these organisms were tested and found to be virulent. These cases were insusceptible to diphtheria, as proved by the Schick test, and either the lowered vitality of the throat caused by the scarlet fever virus permitted easy infection by diphtheria bacilli or they were harmless "carriers" containing a few bacilli which got the chance of multiplying in the scarlet fever throat. In this connection, too, it is interesting to remember the possible symbiotic relation between B. diphtheriae and streptococci, and that the latter are invariably found in the throats of scarlet fever patients.

It is now possible to suggest the reason why some fever experts consider it a useless procedure to swab diphtheria convalescents before discharge from hospital, believing the odd "carrier" who escapes will cause no return cases. Even should a dangerous "carrier" return to his own immediate circle, it is quite likely the latter have been exposed to the same infection as he was and have already developed it, either as "carriers" or

"cases," before his return, or were all the time immune to diphtheria. In many instances the application of the Schick test has shown this to be the case. Again, a "carrier" returned to a school or institution during an epidemic only adds one more to the many already there, and should he cause cases is more likely to do so, in the case of diphtheria, indirectly via one or more "contact carriers" than directly. Why do I say this? Consider a school like that at Greenwich. Here six boys out of seven have negative Schick reactions, which means they are incapable of developing diphtheria, but it does not mean that they are incapable of becoming "carriers." A diphtheria "carrier" in the midst of such a population has a six to one chance of infecting an immune boy as a "carrier" and only a one to six chance of directly infecting a susceptible, that is of directly causing a case of diphtheria. It is thus often hard to bring home the guilt to the "convalescent carrier" primarily responsible, for he may be linked by a chain of "contact carriers" to the case he is the cause of.

The actual danger of "carriers" is sometimes hard to prove directly. The case against "carriers" may be said to be definitely proved in the enteric group and in diphtheria. In the case of cerebro-spinal fever it was hard to obtain actual proof of the danger of any individual "carrier." However, here is an observation from my own experience. A case of C.S.M. occurred in Chatham. Among his immediate "contacts" no "carrier" was found, but there was one "contact" missing, a great friend of the patient, who had gone on four days' leave to visit his family, three days previous to the onset of the patient's illness. On his return he was swabbed. An almost pure culture of meningococci was obtained from his naso-pharynx. Two days after his return his wife and child simultaneously developed meningitis. This man "carried" meningococci for some months. He, I think, must have undoubtedly been a dangerous "carrier." As again emphasising the importance of concentration of an infective virus in the respiratory discharge as a factor in the danger from certain "carriers," I would note that I remember few other instances where meningococci were obtainable in such profuse quantity and in such purity of culture as in this case. Again, in H.M. Hospital Ship "Agadir," in 1918, when C.S.M. cases had become very scarce, I found two "carriers"

—contacts of different cases. In one case there were two previous entries on his papers of his having been detained in 1915 and 1916 as a "carrier"; the other also had spent some months in hospital previously as a "carrier." Perchance these were dangerous intermitting "chronic carriers" of meningitis and may have infected cases in 1915 and 1916 and have been the cause of the two cases in 1918. On the other hand, they may have merely been similar to people with a chronic relapsing catarrh, always due to the same organism, and the meningococci they carried may have been quite harmless.

The last difficulty I will mention very briefly. Even if it were possible to discover all disease "carriers," can they be segregated? In this connection it is well to listen to the protests from the Fever Hospitals during epidemics when they find their beds being filled with healthy people while those who are really sick are clamouring for admission. Even suppose the beds were available, can we imprison "chronic carriers" for life if we cannot cure them? The cure of "chronic carriers" seems almost hopeless. As Sir William Andrews pointed out to this Society; this is not surprising; they are immune. "Carriers" have formed a compromise with a usually pathogenic organism that they will give it shelter as a saprophyte provided it invades no further.

Considering intermittency, even if we think we have cured a "chronic carrier," can we be sure of it? In some work done in India it was found that the majority of cases supposed to have been cured of "amoebæ carrying" were re-infected or relapsed very soon after they returned to active service conditions. In certain cases surgical measures may effect a cure, such as the removal of tonsils and adenoids from diphtheria "carriers" or the gall bladder from typhoid "carriers." But outside surgery no other measures seem of much use. The gonorrhœal "carrier" illustrates all these difficulties. He may have an unnoticed morning drop, or not even that, or just a few puss cells demonstrable in a prostatic smear. Outside surgical measures, efforts to cure him with vaccines or lotions are almost hopeless. There are no reliable tests of cure and a negative bacteriological examination is no guarantee whatever against relapse.

You will have noticed that practically all my examples of "carriers" relate to diphtheria, cerebro-spinal meningitis, or the enteric group.

This does not mean that "carriers" are any less important in other diseases, but the three selected diseases each has well-known and studied organisms in relation to them accepted by most people as playing the principal role in the etiology of these fevers. In many other diseases the "carrier" is one of the most important agents in dispersal, even though, as yet, we may be doubtful of what the actual thing is he disperses and have no means whatever of recognising him. There is no hypothesis that can explain the epidemiology of encephalitis lethargica better than the "carrier" one. Allow there are "carriers" of it and the peculiar distribution is simply explained. In infantile paralysis "carriers" of a filter-passing virus have actually been demonstrated by animal experiment. In scarlet fever there are some significant facts pointing to dissemination by "carriers." Every one must have had experience of the peculiar, unexplained way in which sporadic cases of scarlet fever sometimes turn up. In the Hospital Ship "Agadir" I kept getting odd single cases of scarlet fever without any history of contact with another case and often from ships which had given no leave for some time previously. Most authorities admit that scarlet fever can occur without any rash, and apropos of this I have a rather interesting observation. At Greenwich there was an epidemic of 120 cases of scarlet fever. In a school there is always a certain number of boys treated for tonsillitis and sore throat. I plotted out the sore throat curve of incidence and the scarlet fever curve and found that the former closely followed the latter, suggesting that many cases of simple sore throats were larval scarlet fever patients. Of course, other factors favouring specific scarlet fever might also have favoured non-specific sore throat. Finally it should be noted that in some diseases, such as small pox, the "carrier" seems an uncommon vehicle of spread, case to case contact being the rule. But even here the "carrier" may account for some unexplained outbreaks like the recent one at Nottingham.

Before proceeding to put forward what seems to me the most hopeful lines on which to tackle the "carrier problem," I think it might be of use to try and see the biological meaning of the "carrier" state. All medicine is biology, and progress in medical science must be more rapid if this fact is continually remembered. The "carrier" condition is by no means confined to

man and his parasites. The difficulty of controlling foot and mouth disease may well be due to "carriers." "Precocious carriers" are factors in the spread of rabies; the virus is present in the saliva before the onset of symptoms. Even in the vegetable world we find instances.¹¹ Mosaic disease may infect some plants without any signs, as is shown by the juice of an apparently healthy plant causing the disease in other members of the species, which in turn may be infected either lightly, severely, or as "carriers." Experimentally Petri and O'Brien¹² showed that the "carrier" state could easily be induced in guinea-pigs. Topley's¹³ experiments on mice epidemics also demonstrate the importance of the "carrier" in animals.

Thus it is seen that the "carrier" condition is a common occurrence throughout all nature. It must therefore have some wide biological significance. Any organism to be successful, be it man or a microbe, must show some power of adaptation to the continually changing environment and make efficient provision for the dispersal of its progeny. Efficient seed or spore dissemination is the hall-mark of successful plant species. The "carrier" state broadly viewed is the mode of selection that many of those pathogenic bacteria, which are non-sporing, choose for their dispersal.

Let us now consider, one by one, some factors concerned in the spread of disease.

(1) *Virulence*.—This attribute seems at first sight an advantage to a bacterium possessing it, as it generally means increased multiplication in the host's tissues and concentration of infective material in those discharges of the patient which are used to disseminate the bacterium. Another component of virulence is toxin production, which may be useful in killing the host's tissues preparatory to invasion. But virulence also works against the organism by causing illness or death of the host. A sick animal crawls into its hole; a sick man goes to bed; corpses do not carry disease. Therefore the virulent organism diminishes its chance of dissemination in proportion to the degree of immobilisation and isolation it causes its host, whereas the avirulent organism, which causes no inconvenience to its host, is at an immense advantage as regards dissemination. The host is able to mix as usual with the other members of his herd and to spread any parasites he harbours wherever he goes, for as long as he carries them.

(2) *Infectivity*.—The next attribute of parasites to discuss, is infectivity. Infectivity, to some extent, must be an inherent property of the bacterial protoplasm and will vary in degree, but it will also depend on the concentration of the infective organisms in the host's discharges. This concentration will often vary directly as the virulence, if the latter attribute means increased multiplication of organisms; hence virulence and infectivity will often increase together. However, natural selection will tend to eliminate very virulent organisms for the reasons just given and select for survival the more infective and less virulent strains, namely, those strains that can infect in the smallest doses and cause the least amount of damage to the host. Thus virulence *per se* is only useful to a species in so far as it means increased infectivity, the latter implying increased ease of dissemination.

(3) *Resistance*.—Thirdly, consider the question of the host's resistance to parasitic invasion. If he is very resistant none of the strains of a specific bacterium can pass his defences—he is immune. He may have a lower degree of resistance when only the more infective strains of the same bacterium can establish a footing, or he may be highly susceptible with no specific resistance when any strain of the bacterium in the smallest of doses is able to infect him. When invasion has taken place, the host may either destroy the invader or the latter destroy him, but a third course is also open and a compromise may be effected between host and parasite by the establishment of the "carrier" state. Those organisms that are least harmful will cause the least resistance on the part of the host, because the latter is not so likely to marshal his full defences against an innocuous invader, all of which tends to the selection of harmless as against virulent variants of a micro-organism, that is to the establishment of "carrier" strains of bacteria. It should be noted here that the virulent "carrier," in some contrast to the avirulent, nearly always has a weak spot where the invading organism may be said to entrench itself and defy the host's defending force. These weak spots may be a septic tonsil, an inflamed gall bladder, or a thickened seminal vesicle.

(4) *Concentration and movement among host population*.—The fourth important factor in the relation between the host and parasite is the concentration and amount and extent of movement

among the host population in a given period of time. The hermit in his cave may be loaded with parasites, but as he comes in contact with nobody his parasites get no chance of dispersion. The busy commercial traveller moving from place to place by the quickest methods of transport, interviewing different people all over the world, may be an ideal disseminator of any organisms he may happen to carry. Between the two is the ordinary person with the restricted circle. The village gossip may disseminate influenza as fast as she does scandal, but, like the scandal, the other disease will remain local, if the village has little communication with the outer world.

Briefly, the more "contacts" there are between infected individuals, cases or "carriers," and different susceptible hosts per unit of time, the greater the magnitude of an epidemic. The number of different contacts per given period of time varies directly as the concentration of susceptibles and the amount and extent of the migration of "carriers" and infective foci.

We therefore see that the extent and nature of parasitic infection, especially that type spread by droplet infection, depends on the varying factors—virulence; infectivity of the organism; resistance; and the amount of movement among the hosts. The immunity of a population to a certain organism gradually gets weaker and weaker; circumstances combine to cause great mixing, overcrowding, and movement about the world. These factors favour virulence and a harmless organism varies in this direction, or a "carrier" becomes especially mobile and an epidemic starts. The susceptibles get gradually weeded out. Then, as concentration becomes less, infectivity increases, virulence decreases, and the invading parasite relapses to a harmless "carrier state" or even to the saprophytic condition it may have originally have arisen from. Thus with the ever-changing environment the parasite changes; swinging from a virulent man-killer to a harmless saprophyte and back again. I personally believe this cycle is continually occurring and accounts for the waves of epidemics and the known periodic variations in the killing powers of various infections. It, of course, must be realised that virulence and infectivity, from the public health point of view, are the most important properties of microbes. They are the attributes that are the hardest to measure. They are probably the most variable of

all the varying characters of so-called specific bacteria, being among the latest acquired characters of micro-organisms. The balance of the degree of virulence of the parasite and the degree of tolerance of the host is certainly very delicate. Any change of environment, such as the importation of fresh soil for the bacterial plant, as represented by another race of man, changes in climate and nutrition, may well upset this unstable equilibrium. At the time of the influenza epidemic all these changes of environment were more in evidence than ever before in the world's history. Variants of Pfeiffer's bacillus, which ordinarily may well be a group of more or less harmless saprophytes as suggested by the multitudes that carry it, may have found the necessary conditions to become a virulent scourge.

The "carrier" state or mutual adaptation is the condition Nature strives for, and if the environment remained stable this state would become permanent but the environment continually changes and the parasites continually make and discard the experiment of pathogenicity. Let us see how this theory is borne out by one or two examples from Nature.

First there is the fact that every pathogenic organism has more or less innocuous parasites resembling in which are the cause of endless trouble in detecting really virulent organisms. Even in looking for anthrax in shaving brushes the final test had to be on a guinea pig as so many similar organisms of the mycoides group were present. Consider the diptheroid group, the intestinal bacteria, the streptococci—all mixtures of harmless and noxious organisms with the same habitat—surely some time in the past they were the same organism. Again, which are Nature's successes as judged by population—the pathogerm or the saprophyte? How many more *B. coli* are present in the world than typhoid bacilli? Yet in a habitual saprophyte, like *B. coli*, a change of environment, such as an inflamed appendix, in the host, permits virulence often with resulting death of myriads of *B. coli*.—An unwise experiment of the parasite, inexorably punished by Nature. Consider this paradox reported by Colonel Dorgan¹⁴ during the C.S.M. epidemic. The incidence of "carriers" in a certain garrison went up as the cerebro-spinal fever case rate fell. Harmless infective meningococci were establishing themselves as natural selection weeded out the disease-producing strains.

Let us, for a moment, leave the bacteria where morphology is so indefinite, and take a protozoal disease as an example. *E. histolytica* is a well-defined organism with stable morphological characters easily recognised by the expert. Dobell¹⁵ calculates that a third of the population of these islands harbours this organism. *E. histolytica* can cause a grave illness, dysentery and liver abscess, yet though over 10,000,000 inhabitants of this Island are infested, cases of these diseases contrasted in England are pathological curiosities. Therefore the normal relation between man and this amoeba is one of harmless parasitism; the organism uses so little tissue as to cause no obvious injury to its host and therefore can infect a third of the population without raising man's anger against it—one of the worst things that, nowadays, can happen to any species in the struggle for existence. Conditions change; both the strains of amoebae and the strains of host belonging to different countries get mixed. The equilibrium between man and his amoebae is destroyed. The latter overdoes its invasions and produces dysentery in its host and the amoeba is ejected before it can even arrange for its dissemination—the unencysted *E. histolytica* present in acute dysentery are, of course, not infective. Or, worse still, the amoeba invades the liver where it seems unable to form cysts even should it get the chance of discharging them. Thus it proceeds to commit suicide by killing its host. Again *E. histolytica* lives in harmony with wild monkeys but McCarrison¹⁶ has shown, after the environment is changed by feeding with deficient diets, the harmony becomes a discord and acute amoebic dysentery ensues. This observation must mean that the "carrier state" is the advantageous one and that pathogenicity is the unsuccessful experiment of a species trying to colonise a fresh environment.

A final example from the plant world.¹⁷ As you know, many plants live in symbiotic relation to fungi which serve them as roots, supplying them with salts and nitrogen in exchange for carbon compounds. The orchids all have mycorrhiza, that is fungal roots. Orchid seeds and their infecting fungi can be separated and the latter cultivated on artificial media. The cultivated fungus, as so often happens, loses its virulence in the unaccustomed environment. If it is brought in contact with a sterile orchid seed it invades it, but the orchid embryo possesses

phagocytic powers to prevent over-invasion, which totally destroys the attenuated fungus. The orchid, incidentally, destroys itself as it cannot reach maturity unaided by its normal partner. On the other hand, it is possible to exalt the virulence of the fungus so that on invading the seed it overdoses it and completely destroys the orchid. Normally in nature a perfect balance is maintained between the symbiotic fungus and the plant by means of a phagocytic and humeral immunity process on the plant's part analogous to the immunity processes of the human organism, when allowance is made for the absence of a circulation or wandering cells in the plant. Here we have the relation between man and his parasites exactly paralleled—unsuccessful invasion, fatal invasion, and mutual adaptation which last is the "carrier state."

I have tried to give a brief sketch of what I believe to be the biological meaning of the relation between pathogenicity and the "carrier" state. I have purposely left out many difficulties in accepting this explanation without qualification. The evolution of parasites and disease is much too large a subject to treat in ten minutes, but in order to grasp the significance of the "carrier," the subject must be viewed from a biological standpoint.

Let us now turn to the practical aspect and ask, "What is the best line of action for preventive medicine to take in order to prevent outbreaks of disease, especially those conditions spread by droplet infection?" We have seen that there are three main factors in the composition of epidemics—the micro-organism, the susceptible host, and the amount of movement in populations. The last factor is of the utmost importance, but public health, of course, cannot, if it would, control it. Up to the present, work has been for the most part concentrated on the first factor, the microbe, but here we seem to have reached an impasse. The isolation of obvious infectious cases and of those "carriers" we are lucky enough to find, diminishes the number of foci from which disease can spread, and it should be noted that the obvious case is, as a rule, the one containing the more virulent strains of parasite. Thus, this isolation and control may help to diminish the average virulence and account for the established fact that some diseases, such as scarlet fever, are to-day, much milder than they were a generation ago. Though it seems that the war

against the microbe may have in some cases diminished virulence, yet there is little evidence that it has diminished the incidence of infectious disease. This may well be due to the difficulty of controlling larval cases and "carriers" of infectious disease among a population when the amount and extent of migration is yearly increasing. The additional movement of infectious foci more than outweighs the diminution in their number caused by improved sanitary measures.

The second factor—the degree of susceptibility of the population—must now be discussed. We all know how the susceptibility of the population, as a whole, varies. An epidemic sweeps a country free of many susceptibles, and the population, as a whole, remains free for a generation from a similar visitation. This acquired tolerance I may call specific resistance to bacteria. Before going on with it I must first mention what I call non-specific resistance which is very important, but on the whole seems to act, not so much in preventing bacterial invasion, as by combatting invasion when once it has occurred. The factors in non-specific resistance are those of personal hygiene. In this respect the school medical officer and dentist are doing more to prevent the ravages of disease than all the swabbing possible, as few "carriers" have surgically clean mouths or respiratory passages. Other factors are proper nutrition with adequate vitamin content, endocrine balance, and suitable exercise and fresh air. These things are well recognised, and Public Health workers are doing their best to improve them. To a certain extent the increasing of non-specific resistance is a part of the war against the microbe, and may actually diminish the specific bacterial resistance in a population. This latter is due to previous infection not always accompanied by symptoms, that is, a lot of it must be due to previous "carrier" infection, as well as to infection with pathogenic organisms of low virulence; perhaps even to infection with organisms we should definitely class as non-pathogenic though similar; possibly even to infection with non-pathogenic dissimilar organisms. It is true that specific immunity substances for pathogens cannot be demonstrated in the blood of those carrying their harmless imitators, but our methods are not over-sensitive and we have much to learn yet in technical immunology. ¹⁸ Glenny and Sudmesen's work shows that a stimulus from a toxin, (e.g., diphtheria), may be insufficient to produce

a recognisable anti-body but a second, no greater stimulus, following this primary one may produce anti-toxin in great quantity. This work may well be a hint as to how immunity, relative or complete, becomes established in a population, even though specific immunity substances cannot be demonstrated. Take my experience in H.M. Hospital Ship "Agadir" which, for over six months, in 1918 and 1919, was full of acute influenza cases, many with the worst type of inflamed lungs. A medical man in daily, nay hourly, close contact with these cases, preserved his lungs intact, when a much fitter specimen of a man succumbed, within 48 hours of his first exposure to hæmorrhagic pneumonia. Why was this? Was it because the former always possessed a mild form of pneumococcus in his nose which the latter did not! In the "Agadir," too, the ship's company had a no greater case incidence than other ships. Was it because they had received a primary stimulus from the milder groups of organisms causing the Spring epidemic and hence responded at once to the secondary stimulus of the more severe bacterial complexes of the Winter epidemic wave? I do not know: I merely ask the question.

Such observations, however, do make one think that a body used to dealing with one bacterium will deal better with another, even if dissimilar, than a body with no previous bacterial experience. For this reason, perchance, it may be dangerous to render a population altogether free from bacterial infection.

(Suppose, for argument's sake, our hygiene and methods of microbial suppression became so perfect that we finally produced a people who had never been in contact with bacteria. What will happen to this people when a "carrier" of virulent organisms from a less fortunate nation escapes the vigilance of the sanitary cordon and is at liberty to work havoc in this virgin soil? There would almost certainly occur an explosive epidemic of great magnitude. For these reasons, perchance, "carriers" avirulent organisms, and colds in the head are blessings in disguise, saving us from far worse evils. In the case of smallpox, public health has long encouraged the mild form of the disease—vaccinia—in order to raise the resistance of the population against ordinary virulent smallpox.

Therefore, I think the easiest, soundest, and safest line for preventive medicine to take is to

concentrate on raising the tolerance of the people to bacterial invasion by the use of antigens. Typhoid fever can be controlled in this way, and probably so could diphtheria. Prophylactic vaccines are still under trial as regards respiratory diseases, but I think published figures show that though it is admitted the evidence is slight as regards their effect on the incidence of the disease it is definite as regards the effect on case mortality. This, after all, is rather what one would expect if Glenny and Sudmessen's primary and secondary stimulus theory should prove of general application. Therefore, I think that in such a disease as epidemic influenza, so pleomorphic in character, with so short an incubation period, associated with numerous organisms forming puzzling bacterial complexes and accompanied by hosts of "carriers" of similar organisms, an efficient antigen is our only hope of control. The ideal vaccine or antigen would raise the resistance against all bacteria and would preferably be administered by the mouth. Some day in the future the human species may be immunised against harmful bacterial invasion by means of swallowing a pill every month or so. This conception of an ideal antigen is not so far-fetched as perhaps it may seem. Let me mention three pieces of recent work on immunology that may be the first step towards this goal. First, Warden¹⁹ in a series of very careful researches seems to have demonstrated that antigens are probably mixtures of fatty acids dispersed in colloidal solution, and if the right proportion of fatty acids is ascertained and correct colloidal phase reproduced, artificial antigens can be made as effective in producing immunity as the natural organisms, and more strange still, specific protein is not a necessity for antibody production. One, at present, must reserve judgment, but should others be able to repeat his experiments with constant results this work should prove one of the greatest recent advances in immunology. Secondly, there is the Twort²⁰ or d'Herelle²¹ phenomenon which the latter explains as definite superparasitism, that is to say, in bacterial infections, for example Shiga dysentery, a filter-passer may be obtained having the power of killing and dissolving cultures of Shiga bacillus. This property can be propagated from culture to culture, and d'Herelle considers the power of lysis due to an actual living virus that preys on bacteria, and which he calls a "bacteriophage."

Though d'Herelle's facts have been abundantly confirmed by other workers I think most authorities prefer to consider the explanation on lines of bacterial variation rather than that this "bacteriophage" is an actual parasite of a bacterium. However, should further research show us the way of producing this deleterious lysis of bacteria at will, practical immunology will have gained another powerful weapon because this lytic effect, whatever the explanation, is undoubtedly one of the methods by which animals recover from disease. (Note, however, that it has nothing to do with the well-known lysis occurring in bacterial complement fixation.) Thirdly, Besredka's²² work on immunisation with bile and typhoid suspensions via the alimentary canal show the possibility of using this route instead of the subcutaneous—a more important point than may at first appear. As the normal human animal will always instinctively resent the trauma of the needle, whereas most people are instinctively pleased to swallow anything which they believe will do good, and mass immunisation by the mouth in a "free people" becomes a more feasible proposition than at present. Therefore, the ideal universal elixir for preventing all ills is not the fantastic idea it would have been ten years ago.

Meanwhile much spade work requires to be done in testing vaccines under conditions approved of by expert statisticians. More work of a tedious nature is also required on the complete bacterial flora of the nose and mouth of sample populations during epidemic and inter-epidemic periods before we can hope to get out the real relations between mutualism saprophytism, the "carrier state," and harmful parasitism. In this important class of work, ultimately the most important as judged by the saving of life and increase of health to the species man, the Army is to be congratulated on leading the way. It has proved, to the complete satisfaction of those competent to express an opinion, that enteric disease can be controlled by an efficient antigen.

Again, though on a smaller scale, the same thing has been done before, it was the mass swabbing in the Services during the cerebro-spinal outbreaks that made everyone realise the complexity of the bacterial flora in the upper air passages of apparently healthy people, and produced Glover's²³ almost classical demonstration of the effect

of overcrowding in the spread of bacterial infections of this type.

The classification of the bacterial complexes present in health and illness, the testing of prophylactic antigens, under controlled conditions, is essentially the work for the Services with their facilities for disciplinary control and power of keeping in touch with the subjects of investigation. Here indeed is the chance for any philanthropist who wishes to endow a research that would be bound to yield a return for his money.

Professor Cummins at our last meeting pointed out the same thing with regard to tuberculosis, and I would like to extend his remarks to all respiratory diseases. Some may perhaps think I have exaggerated the importance of "carrier" infection. It is only, after all, a special example of case to case infection. In some diseases the latter is usual, as for example small-pox. In others, as for example cerebro-spinal fever, the "carrier" infection is the usual method of spread. The respiratory "carrier" is of such importance because of the difficulties of finding and dealing with him. He makes all sanitation and quarantine regulations imperfect as regards prevention. It is now admitted that man is by far the most important reservoir of his own infections and the "carrier" accounts for the vast majority of those cases of infectious disease previously attributed to bad smells, infected houses or climatic conditions.

Let me conclude with a view of the future. Man as a species has at last achieved scientific government and gained control of the floods of energy that now run to waste in light, tides, or elemental decay. Effort is economically applied and everyone has plenty of leisure and facilities for travel. The movement of the species will become so extensive that "Week-ending" in New York from London will be an ordinary procedure; public health work will have eliminated bacteria to such an extent that the resistance of the species as a whole to bacterial invasion will be lower than it has ever been. Then, owing to some hygienic breakdown, a virulent organism gets loose. In this environment, before one will have time to realise what has happened, the world may well suffer a pandemic of a magnitude beyond imagination. Possibly human civilisation, if not the whole species man, may be destroyed. This may not be as wild a speculation as the unimaginative may think. Two thousand years ago the malarial

parasite destroyed Greek civilisation, and in the late war, in the same locality, the same parasite might have finished the British Empire but for the work of Manson and his colleagues. Dominant species, too, have disappeared for no apparent reason. Millions of years ago Saurian reptiles were the dominant species. Why they did not remain so we can only conjecture. Was it, perchance, due to a failure in mutual adaptation between them and their parasites? To man the disappearance of his own species seems a terrible affair, but why should man consider he is the last word in evolution? If he fails to adapt himself to his parasitic environment he will disappear like any other species, and the prevention of this biological tragedy may perchance be bound up in the solution of the "carrier problem."

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16. R. McGarrison. "Lancet," 1922, vol. 1, p. 207.
17. J. Magrau. "Bulletin l'Institut Pasteur," 1922, vol. 20, p. 170.
18. A. T. Glenny and H. C. Sudmessen. "Journal of Hygiene," 1921, vol. 20, p. 176.
19. Review of C. C. Warden's Work. "Medical Science," 1922, vol. 5, p. 401.
20. F. W. Twort. "Lancet," 1915, vol. 11, p. 1,241.
21. F. d'Herelle. "Le bacteriophage son rôle dans l'Immunité," 1921.
22. A. Besredka. "Annals de l'Institut Pasteur," 1919, vol. 33, p. 882.
23. J. A. Glover. "Journal of Hygiene," 1918, p. 376.

CORRESPONDENCE.

The Editor does not accept responsibility for the opinions of correspondents.

LEAD IN BEER.

From Dr. JOHN C. THRESH.

Dear Mr. Editor,—On page 54 of your last issue you refer to "Lead Poisoning in Beer," and state that Dr. Nash found from 0.8 per cent. to 3.36 per cent. of lead in the beer, according to the time it had stood in the tanks. Assuming the lowest amount, .8 per cent., one pint of beer would have contained at least 72 grains of lead, equivalent to about 130 grains of lead acetate. Not only were there no deaths, but the incidence appears to have been chiefly confined to heavy drinkers. Is there not some error in these figures? Assuming the tanks held 36 gallons each, the beer would have taken up 2.8 pounds of lead in 24 hours, yet the tanks were only glazed with a material containing 28 to 41 per cent. of lead.

This year a Coroner gave a verdict that a person died of acute lead poisoning because one-tenth of a grain of lead was found in the stomach after death. The statements made about the quantities of lead necessary to cause "plumbism" are certainly astounding.

Yours faithfully,
JOHN C. THRESH.

Note by Editor.—We hope to publish a short article by Dr. Nash on this subject in our January issue, and this will serve to correct any inaccuracies which appeared in the summary previously published.

NOTES FROM BRANCHES.

MIDLAND BRANCH.

HOUSING CONDITIONS IN BIRMINGHAM.

The Birmingham City Council have recently considered a report by the Health Committee on the present conditions of slum property.

- (a) in relation to its sanitary conditions compared with 1914.
- (b) in regard to the prevalence of overcrowding.
- (c) the adequacy or otherwise of powers now vested in the Corporation to enforce reasonable repairs and renovations of working class houses.

For the purpose of (a) and (b) a house to house inspection was made in a typical ward and extended into other wards for the purpose of comparison.

The outstanding fact revealed by the analysis was that many of the houses were so bad that they should be condemned, and this class of property is not being kept in as good a condition as in 1914 owing to the owners being less ready to carry out the necessary repairs.

In the course of the discussion on the report one speaker asserted that since the increase of 25 per cent. under the Rent Act was imposed there had been something like £525,000 paid by tenants in the city to landlords for repairs, and only a small fraction of this had been so spent.

It was emphatically denied that the Birmingham slums were worse than those of other large cities and that a comparison of the death rate supported this view.

The dirty condition of living rooms and bedrooms was common in nearly all the houses inspected, 21 per cent. of living rooms and 49 per cent. of bedrooms were so dirty that action could be taken. The Council decided to increase for two years the staff of sanitary inspectors by six, to enable the Committee to speed up the work, at an additional expenditure of about £1,300 per annum. The number of applicants for these posts has exceeded 700.

In the selected ward where the prevailing type of house is one more living room and two bedrooms, 16 per cent. were found to be occupied by more than one family, and examples were given of many bad cases of overcrowding within the knowledge of the Committee, in some instances aggravated by tuberculosis.

Most of these people have great difficulty in obtaining better conditions because, as a general rule, they have large families, and in consequence are refused as tenants by house agents.

To relieve overcrowding during the present acute shortage the Council decided to call a conference of the Public Health Committee and the Public Works and Estates Committees to submit a joint report of recommendations.

CHEESE-PARING IN COVENTRY.

The Coventry City Council have decided to make drastic cuts in health administration, and the following is a summary of the economies adopted:—

- (1) A reduction of the staff of Sanitary Inspectors from eight to six.
- (2) A reduction of the Clerks in the Health Department from seven to five.
- (3) A reduction in the number of Health Visitors from ten to five.
- (4) The closing of the "Dunsmoor" Maternity Home.
- (5) No milk to be supplied free for infants above one year old.
- (6) The income scale qualifying for the receipt of free milk to be reconsidered.
- (7) That the practice of selling dried milk by the Health Department to the public at a price which, though it shows a small profit on the contract price, does not take into account any of the administrative expenses of the Council, be discontinued.

The staff of health visitors was introduced in 1906, when the infant mortality rate was 144 (neo natal death rate 39.9). The rate is now 76 (neo natal death rate 36.6). The effect of this reduction of the sanitary service can thus be judged; for to-day there are few manufacturing towns in the country having an infant mortality comparable with that of Coventry.

The management of the maternity home with nine beds was taken over by the Council in February, 1921, for the admittance of appropriate cases referred to it through the Maternity and Child Welfare Committee.

Dried milk in two varieties was kept and sold to mothers at cost price during 1920. 1,078 mothers availed themselves of the opportunity to purchase.

The reduction in the staff of sanitary inspectors and clerks saves £358, and the net saving effected by the reduction in the staff of the health visitors is approximately £450. A penny

rate in Coventry produces about £2,000. The harassed and perhaps ill-informed ratepayer may grasp at this saving of $\frac{1}{2}$ d. in the £1, and be led to believe that it is an economy, whereas this penny-wise pound-foolish policy delays the time when a saving can be effected on the vast sums of money at present spent of the treatment of disease. Those who have followed the development of Public Health administration in Coventry, cannot but regard this latest attitude as a step backward, which must be very discomforting to the Medical Officer of Health whose annual reports radiate enthusiasm and efficiency and provide both education and inspiration for those who read them. Some of the Coventry City Council would agree with Mr. Hilaire Belloc when he says of hygiene:—

"Of old when men were sick and sorely tried,
Their doctor gave them physic and they died.
But here's a happier age, for now we know
Both how to make men sick, and keep them so."

SMETHWICK EXPENDITURE.

The Medical Officer of Health for Smethwick in his annual report for 1921 deals with criticisms made against the amount of expenditure alleged to be incurred by his Department. He says: "The Borough Accountant has kindly worked out the facts, and states that the charge on the rates for all public health expenditure, including medical inspection and treatment of school children, maternity and child welfare work, tuberculosis work, venereal disease work, mental deficiency work, isolation hospital, disinfection, Administration of Food and Drugs Act, general sanitation, etc., was £13,079 for the financial year ended 31st December, 1921. The net amount spent from the rates on public health work in Smethwick represents 11½d. in the £ out of a total rate of 17s. 10d. in the £.

It will be seen from the above figures that a very small sum indeed is being expended at present in safeguarding the health of the individual and the community. It has often been pointed out that preventive medicine does not make such a dramatic appeal to the public as curative medicine, and in this regard it must be borne in mind that the more successful preventive medicine is, the less need there appears to be for its activities. Outbreaks of disease avoided or nipped in the bud are never credited, but the public are immediately aware of an epidemic in their midst."

SHELTERS FOR SALE.

The Smethwick and Oldbury Joint Hospital Committee, Holly Lane Sanatorium, Smethwick, are anxious to receive orders for a small type of open-air shelter suitable for domiciliary treatment of tuberculosis. The shelter is 7 ft. long, 5 ft. wide, 7 ft. 6 ins. high in front, and 5 ft. 6 ins. at the back.

The price to local authorities and others is £9 f.o.r. This shelter is very portable and suitable for erection in small back yards, and the price is reasonable.

BIRMINGHAM TAME AND RAE DISTRICT DRAINAGE BOARD.

The annual report of the Drainage Board for the year 1921-22, which has just been published, contains several matters worthy of note.

The Drainage Board are admittedly amongst the most efficient, as they are the most extensive in the Kingdom. For the past two years the engineers have been conducting experiments with an entirely fresh method, viz., the Bio-Aëration Process—an experimental plant was installed, and so important were the experiments considered that the Ministry of Health were only prevented by the Treasury from assisting in defraying the cost. It has been demonstrated that sludge composed of excremental wastes, if aerated sufficiently, can be made an effective medium for purifying sewage. There is good reason to believe that the method will overcome the serious difficulty as regards objectionable smells and also result in other advantages. The Engineer of the Board has also been experimenting with a view to the utilisation of sewage gas for power, and he has succeeded by this means in driving a pump which lifts sewage from a well adjoining the engine house to the irrigation land.

The gas available for driving the engine has varied in amount, but it has been possible to keep the well free of sewage although a gas holder for storage purposes had not been erected. From an economic aspect this result holds out great possibilities. The milk production at the Board's farm, Minworth, is supplied to the Birmingham Corporation Public Health Department for the use of the patients in the city hospitals. Owing to its high standard, the Ministry of Health (Foods Department) have granted a certificate classifying it Grade A milk.

TAME AND RAE DRAINAGE BOARD.

The Works Committee is advised that although the present storm water basin, capable of dealing with a twelve hours' normal dry weather flow, is in excess of the Ministry of Health's requirements, it is not sufficiently large for a sewage district extending over an area of 110 square miles.

The proposal is to enlarge existing tanks by adding 50 per cent. to their capacity. This will help the Board to treat more efficiently the water brought down to the works in time of storm, while the construction of the tanks, estimated to cost £34,000, will provide suitable work for many unemployed resident in the neighbourhood.

Under the Ministry of Health regulations the Board must have the capacity to treat properly three times the normal dry weather flow, and, in addition, must provide a storm water basin or reservoir which will receive a further quantity equal to three times a normal dry weather flow. In this latter the surplus settles, with the solid matter tending to become deposited, and when the heavy flow is reduced it can be dealt with in due course.

Anything over six times the dry weather flow is permitted to go directly to the streams, and this, of course, must often happen when a sudden storm breaks over the whole area.

Up till ten years ago the policy of the Board was to induce the constituent authorities to turn their excess water through storm overflows directly into the streams. The Engineer has come to the conclusion that the system is uneconomical, and that the provision of a central system of dealing with excess water will relieve the authorities of dealing with individual schemes and of providing and maintaining the usual number of safety outlets. In addition, it will tend to purify the streams, and the increased tank accommodation will help to regulate the inequality of the daily flow.

NORTH-WESTERN BRANCH.SMOKE FROM RAILWAY ENGINES.

At the Eccles Borough Police Court the L.N.W. Railway Company were summoned for having permitted a nuisance by the emission of black smoke from two of their engines at the sheds at Patricroft on Oct. 4th. Complaints had previously been made by the Health Committee to the Company, who had replied that everything possible was being done, and that drivers and stokers had been warned against permitting this nuisance.

The case was proved by the M.O.H. and the Chief Sanitary Inspector, who stated that they observed two engines near the sheds emitting black smoke for ten minutes in one instance and for a longer period in the other instance. Dr. Spence said that many complaints had been received from the residents in Wellington Road, and that these houses were almost uninhabitable owing to the nuisance. In reply to the Company's counsel the M.O.H. said he was satisfied that the Company's engines were so constructed as to prevent the emission of black smoke and that it was a question of the management of the engines.

The counsel for the Company frankly admitted that if the engines had been properly stoked they would not have emitted the black smoke. Mr. Black, from the engineer's department of the Company at Crewe, said they took steps to prevent it as far as possible, and had a staff of inspectors whose duty it was to report cases of smoke emission, and if a case was reported to him he dealt with it.

The Chairman said the Bench felt that the Company were doing their best and recognised the necessity for preventing a nuisance. It was impossible to have an inspector to watch every movement of their men, but the Bench hoped all the officials and men at Patricroft would realise the detriment the smoke nuisance was to a residential district. Something more might be done than had been done in the past. A fine of £2 2s. was imposed in each case.

UN SOUND MEAT AT ECCLES.

At the same court the British and Argentine Meat Co., Ltd., were summoned for having sold at their Patricroft shop two ox-tails which were unsound and unfit for human consumption. Evidence of the purchase of the ox-tails was given by a witness, who said that she was told by the manager that the tails were sound. The tails were later taken to the Sanitary Inspector and were examined by the M.O.H., who stated that they smelt offensively and were unfit for consumption.

The chairman said that on the evidence before them they could come to no other conclusion than that the ox-tails were bad and unfit for consumption, and the defendants were fined £10 10s. and extra costs.

BIRKENHEAD SALARIES.

At the October meeting of the Birkenhead Town Council it was stated that following the

recent revision of salaries of the staff at Thingwall Sanatorium, the matron, nurses and domestic staff had resigned. At the present time, said the Chairman of the Health Committee, there was not sufficient nurses, and no more cases were being accepted. Efforts were being made to get a new staff, and meanwhile the matron, nurses and domestics had played the game and consented to remain longer than they need.

ANNUAL LUNCH.

Instead of the annual dinner it has been decided to have a luncheon at the Midland Hotel, Manchester, on Friday, December 8th, at 1.30 p.m. prompt. Amongst others it is hoped that the Lord Mayor of Manchester (Councillor Cundiff, J.P.), Sir William Milligan and Sir Walter de Frece will be able to attend. Tickets (price 9s. 6d. exclusive of wines) can be obtained from the hon. treasurer of the Branch, Dr. H. I. Hitchon, Rock House, Heywood.

SALARIES AT ST. HELEN'S.

The St. Helen's Town Council recently discussed a resolution brought forward by the Labour members for the reduction of the salaries of the town clerk, chief constable, borough treasurer, borough engineer, medical officer, and other heads of departments, any official not agreeing to the reduction suggested to be given notice to terminate his engagement.

The Mayor intimated that he had been informed that the officials concerned refused to agree to the reduction of their salaries.

As an amendment it was moved that the Council should ask the Parliamentary Committee to take into consideration the question of officials' salaries, but this was negatived by 14 votes to 9, and the motion was carried.

WEST OF ENGLAND BRANCH.SCHOOL MEDICAL SUB-GROUP.

A good many Branch members are directly interested in the School Medical Service, and it was therefore resolved at the meeting held at Bristol in October to take the necessary steps to form a sub-group on the lines which have been adopted in other Branches. Dr. Askins, S.M.O., Bristol, kindly consented to act temporarily as secretary. Further discussion is to take place at the meeting arranged for November 21st, at the Pensions Hospital, Bath, and on that occasion some programme for the winter session will probably be drawn up.

THE SOMERSET COUNTY COUNCIL.

Some further reference seems desirable to the quotation from the "British Medical Journal" given in the November Notes. It appears to be true that advertisements offering the unsatisfactory terms mentioned were, in fact, issued in the lay press. This was done, however, at the direction of the Education Committee, which had no authority to offer more. In a way, this was fortunate, as it showed the County Council when it met later on that the scale had now become inadequate and was not attracting suitable applicants. The Council itself, as soon as it had the facts before it, altered the salary to one commencing at £514. (See advertisement columns of "B. M. J." and Medical Officer of 14-10-22.)

SOME BRANCH STATISTICS.

In the recently issued Roll of Members of the Society for 1922-23 there are 47 Fellows, 17 Members and 18 Associates (82 in all), allocated to the West of England Branch. In the Roll for the previous session the numbers were 48, 10 and 17 (74 in all), while for the 1920-21 session they were 28, 20 and 2 (50 in all). Rather less than half of the very gratifying increase from 50 to 84 in two years is due to the admission of dental colleagues as Associates. Since the issue of the list 4 more names have been added.

As the grant from Headquarters was received in respect of 67 names only, it would appear that the subscriptions of several members, at least a dozen, were in arrear at the end of 1921-1922 session and that the Branch funds have been deprived of that number of half-crowns.

HOUSING IN SOMERSET.

One of the many interesting sections in Dr. Savage's recently issued Annual Report for 1921 is that which deals with housing. The county has an area of just over a million acres and a population of 387,099. When housing schemes were being considered a few years ago it was estimated that at least 7,700 new houses were needed to relieve overcrowding and to allow unfit houses to be closed. The number of the latter unable to be made fit is about 2,000 and over 5,000 more are seriously defective.

By the end of last year about 1,924 working class dwellings had been built. It is important to note the effects of this building. Overcrowding has to some extent and in some districts been relieved, but, as far as can be discovered, it has only enabled *one* unfit house to be closed. Quite apart from the question of overcrowding, therefore, the cessation of a con-

structional housing policy means, as Dr. Savage points out, that thousands of unfit houses must remain in occupation, and that there will be a steady increase in their numbers.

FROM THE METROPOLITAN BRANCH.

CAVIARE.

West End epicures will do well to choose caviare with some discrimination. A number of samples of the Russian variety, which reaches this country principally via Hamburg and Paris, and thence to London by rail or air, have been found to contain formalin in amounts varying from .016 to .04 per cent., and several instances of illness are recorded. The matter has been brought to the notice of the Ministry of Health by Dr. Allan, Medical Officer of Health, Westminster, and it is understood that special steps are to be taken at the English ports to prevent the importation of caviare so treated. Hotel and restaurant keepers and Clubs in Westminster have also been warned of the liability of seizure and condemnation under the unsound food regulations, and advised to ensure that future supplies of this delicacy are free from formalin.

CONFERENCES.

At an early meeting the Branch will be asked to consider the suggestion of more than one member that in future it might be possible to organise conferences relating in any way to the public health of the Metropolis, in the appropriate "weeks" particularly, through the medium of the Metropolitan Branch of the Society. At the present time it is feared that meetings for the discussion of some phase of health work, which has more than a merely local appeal, sometimes take place almost simultaneously in different parts of London. In these instances the convener of the meeting in each case is probably unaware, owing to the absence of a central organisation, that a similar conference is contemplated elsewhere. Overlapping and a division of interest thereby result, thus jeopardising the success of one or all of the meetings. By arranging conferences through a centre such as the Branch it is contended that unity of purpose will be secured and that the full measure of attention shall be focussed at one point.

THE NEW COUNTY HALL.

In the near future it is hoped to take advantage of the invitation of the President (Dr. W. H. Hamer, Medical Officer of Health and School Medical Officer, London County Council) to hold an ordinary meeting of the Branch at the new County Hall, to be followed by a demonstration of the heating, lighting and ventilating systems of the building.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.

COUNCIL MEETING.

A meeting of the Council was held at the house of the Society on Friday, November 17th, 1922. The President (Dr. T. Eustace Hill) was in the chair and there were present: Lt.-Col. Herbert Jones, Prof. H.R. Kenwood, Drs. Veitch Clark, Thomson, Gibbons Ward, Lyster, Stocks, Snell, Wheatley, Joseph, Shadick Higgins, E. W. Rees-Jones, Garstang, Evans, Stirk, Clements, Ewart, Cates, Barlow, Wilshaw and G. F. Buchan.

The minutes of the last meeting having been approved and signed, messages of apology for absence were received from Prof. H. Kerr, Drs. J. T. C. Nash, Peyton, C. J. Thomas, Pearce, McMaster, Horne and Lt.-Col. F. E. Fremantle, M.P.

Lt.-Col. F. E. Fremantle, M.P.—By a unanimous vote, the Executive Secretary was directed to convey to Col. Fremantle the congratulations of the Council on his re-election to Parliament by a largely increased majority.

Vaccinations by a Medical Officer of Health.—A letter was received from the B.M.A. in reference to the vaccination of a number of pupils of a public school by a medical officer of health and enquiring if the Society considered it desirable that such work should be undertaken by a medical officer of health. The Executive Secretary was directed to reply that the position of the medical officer of health in regard to vaccination is defined by the Public Health (Smallpox Prevention) Regulations, 1917, and by any instructions issued by the Ministry of Health in connection therewith.

Condensed Milk Regulations.—A memorandum forwarded by the Ministry of Health relative to the standardisation of condensed milk was discussed and approved.

The Neech Prize.—Dr. W. J. Howarth and Dr. R. Veitch Clark were elected to serve with the President and the Editor as assessors for the Neech Prize, 1922.

London Government.—The report of the Special Committee on London Government was submitted, and referred to the branches for any observations they may wish to offer on the general principles involved.

Representations of Local Authorities.—Arising out of a matter raised at the annual general meeting by Lt.-Col. W. Butler, it was agreed that when the Society found it desirable to

make direct representations to a local authority, a copy of the communication should be sent to the medical officer of health.

The Association of County Medical Officers of Health.—On the proposal of Dr. Cates it was agreed that the Association of County Medical Officers of Health should be invited to send representatives to a conference to discuss the advisability of incorporation of the Association as a Group of the Society. The President, Ex-President, Vice-Presidents, Editor and Treasurer were appointed to attend the conference as representatives of the Society.

Remuneration of Medical Officers.—Dr. G. F. Buchan submitted a joint report of the Salaries Committee and the representatives of the Society on the B.M.A. Conference, embodying the modified proposals which it is hoped will be acceptable to the Council of the B.M.A. The report was unanimously approved for submission at the conference with B.M.A. representatives on November 28th.

Propaganda.—On the proposal of Dr. G. F. Buchan it was decided to obtain permission to distribute to members of local authorities reprints of Col. Fremantle's paper on "The Economics of Public Health," as published in the *British Medical Journal*, at a cost not exceeding £20.

The meeting then adjourned.

ORDINARY MEETING.

An ordinary meeting was held at the house of the Society on Friday, November 17th, 1922, the President (Dr. T. Eustace Hill) in the chair.

The minutes of the last ordinary meeting having been approved and signed, the following candidates having been duly nominated, were elected to the Society:—

As Members.—Gordon, Edward, M.C., M.B., Ch.B., Aberd.; Hamilton, Allan Byars, M.B., Ch.B., Glasg.; D.P.H.; Harris, Majorie, M.B., Ch.B., Edin.; D.P.H.; Hearn, Leonard William, M.B., B.S., Durh.; Herley, Randal, B.A., R.U.I., L.R.C.P. and S., Ed., L.R.F.P.S.; Howell, Margaret Olwen, M.R.C.S., L.R.C.P.; Hurrell, George, M.B., B.S., B. Hy., Durh., D.P.H.; Kelleher, Wm. Howlett, M.B., B.Ch., N.U.I.; Lillis, Wm. John Philip, L.R.C.P. and S., I.; Loudon, Elizabeth Cochrane, M.B., Ch.B., Glasg.; Mackenzie, Evan Alex., M.B., Ch.B., Aberd., D.P.H.; Mann, James Wallace, M.B., Ch.B., Aberd.; Martin, Chas. James, O.B.F., B.A., M.B., B.Ch., Dubl.; Müller, Jenny Constance, M.D., Brux., L.S.A.; Novinsky, Esther, M.R.C.S., L.R.C.P.; Rawlinson, Ernest Goodwin, M.D. (Toronto), L.R.C.P. and S., Ed., D.P.H.; Rolleston, John Davy, M.A., M.D., B.Ch., Oxon.; Ronaldson, George William, M.B., Ch.B., Glasg., D.P.H.; Scott, Ralph Roylance, M.C., M.R.C.S.,

L.R.C.P.; Shurlock, Arthur Genge, M.A., M.B., B.Ch., Cantab., M.R.C.S., L.R.C.P., D.P.H.; Steele, Wm. Kenneth, M.R.C.S., L.R.C.P., L.S.A.; Taylor, William, M.D., Ch.B., Glasg., D.P.H.; Thomson, Douglas McKenzie, M.B., Ch.B., Aberd.; White, Charles Francis, M.B., Ch.B., Vict., D.P.H.; Woollcombe, Alfred Surg.-Cdr., R.N., M.R.C.S., L.R.C.P., D.P.H.

As Associates.—Brown, Hugh Vipont, L.D.S., Vict.; Gerson, Nathaniel, L.D.S., Eng.; Rhodes, Walter Edmund, M.A., Cantab., L.D.S., Eng.; Smith, Janet, L.D.S., Glasg.

A number of candidates were nominated for election at the next meeting of the Society.

Prof. John Robertson then read a paper on "The American Milk Supply: its Control and Distribution." The following took part in the subsequent discussion: the President, Dr. W. J. Howarth, Lt.-Col. W. Butler, Dr. Thomas Evans, Dr. F. J. H. Coutts, Lt.-Col. Herbert Jones, Prof. H. R. Kenwood and Dr. Broderick. The proceedings closed with a cordial vote of thanks to Dr. Robertson for his paper.

NORTH WESTERN BRANCH.

Ordinary meeting held in Manchester on Friday, November 10, 1922.

Present: Dr. Rees Jones (President) and 12 members.

A most interesting address on "The Humane Slaughtering Bye-law," was given by Mr. E. J. Burndred, M.C., M.R.C.V.S., D.V.H., Veterinary Surgeon, Blackburn Corporation. He dealt first with the history of slaughtering. The object aimed at being the removal of as much of the blood from the carcass as possible, he reviewed too the various factors affecting this apart from the method of killing.

The general methods adopted were (1) simple bleeding as in the Jewish method, (2) bleeding preceded by mutilation of the medulla by the poleaxe or stilette and (3) general stunning by mechanical means acting on the front of the brain. He summarised the methods in use in different countries and laid stress upon the advantages of "stunning pens" as used in the Argentine and other parts of America. All animals should be stunned before slaughter, although many butchers maintain that the animal bleeds better if not stunned. This, however, is not borne out by experiments, which showed that the weight of blood lost in the stunned and non-stunned was practically the same. Everyone is agreed, however, that the keeping qualities of the meat were best in the Jewish method.

Sir Charles Sherrington has pointed out that consciousness is lost through a blow destroying the brain in front of the bulb, as also through cutting the cord behind the medulla. After detailing the advantages and disadvantages of the use of mechanically operated instruments, of which Mr. Burndred showed a very fine collection, he mentioned that although the present pistol advocated by the R.S.P.C.A. was one using bullets, he had no doubt that in time improvements would be made rendering the pistol with captive bolts the best form for use. Up to date, however, these had not proved satisfactory, owing either to defective ammunition or jamming of the bolt.

In conclusion he submitted that there were many other factors involved in causing possible cruelty other than the mere killing, such as transit of the animals by land or sea, the general environment of the slaughter-house, its cleanliness and so forth. Apart from these too, control of the slaughter-men was essential.

In the subsequent discussion the President (Dr. Rees Jones) expressed the hope that the Society of Medical Officers of Health would take up the question of advocating compulsory licensing of all slaughter-men and some form of test of their ability. He spoke of the difficulties of endeavouring to adopt the bye-law in areas where there were a number of private slaughter-houses.

Dr. Allen Daley in proposing a vote of thanks referred to the Reading case, in which the services of Mr. Burndred were retained by the Corporation. In this case the bye-law was held by the High Court to be reasonable and therefore one which might be adopted generally.

Dr. Spence considered that environment was of more importance than the actual methods of slaughter. What we require were public abattoirs having adequate accommodation, with licensed slaughter-men who had been properly trained and understood the factors at work in the stunning and bleeding of different animals.

Dr. Jenner seconded the vote of thanks which was supported by Drs. Whitehead, Wood, Mulholland and Gebbie.

In reply, Mr. Burndred in answering questions, stated that animals must be "stuck" during the quiescent stage immediately following the shooting, or the reflex struggling which takes place later may cause extravasations in the tissues, which spoilt the appearance and keeping qualities of the meat. He gave examples showing that animals do feel pain and may be

greatly distressed by smells and the sight of blood, etc. He reiterated that he was not satisfied with any particular form of instrument but looked forward to the introduction in the near future of a still more efficient and safer killer, probably on the lines of the captive bolt pistol.

SCHOOL SUB-GROUP.

A meeting was held the same evening of the School Medical Officers Sub Group, at which Dr. F. T. H. Wood, O.B.E. (Bootle) was elected President of the Sub Group, and thus becomes "ex-officio" a member of the Committee of the N.W. Branch. Dr. G. G. Wray (Lancs. C.C., Preston) was elected Honorary Secretary. Various resolutions were passed and will be submitted to the Group and Council in due course.

HOME COUNTIES BRANCH.

At a meeting of the Home Counties Branch held on November 3rd, the President, Dr. McMaster, delivered his address on the "Gateways of England, and Her Lines of Communication in relation to Public Health."

He briefly surveyed the history and conditions of this service, which in his opinion dated back to 1338, and showed that in its earliest commencement it practically concerned the Fleet Surgeons. This brought him down to the Mercantile Marine Act, 1844, in which Act the conditions under which a Surgeon must be carried on an ocean-going vessel were:—(a) Carrying more than 1,000 passengers; or (b) 50 or more passengers with a voyage which extends over a period of 12 weeks. The hygienic condition of British ocean-going ships was criticised, and the proposals as to minimum requirements as laid down by the recent Conference of Port Sanitary Officers, was given in detail.

Reference was made to the nature of the cargo carried, special comment being made on the dangers associated with benzine, vegetable matter and *Feno silion*. The danger attached to fresh cut vegetables seemed to depend upon the fact that all living matter, in the absence of light, tends to turn the oxygen in the air to carbon-dioxide. Instances were given where the contents rose to 25 per cent. and oxygen fall to 2 per cent.

The working of the Alien Order, 1920, as seen at the Ferry Port of Dover, was described in detail. In 1921, out of 133,831 immigrants, 646 were refused permission to land, and of the remainder, 14,611 were simply passing through England for another destination. No powers of

detention existed over this class. The total refused admission was 28.5 per 1,000. A detailed account was given of the conditions on which admission to this country was refused.

Importation of food was referred to, coupled with a short account of Dr. Savage's criteria as to their soundness, from which appeared that, speaking generally, the appearance of tinned food was a remarkable criteria except in the case of fish.

The President concluded a very interesting address by a brief reference to the bacteriology of tinned meats, from which it seemed that a certain small risk must be associated with the consumption of tinned fish and similar material.

Dr. Sanders proposed a vote of thanks to the President for his able address, which was supported by Drs. Dupont and Clements.

Report of Representatives on Council.—Dr. McMaster reported on the proceedings at the recent meeting of the Council, held on October 20th, from which it appeared that the Report on the London Government had been deferred for one month.

Resolved: That the Representatives on the Council be directed to impress the Council the wish of the Branch, to have an opportunity of considering any report before evidence is given before the Royal Commission.

Vote of Appreciation.—Dr. Sanders proposed that a letter of appreciation be sent to Drs. Howarth and Kenwood, for the gifts that had been made by them to the Society.

Also that a letter of congratulation be sent to Dr. Vietch-Clark on his appointment to Manchester.

Day of Meeting.—The Secretary then reported on the day of meeting, from which it appeared that the Branch had a membership of 250, and it had met eight times during the session 1921-1922, 71 members attending the meetings.

Resolved: That the next meeting be held on Thursday, and that all members unable to attend be asked to send a card to that effect.

The meeting then terminated.

MATERNITY AND CHILD WELFARE GROUP.

A letter has been received by the Hon. Sec. to the Sub Group for Maternity and Child Welfare (Metropolitan and Home Counties Branch) from Dr. Eric Pritchard; in it he says:

It may be of interest to you to know that the Infants' Hospital, Westminster, is now in process of complete re-organization, with a view

to bringing it up to modern requirements as an up-to-date centre for teaching, research and treatment; and further, to make it a useful adjunct to the welfare service of London.

All those associated with Infant Welfare work are familiar with the difficulty of obtaining expert medical attention for infants and children who require special care and treatment in addition to the prophylactic advice afforded them at the centres. It is hoped that the Infants' Hospital will supply a long felt want in this direction.

Medical cases, if accompanied by a note giving details of the case from the medical officer of a centre, can be seen any afternoon in the week at the Out-patients' Department of the hospital, and treated free of charge except for medicine, which will be provided at cost price. As far as the accommodation allows serious cases will be admitted to the wards. On the completion of the treatment the case will be referred back to the centre with a medical report.

It is further proposed to hold twice a week, on my own days of attendance, Tuesdays and Fridays at 2 p.m., Round-table Conferences or Consultations, at which as many members of the staff as possible will be present, and in which medical officers of centres are specially invited to take part. In all instances a full report of the opinion arrived at will be forwarded to the medical officer of the centre sending up the case.

Days of Attendance of Staff:—

Monday, 2 p.m. Dr. E. E. Robinson.

Tuesday, 2 p.m. Dr. Eric Pritchard (Round-table Consultations).

Wednesday, 2 p.m. Dr. Noel Richards.

Thursday, 2 p.m. Dr. Donald Paterson.

Friday, 2 p.m. Dr. Eric Pritchard (Round-table Consultations).

Saturday, 2 p.m. Dr. Helen Mackay.

THE DENTAL OFFICERS' GROUP.

The annual General Meeting of the Dental Officers' Group was held on October 27th. There were twelve members present.

The President pointed out that as the Branches and other Groups held their annual general meetings in October, the Council decided that the Group's annual general meeting should occur in that month, in order to bring the Group into uniformity with the rest of the Society.

During the election of officers, the President (Mr. W. Fisk) proposed that Mr. A. E. Baker be elected as his successor for the ensuing year. Mr. Fisk spoke of the keen interest Mr. Baker had always taken in the School Dentists' Society, and the great services he had rendered as editor of "Transactions" in the past. Mr. Fisk's proposition was carried nem. con.

A hearty vote of thanks was accorded Mr. Fisk for the able way in which he had carried out his duties as President during his period of office.

Mr. R. H. Cumins regretted that owing to the state of his health he had to relinquish the office of hon. treasurer. He expressed his deep appreciation of the kindness and support he had always received from the members, and he assured them that although his work was passing to another, he was not severed from the spirit of the Group or association with its members. A hearty vote of thanks, proposed by Mr. Geo. Thomson, was accorded to Mr. R. H. Cumins for his past services.

On the proposition of Mr. Fisk, Mr. Geo. Thomson was elected hon. treasurer.

Mr. R. Denison Pedley was re-elected as the Group's representative to the Council of the Society; and Messrs. H. W. Breese and Grantley-Smith as hon. editor and hon. secretary respectively.

Mr. A. E. Baker proposed that the names of Messrs. W. Fisk and Geo. Thomson be added to the list of Vice-Presidents; which was agreed to.

The names of two gentlemen were put forward for election to fill one vacancy on the Council, and Mr. F. Breese was elected.

The President then read his inaugural address, and the meeting adjourned with a vote of thanks to him.

INFANT MORTALITY

By HUGH T. ASHBY
B.A., M.D., B.Ch. Camb., M.R.C.P. London

SECOND EDITION
With 9 illustrations. Demy 8vo. 15s net

CAMBRIDGE UNIVERSITY PRESS
Fetter Lane, London, E.C. 4: C. F. Clay, Manager

Book Reviews.

TWO TOPICAL HANDBOOKS.

Both the medical and nursing staffs of health departments throughout the country are expected from time to time to give addresses of a more or less popular nature to various meetings and bodies in order to advance the knowledge of public health matters amongst the members of the public. A good deal of this work is not, perhaps, upon quite such a high level as it might be, and this defect may be traced to a lack of appreciation of the latest aspects of the case which is being presented. In some departments the members of the staff are supplied with practically no new material in the way of ammunition, and so it is not to be expected that their addresses show much variety or interest. Every medical officer of health would be well advised to consider seriously the advantages that would accrue to the work of his department if every member of his staff were supplied with these two handbooks. They have already been tried in several instances with extremely satisfactory results.

In the two subjects concerned, i.e., the prevention of venereal diseases, and the prevention of smallpox, there are precisely similar difficulties to be overcome. In each case powerful influences are, owing to ignorance and prejudice, at work to oppose the dissemination of the truth, and the public are misled equally in the two cases. The arguments used and the methods adopted by those who are opposed to practical prevention in venereal diseases are strikingly similar to those which have for some generations now been adopted by the anti-vaccination party. In both cases nothing but patient and persistent education of the public will win.

* (1) "SEXUAL DISEASE AND ITS MEDICAL PREVENTION."

When the true and unbiassed history of sexual disease and its prevention is compiled a very prominent place will be given to Dr. H. N. Robson and his efforts to gain consideration for the only practicable and practical way of preventing these diseases that has up to the present been advocated.

* "Sexual Disease and Its Medical Prevention," by Dr. H. N. Robson, with contributions by Sir James Crichton-Browne, Sir G. Archdall Reid, and Sir Bryan Donkin. 108 pages. Price 2/- net, or 2/3 net post free. Published by John R. Wildman, 158, Fleet Street, London.

In February, 1909, the first edition of his book was published, but Robson found himself without a friend and without anyone with sufficient courage to support him in his efforts. Many acquaintances of his who were wholeheartedly in support of this obviously sound and sensible method of removing these vile diseases from our midst talked vaguely of possible "prosecution," and of being "removed from the register." Many publishers refused even to print it, and libraries to accommodate it. The "British Medical Journal" hinted that such a book ought not to have been written, while "The Lancet" sat on the fence. Advertisements of the book were either declined or put off with excuses, and the lay press would not even review it. At the War Office the author was told that "prevention was taboo."

Just as in 1909, so there is now a determined and powerful conspiracy to hoodwink the public on this subject, and to prevent the truth being known. As soon as the truth is generally known these diseases will gradually disappear, and a great deal of the credit following upon that much-to-be-desired result will have to be given to Dr. Robson and his book. In spite of the conspiracy against the book the second edition was called for in October, 1909, a third in 1912. This, the fourth edition, is by far the most valuable of all because it contains all the original material with some extremely valuable appendices. The essential defect originally present in the book was its lack of precise directions with regard to personal disinfection, and this defect is now remedied by the printing of clear instructions on the subject applicable to women as well as to men. These instructions are also presented in another and usefully condensed form by reprinting the practical instructions which, during the war, were distributed by a V.D. Officer in one of the military areas with most satisfactory results. The final appendix, a proper ending to this excellent book, is a note on the prevention of venereal disease written by Sir James Crichton-Browne in his usual eloquent and convincing style. Nothing better on this subject has ever been written, and this appendix alone, if it gets into the hands and minds of the public, would win the day for prevention.

The volume altogether is a mine of useful information, and will afford medical officers of health, V.D. officers, health visitors, and others a vast amount of material for popular lectures and addresses on this subject. Every member of every public health department in the country should be in possession of this book.

† (2) A SURVEY OF THE PRESENT POSITION OF
SMALLPOX AND VACCINATION.

Dr. Wanklyn occupies a unique position as regards smallpox, and the public ought to recognise the debt it owes to his overwhelming enthusiasm on their behalf. In this small book he has set down an immense number of important facts with regard to the smallpox menace, and these facts should form the powder and shot of a great number of popular lectures and addresses organised throughout the country on behalf of vaccination. In view of the present emergency, which has arisen since this book was published, but which justifies every warning that it contains, we have no doubt that very shortly the book will be in the hands of public health staffs everywhere.

OBSTETRICAL NURSING.††

The author of this new guide to Obstetric Nursing was formerly assistant superintendent and instructor at the John Hopkins Training School for Nurses, and has made a careful study of her subject in England as well as in America.

The illustrations are admirable, and evidently no expense has been spared on them. Each diagram is an instruction in method; and the modern nurse who has these aids to diagnosis and management is to be congratulated. In every part of the book there is evidence of the author's acquaintance with the most recent methods of obstetrical practice; and in many departments of the work it must be confessed that the methods employed and the hygienic precautions adopted are much in advance of what the English midwife is commonly taught.

In seven parts and 26 chapters, the following among other subjects are taught: Anatomy and physiology, the development of the infant, the care of the expectant mother, the nurse's duty in parturition, the young mother and her care, the communal organisation of maternal care, and the care of the baby.

The medical officer of health and midwifery inspector will be interested in the illustrations of official notices employed in the States, which will be valuable for comparison with those employed in this country. The different status of the midwife in America—in some States she is

ignored, although existent, in others there are beginnings of training for her—adds interest to the comparison between American and English practice.

A much higher proportion of confinements take place in hospitals in America than in this country; and we note the common-sense advice that the infant should be marked by labelled sticking-plaster before it is taken from the delivery-room. The newer methods of artificial respiration for the new born infant are beautifully illustrated; and throughout the book the student's path is made easy and clear.

What we like best about the book is its general attitude towards what is sometimes regarded as an unattractive subject. The subject is raised above this level, and at every point the nurse is induced to feel that she is bearing no small part in securing the future welfare of mankind. This is in the spirit of Florence Nightingale's words quoted on the front page: "Can there be any higher work than this? Can any woman wish for more womanly work?" In Miss Van Blarcom's own words: "The average nurse has a deep maternal instinct . . . and it is entirely natural that she should derive great satisfaction from this vicarious childhood."

The book may usefully find its way into the library of every county and municipal public health office, and into the hands of midwives and health visitors throughout the country.

WEST KENT COMBINED DISTRICT.—The constituent authorities in the West Kent combined district have decided to ask the Ministry of Health to dissolve the combined district and instead of filling the post of Medical Officer of Health, held by the late Dr. Tew, to form two districts with two whole-time Medical Officers.

SIR LESLIE MACKENZIE, M.D., F.R.C.P., LL.D., has been appointed, for a period of five years, a member of the General Council of Medical Education and Registration of the United Kingdom, for Scotland.

WE regret to record the death of Dr. Christopher W. Narbeth, assistant medical officer of the Surrey County Council. Dr. Narbeth was taken ill when on holiday in France, and died at Grenoble on 17th September, shortly after an operation for appendicitis. After a distinguished career at St. Bartholomew's Hospital, Dr. Narbeth entered the public health service, and his enthusiasm and ability seemed to promise a brilliant future in the profession.

† "A Survey of the Present Position of Smallpox and Vaccination as Affecting this Country," by Dr. W. McConnel Wanklyn. Price 1/-. Published by G. A. Wareham, 90, Queen Street, Cheapside, London, E.C.4.

†† "Obstetrical Nursing," by Carolyn Conant Van Blarcom, R.N. Price 3 dollars. Published by The Macmillan Company.

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Editorial.

M.O.H. SALARIES AND THE B.M.A.

Every member of the M.O.H. Society will rejoice to learn that the chances of strong combined action by the Society and the B.M.A. on the subject of salaries are rapidly improving. The decision of the B.M.A. Council on December 13th to recommend the agreed salaries scale for adoption by the Annual Representative Meeting in July next is most welcome, and the Council of the Society at its meeting on December 15th recognised the great influence exerted on behalf of the scale by Professor Bolam and other representatives of the Association upon the joint body which had had the matter in hand.

We must realise, of course, that the scale has, on a previous occasion, received the approval of the Council of the B.M.A., and was sent on to the Representative Meeting at Cambridge in 1921, where it met with unexpected opposition from members of the Council and others, with the result that the scale was not adopted as part of the fighting policy of the B.M.A. We venture to think and hope, however, that the chances of the adoption of the scale by the coming Representative Meeting are infinitely greater than they were two years ago. We believe that we are doing no one an injustice when we say that the prevailing idea with the B.M.A. about the matter at that time was that it might be just as well to give the public health service a helping hand so long as it could be done without too much trouble—in fact, as an act of philanthropy. In any case we are on sure ground when we say that there is now no idea anywhere of philanthropy to any particular section of the profession and that the present recommendation is based on the sure and safe foundation of professional self-interest combined with the public good.

We have urged repeatedly that the case for the salaries scale is essentially a matter involving

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the rate of professional remuneration as a whole and not merely a question of how much is to be paid to the various members of the public health service. The present rate of pay of medical officers of health and their staffs constitutes a standing menace to the whole profession, and unless remedied promptly it will result in a permanent lowering of the professional income everywhere. Is it likely, for instance, that the present rate of panel pay will be maintained when it is realised that the work could be carried on with a fraction of the present expenditure by the employment of whole time medical officers at the salaries at present sanctioned by the B.M.A.?

Panel work is by far the largest branch of the public medical service, and panel pay must, therefore, be the standard of comparison. It is easy to shew, as is done so ably by Dr. Herbert Jones in his address to the North-Western Branch (printed in this issue), that the public health officer will still suffer from severe financial handicaps even when he is paid at the same rate as the panel practitioners. The scale recently approved by the Council of the B.M.A. does not put the public health service on anything like an equality with the panel service and can therefore be regarded only as an instalment.

Now that the matter has been stripped of its pseudo-philanthropical trimmings and reduced, at long last, to the common sense level of common professional interest, we have no doubt that the Representative Meeting in July next will confirm the decision of the Council. It must, of course, be left entirely to the Council of the B.M.A. to present the case to its branches and divisions, in the form of official communications, but it is the duty of every member of the public health service to attend the meetings of the divisions and branches and to see that definite instructions are given to each representative upon this important question.

The public, as a whole, is undoubtedly with us in our endeavour to make the service sufficiently attractive to induce the best men to enter it. Some areas, even now, are paying salaries in advance of the scale, but there will always be a few which will attempt to betray the public interest by paying on the lowest scale possible. To deal with such as these the full combined power of the M.O.H. Society and the B.M.A. is necessary, and recent events at Manchester and Croydon and elsewhere have shewn that these two bodies make an extremely powerful combination.

THE GENTLE ART OF CAMOUFLAGE.

There must have been much merriment in Olympus recently if it be true that a good man struggling against adversity is a sight pleasant to the gods. Within the fold of the National Council for Combating Venereal Diseases there are men and women given to good works, and yet the National Council is in sore distress. In a letter dated October, 1922, and addressed to Chairmen of Branch Councils, the General Secretary stated that "the voluntary funds of the National Council have been for some time at a very low ebb. The present situation is so serious that unless some practical scheme can be devised by which the Council becomes self-supporting it will be necessary to close down a very large proportion of its present activities. The Executive Committee therefore propose holding an utility sale. . . . The function will be advertised under the name of Health and Empire Utility Sale for Public Health Education." For public health education, be it noted, not for propaganda to combat venereal diseases. In truth, the Executive Committee must consider that the position is desperate if it is necessary thus to cloak the identity of the National Council and to camouflage the objects for which it was established. In an eight-page circular headed "Health and Empire Christmas Market" there is an extremely clever attempt to explain "the good work which will be helped along" by the money of the subscribers to the Christmas Market. We notice from a copy of the circular before us that "Ill-health undermines efficiency. Many forms of disease are hereditary. Education is the foundation of all preventive work. Public enlightenment on personal hygiene is our most effective weapon against disease. Our encouragement to push forward in our work of public enlightenment lies in the fact that during the last 13 years it has resulted in a reduction in infant mortality from 120 per thousand to 83 per thousand. . . . This is the work carried on by the National Council C.V.D. which you will help. It has the close supervision and approval of the Ministry of Health and is recognised by all Government Departments concerned in public health matters." The words venereal diseases find no place in this apologia, unless they lurk in the cryptic C.V.D.

We have met before with examples of bluff even of the trans-atlantic variety, but surely Uncle Jonathan would find it difficult to emulate the priceless statement that the propaganda of the National Council for Combating Venereal Diseases has brought about during the last 13

years a reduction of infant mortality from 120 to 83 per thousand. As a matter of fact, we have never heard that the National Council has carried on any propaganda directed towards the prevention of infant mortality except in so far as the treatment of venereal diseases is associated with saving of infant life. If the National Council for Combating Venereal Diseases has faith in the policy which it advocates, it would be far better to come out into the open and make a direct appeal for funds to carry on the work for which it was founded. Evidently its past work has been carried on almost entirely by immense grants of public money, and now that this source of income is failing, owing to financial stringency, the National Council apparently realises how small an estimation its past efforts have earned in the eyes of the public. The realisation of such a fact should have led to an internal reform, but, unfortunately, it appears only to have resulted in this remarkable attempt to obtain funds from the public by an obviously misleading reference to the reduction that has occurred in infant mortality.

If the National Council desires to play its proper part in preventing venereal diseases it will have to reform its policy, which was so aptly compared by an eminent member of the Society of Medical Officers of Health to "trying to kill elephants with pea-shooters."

PUBLIC HEALTH AND THE MINISTRY.

A comparatively short time ago the Public Health Service was congratulating itself upon the issue of orders by the Ministry limiting the appointment of medical officers of health to persons possessing the Diploma in Public Health. Quite reasonably members of the service congratulated themselves upon such an event, imagining that a great battle had been won in the public interest, and that in future the appointment of men not specially qualified for this work would be impossible. Unfortunately these hopes and anticipations have not been realised. Within a few months of the issue of that vitally important order the Ministry have approved of the new appointment of a medical man without this indispensable diploma as medical officer of health in a certain rural district. Now that the Ministry have made an exception there seems to be no reason why they should not continue to give away the whole position until they are brought to book by an indignant public.

PANEL PRACTITIONERS AND VACCINATION.

A good deal of irritation has been caused amongst panel practitioners by the issue by Insurance Committees all over the country of a letter from the Ministry of Health stating that vaccination and other forms of preventive treatment must be undertaken by panel practitioners. The handsome concession is made that the panel practitioner who has to purchase the vaccine can claim payment for this material from the Insurance Committee. Many of the panel practitioners claim that in view of the fact that public provision is made all over the country whereby any member of the public can obtain free vaccination, it seems unreasonable to impose this additional and unnecessary duty upon panel practitioners. The very natural irritation on the part of these practitioners is increased by the fact that this decision of the Ministry of Health has been considered by the Insurance Acts Committee of the British Medical Association, and has been approved by them. Panel practitioners feel that this increased service without increased remuneration serves as an unwelcome reminder of the extraordinary action of the British Medical Association in the early days of the war in agreeing to a 60 per cent. reduction in the notification fees at a time when remuneration in every other profession and trade was rapidly increasing.

The letter referred to is addressed to the Secretary of the London Panel Committee, is dated November 10th, and says:—

"In reply to your letter of the 7th instant, I am directed by the Minister of Health to state that there is nothing in the Terms of Service which excludes vaccination or other forms of preventive treatment from the obligation which an insurance practitioner undertakes, provided that the treatment is of a kind which can, consistently with the best interests of the patient, be properly rendered by a general practitioner of ordinary professional competence and skill.

"It is for the practitioner to decide in the first instance whether any particular form of treatment, preventive or otherwise, is in the interests of the patient's health, but in general he would be expected to give the same treatment that he would advise one of his private patients to undergo in similar circumstances. In the view of the Minister, the fact that the treatment could be obtained from a public vaccinator would not in itself justify an insurance practitioner in refusing to vaccinate one of his insured patients who desired him to perform the operation.

"With regard to the question of payment for the vaccine, an insurance practitioner who vaccinates one of his patients should himself provide the vaccine and claim payment from the Insurance Committee, on the basis of the Drug Tariff, under Part II. of the Committee's Distribution Scheme.

"A supply of vaccine from the Government Lymph Establishment is made available for the use of the public vaccinator only and for medical officers of health for the vaccination of immediate contacts of persons suffering from smallpox. This supply, therefore, does not affect the practitioner's right to receive payment from the Insurance Committee for vaccine provided by him for his insured patients."

MILK AND THE MINISTRY.

The famous Circular—the Magna Charta of the fraudulent milk-dealer—has been referred to on several occasions in these columns, and we propose to deal further with the subject in our next issue. Meanwhile we urge upon all medical officers of health the importance of making suitable reports on the subject, in accordance with the recommendations they have received from the Society of Medical Officers of Health. Every effort should be made by each member to secure the withdrawal of this scandalous circular.

The Ministry is singularly unfortunate in its milk activities: everything that is done appears to be undertaken largely with a view to the permanent endowment of the trade at the expense of the public, and the enormous influence of the milk trader is apparent at every turn. A real Ministry of Health would make a clean sweep of everything that has been done recently, as well as everything that is now being prepared, on the subject, and would start fresh in an endeavour to deal with the subject from the point of view of the consumer.

In his annual report as County Medical Officer for Cheshire, Dr. Young declares that the policy of the Ministry in grading milk is radically wrong, and that milk labelled under licence is sold at prices too high for the poor, who, therefore, get the same quality as before, and derive no benefit under the new Act. These views are entirely in accord with those of most of the experienced members of the Public Health service. The grading of milk has merely added a new terror to poverty.

TUBERCULOUS PATIENTS AND WORK.

One of the many points of difficulty in connection with "sanatorium benefit" under the Insurance Act has been the opposition on the part of approved societies towards the partial employment of patients, even when such partial employment had been ordered by the doctor as a necessary part of the treatment. Insurance committees all over the country have passed resolutions urging that sickness benefit be so amended that sickness or disablement benefit would be payable to insured persons suffering from tuberculosis who were able to engage in such open-air work as might be prescribed by the medical practitioner as part of their treatment. Unfortunately, the opposition has up to the present been too strong, and no help seems to be forthcoming from the Ministry of Health on this important matter. The ordinary patient is barred from even doing a little work in his garden if it comes to the knowledge of his approved society, and similar restrictions are said to be in existence with regard to the performance of a small amount of domestic work by a female patient. Possibly official representations on this subject through the Society of Medical Officers of Health might obtain favourable consideration.

BIRTH CONTROL.

The practice of birth control is spreading amongst the lower middle classes and the upper part of the working classes, though it does not appear to have yet reached the lower working classes, says Dr. Meredith Young, Cheshire County Medical Officer of Health, in his report for 1921.

"Indeed," he continues, "anyone who attempted to stem the tide of public opinion in this matter at present would be entering on a truly desperate task. The case appears to me to have been carried beyond the stage of arguing for or against birth-control and to have reached the point at which legitimate birth-control is accepted as being for the national good, and all that remains to be settled is the best means of control and the general education of the public on contraceptive methods.

"That is the position, whether we accept it and like it or not. Our task as medical officers of health is to accept what, after all, we have no power to alter and to concentrate more strongly still on reducing the mortality

amongst those who are permitted by nature, assisted by the 'selective agencies' of civilisation, to come into the world."

Referring to the high number of deaths from congenital debility and premature birth, the report says: "Some of these deaths, if the truth could be known, are due to the use of abortifacients which have led to imperfect growth and development and the birth of an enfeebled or organically immature infant.

"Though legislation has virtually stopped the use of the most injurious of these drugs, it is common knowledge that many drugs are still sold which, whilst not always inducing abortion, stunt the normal nutrition and development of the unborn babe."

THE STAFFORD APPOINTMENT.

In our issue of April last we referred to the attempt made by the borough of Stafford to secure a medical officer of health for Stafford at a salary of £600, and we commented upon the gross inadequacy of such a stipend. Fortunately the loyalty of the profession was equal to this test, and a revised advertisement was issued subsequently.

In connection with this matter we have now received the following letter from the Town Clerk of Stafford to which we have much pleasure in giving publicity:

APPOINTMENT OF MEDICAL OFFICER OF HEALTH.

"Dear Sir,

"It has been brought to the notice of the Public Health Committee of the Town Council of Stafford that reference was some time ago made in portions of the Medical Press to the remuneration of the new Medical Officer of Health for Stafford, as compared with that of his predecessor.

"With a view to correcting any misapprehension which may exist regarding the matter, the Committee desire me to state that the former Medical Officer was paid a salary of £800 per annum, £180 of which was defrayed by the County Education Committee in respect of that officer's services as Assistant School Medical Officer. Owing to certain differences which arose between the Council and the County Education Committee, the appointment of Assistant School Medical Officer was determined by the Education Committee last December, with the consequent loss to the Council of the annual contribution of £180, though the Medical Officer's remuneration was not affected.

The new appointment was made at a salary of £700 per annum, though the duties of the office do not include the School Medical Inspection work carried out by the former Medical Officer of Health. The Town Council, it will be seen, is now actually paying higher

remuneration for the work done by its Medical Officer than formerly:

Yours faithfully,
(Signed) RICHARD BATTLE,
Town Clerk."

In view of the satisfactory termination of the matter we will refrain from commenting further upon the case except to say that the essential feature appears to have been missed by the Public Health Committee of Town Council of Stafford. They require the services of a medical man who is prohibited from private practice, and the position we take is that no such whole-time services should be available by any public body at a salary of less than £900 per annum. Such a claim can be justified by reference to the present scale of payments for medical officers in the army and navy, and is much more than justified by comparison with the rates of payments now being made to panel practitioners.

DR. MATTHEW HAY.

The Public Health Committee of the Town Council of Aberdeen have performed a graceful act and have shown their appreciation of their highly distinguished medical officer of health by the action that they have taken on receipt of a letter from Professor Matthew Hay tendering his resignation of the post of medical officer of health for the city. For some time Dr. Hay's health has been far from satisfactory and he has taken this action on the advice of his medical attendant. The following resolution was unanimously passed:

"The Committee have received with much regret the letter from Dr. Matthew Hay tendering his resignation as medical officer for the city, and desire to express their sympathy with him in the circumstances which have led to the step he proposes to take. The Committee, however, in view of Dr. Hay's length of connection with the Council, and the distinguished position he has taken in relation to all public health questions affecting the city, as well as the country generally, feel unable to accept the resignation.

They accordingly unanimously resolve to defer consideration of the letter, and in the meantime agree to release Dr. Hay from his duties as medical officer of health, and to grant him leave of absence for such period as may be considered requisite, in the hope that his health may soon be restored."

We beg respectfully to offer our sincere congratulations to the Public Health Committee

of the Aberdeen Town Council. They have been fortunate for many years in securing the services of one of the most distinguished members of the public health service in the kingdom, and by their action in declining to accept Dr. Hay's resignation, and granting him instead leave of absence for any period which may be necessary, they have shown their appreciation of a worthy officer.

The action of the Public Health Committee of the Aberdeen Town Council stands in marked contrast with that of the Aberdeenshire Education Authority, which has recently persisted in filling a vacancy as assistant school medical officer at a salary of £450, in spite of the representations from the British Medical Association and the Society of Medical Officers of Health. It is a curious coincidence that Aberdeen Town Council have succeeded in attracting to their service very distinguished officers, while the adjoining county has thought fit to announce its readiness to be satisfied with the kind of officer likely to be attracted by an utterly inadequate salary of this kind.

SALARIES AT ST. HELENS.

An interesting situation has arisen at St. Helens. All the principal officials of the municipality are under three months' notice to end their employment. Should the notices run out, St. Helens will be in the position, probably unprecedented, of having no one to carry through the decisions which the Council may come to.

Unfortunately, the matter is being fought on a political basis. In Monmouthshire the attack upon salaries was made by the Conservatives: in St. Helens the Labour members are the aggressors. The Town Council has broken away from the Whitley Council and is now paying its workers less than neighbouring towns, and the Labour members, apparently under the impression that two blacks make a white, started a crusade for the reduction of the salaries of the municipal officials. We hope that the Labour members will be satisfied with this protest against the secession of the Town Council from the Whitley Council and that they will realise that the great cause which Whitley Councils represent will not be helped by perpetrating an act of injustice upon hard-working and efficient public officers.

Evidently the whole of the blame cannot be put upon the Labour members, as they number only 17 in a council of 36. What are the 19 doing?

MILK CIRCULAR 325.

Valuable support in the campaign against the notorious Circular 325 has been forthcoming from the Councils of the Institute of Chemistry and of the Society of Public Analysts. These two Councils have addressed a joint letter to the Ministry of Health, which reads as follows:—

Sir,—The attention of the Councils of the Institute of Chemistry and of the Society of Public Analysts has been directed to a copy of a circular purporting to have been issued by the Ministry on 17th July, 1922, with regard to taking proceedings against milk vendors who sell milk containing less than the proper amount of fat.

In this circular it is stated that the Ministry is of opinion that it is exclusively undesirable that a prosecution should be based upon the results of an isolated test when other tests of the particular milk supply have proved satisfactory, and that in such cases prosecutions should be instituted only where a series of tests have shown repeated default.

The Councils of the Institute and the Society feel that the instances in which the fat content of milk falls below the fixed limit are so rare and unusual that the action of the Ministry in the issue of this circular constitutes a dangerous menace to the public health in the administration of the Act. Already cases have been reported to the Councils wherein the local authorities have acted upon the circular and cases of undoubted adulteration have thus escaped any form of penalty.

The Councils hope, therefore, that the Ministry will see their way to withdraw or modify the circular referred to.

Yours faithfully,

A. CHASTON CHAPMAN

(President of the Institute of Chemistry).

O. A. ELLIS RICHARDS

(President of the Society of Public Analysts).

DANGEROUS DRUGS ACT, 1920.

In a circular (357) dated December 1st issued by the Ministry of Health to Port Sanitary Authorities the difficulty in supplying foreign vessels with drugs is referred to. Cases may occur in which supplies of these drugs are essential for the proper equipment of vessels about to leave port, and it is desirable that arrangements should be made in order that the masters of foreign ships may be enabled to procure any supplies of dangerous drugs that may be required

to complete the proper equipment of their vessels for the voyage to the home port.

It has accordingly been suggested that Port Medical Officers of Health should be authorised by the Secretary of State to grant certificates for the supply of dangerous drugs to foreign ships, when satisfied that the drugs are required to complete the necessary equipment of the ship (on the Board of Trade standards for British ships) and that the quantity of each drug is not more than is needed for the voyage to the home port, and the Minister would be glad to be informed at an early date that the Port Sanitary Authority would be willing to allow their Medical Officer of Health to give the necessary certificates.

TRAINING OF NURSES.

In his annual report Dr. Wheatley, County Medical Officer for Shropshire, says:—"The Nurses Registration Act, 1919, is now in force. This Act and the rules made under it lay down the conditions for registration and training of nurses. The training of nurses is a matter of the utmost importance to the health of the people, and consequently of direct concern to the Public Health Authorities. My principal reasons for attaching so much importance to the public health training of nurses are:—

"(1) A large and increasing proportion of nurses are engaged in district nursing.

"(2) A district nurse, and more particularly a district nurse who acts as a Health Visitor should be an educator. This education by the district nurse should be a real thing and should play an important part in the general education of the public in the principles governing healthy living. In the past our public health activities have mostly consisted of measures carried out by public authorities to help and 'protect' the people. It is pretty generally recognised that the greatest improvement in health and physique is now to be effected, by bringing the scientific information that we have on such matters as food, exercise, effect of fresh air, spread of infection, etc., to the knowledge of the people so that they may help themselves.

"(3) Even in hospital, the nurses' work is mostly concerned with personal hygiene and the hygienic surroundings of the patient.

"(4) A thorough course of hygiene based on physiology and anatomy would be a far better training for a nurse than the smattering of medicine and surgery which she is at present taught. Unfortunately the training of a nurse is almost entirely in the hands of the hospital staffs and is

directed naturally to forming a highly trained person for this particular work.

"What is wanted is a clear recognition of the necessity for making the teaching of hygiene in its widest sense the basis of all nurses' training. For this purpose wherever possible this branch of teaching should be placed under the supervision of persons specially trained in public health, and the nurse should be given the opportunity of seeing the practical application outside, of the teaching given in the hospital. There should be no difficulty whatever in finding time during the three or four years' training for this work.

"That the nursing council have not overlooked this question is shown by the following quotation from the preface to their draft syllabus of training:—

"'Public Sanitation and Public Health are subjects of growing importance in the training of a nurse, both to widen her outlook and to counteract the limited vision sometimes acquired in sick wards. They should be brought to her notice from the outset and kept in full view throughout her training.'

"Unless, however, action is taken by those responsible for the health of the public to make the training a real one, it is not likely that much will be effected."

ORDINARY MEETING.

An ordinary meeting was held at the house of the Society on Friday, December 15th, 1922, the President (Dr. T. Eustace Hill) in the chair.

The minutes of the last meeting having been approved and signed, the following candidates, having been duly nominated, were elected as Members of the Society:—

Brown, Frederick Wm. Campbell, M.D., Ch.B., Aberd., D.P.H.; Dick, Alexander, M.C., M.B., Ch.B., Glasg., D.P.H.; Fagan, Chas. Horace John, O.B.E., B.A., Cantab., M.R.C.S., L.R.C.P.; Fordham, Wm. John, M.R.C.S., L.R.C.P., D.P.H.; Haller, Bertram Conrad, M.A., L.R.C.P. and S., Edin., D.P.H.; Osborne, Harry, M.D., Ch.B., Vict., M.R.C.S., L.R.C.P., D.P.H.; Sandilands, Richard, M.B., Ch.B., Edin., D.P.H.; Wiley, Verner, M.D., B.Ch., R.U.I., D.P.H.

A number of candidates were nominated for election at the next meeting.

Dr. E. Colston Williams read a paper on "Pit-head Baths and other Amenities in Colliery Areas." In thanking Dr. Williams for a valuable paper, the President said his contribution and a report of the discussion, when published in the Journal, would interest a great many members of the Society. The vote of thanks was carried unanimously.

THE WASTAGE OF CHILD LIFE.

A NATIONAL PROBLEM.

BY

GLEN DAVISON, M.D. (Durham), Pediatric Physician, Maternity Hospital, Newcastle-on-Tyne; Physician to Out-Patients, Hospital for Sick Children, Newcastle-on-Tyne.

A detailed examination of the diseases and causes of death in childhood, inevitably points to the overwhelming importance of the period called "infancy." Just as the clue to the welfare of the infant can frequently be found by an analysis of its parental history, so when we deal with the pre-school age and school age problems of our child life, we can find their explanation in the period of infancy. For better or worse we are driven to the conclusion that we must look increasingly to the welfare of our infants if we wish to obtain a healthy childhood. In this paper the problem is approached primarily from the standpoint of public health.

Since, therefore, in our opinion, the child 2-10 years of age is chiefly an epitome of his past, what factors can we discover which throw light on the problem of childhood?

1. *Our Milk Supply.*

A. Human species. Helen Y. Campbell² gave statistics shewing that from 1914-1920 inclusive, out of 12,632 mothers who registered, no less than 6,316 failed in mammary function. The majority of us are grimly familiar with the phenomenon. Is it not about time that it was indexed and accepted for research work? Is the failure of the human mammary function mental or physical? An excellent opening for the brilliant young graduate who, as Osler⁹ pointed out, may follow chemistry, physiology or morbid anatomy. Whatever problems, therefore, arise in childhood, they deal with children 50 per cent. bottle fed.

B. Bovine species. Kerr¹ gives some illuminating statistics regarding the supply of milk from his standpoint as M.O.H. Before considering their significance, we may consider the figures by Spinks⁴, as M.O., Newcastle Welfare Centre. He notes that, of 4,254 infants coming under his official view, 2,191 only were breast fed. *Less than 50 per cent.* With reference to the milk supplied to the City, and sold for public consumption, we see that, of the samples submitted for analysis,

In 1914	10.2 %	were certified as NOT genuine.
" 1915	9.3 %	" " "
" 1916	10.3 %	" " "
" 1917	11. %	" " "
" 1918	8.6 %	" " "
" 1919	11.5 %	" " "
" 1920	8.74 %	" " "

Therefore, the future child of school age (if he arrives there) has to run the gauntlet of drinking a milk, which officially has been labelled *not* genuine.

That is not the only risk. Consider the question of infection by Tubercle Bacilli.

In 1914	6.7 %	contained Tubercle Bacilli.
" 1915	5.8 %	" " "
" 1916	8.7 %	" " "
" 1917	3.1 %	" " "
" 1918	2.9 %	" " "
" 1919	3.6 %	" " "
" 1920	6.3 %	" " "

Therefore, we see that, when as clinicians we are called upon to treat Tuberculosis in childhood, as not being foreign to the subject under discussion, the average for the past 7 years in this City¹ shows 5.4 per cent. of samples to contain Tubercle Bacilli.

Consider next the question of "excremental pollution." We are all familiar with "epidemic diarrhoea" of infancy and childhood. If we were not staled by custom by the request of the public for "a bottle of medicine," we would surely take more active steps than we do at present. One valiant worker in our profession, when asked his opinion of milk as a beverage for children, curtly replied "Diluted Sewage."

Turning again to this illuminating report, we read that

In 1914	23.2 %	of milk samples were excrementally polluted.
" 1915	35. %	" " "
" 1916	41.5 %	" " "
" 1917	51.4 %	" " "
" 1918	66.8 %	" " "
" 1919	52. %	" " "
" 1920	54. %	" " "

In short, only half the infants of the City are being breast fed, and we find that over 50 per cent. of the samples examined were excrementally polluted.

A further light upon the subject is found by noticing that, in 1920, 9.4 per cent. of the samples examined for DIRT showed an excess of the standard permitted, namely, 2 parts per 100,000.

Therefore, to summarise this one point of feeding, we see that, when we consider the question of the welfare and feeding of children past the age of infancy, all those children not breast fed,

at least in this City referred to in the report, have to feed upon samples of milk described officially as not genuine, Tubercular, Polluted, and Dirty. Having arrived at this stage of the discussion, we are not surprised at the death, disease, and disabilities of childhood presently to be described.

Summarising, Kerr¹ continues: "It is little wonder that the using of dried milk is extending, for there is no question that, owing to its relative purity and its low susceptibility to contamination, it is a safer food for the young child in humbler households at least, than the fresh article, preferable though that may be upon physiological grounds. There were 714 small general shops selling milk before the war . . . these constitute a grave risk to the consumers who are mainly children." By the end of 1920 the number was 299. In other words, 299 possible mongers of tubercle, dirt, fraud and pollution.

2. *Diseases and Defects of Infancy.*

The statistics of the Bradford Infants Department², thanks to the unflagging work of Helen Y. Campbell and her colleagues, are a mine of information. Steeplechasing appears ludicrously easy in comparison with the hurdles, ditches, and man traps, through, over, and under which, our child of 2-10 has to pass before we meet with him officially.

The report of the year 1918 states: "The 2,172 infants under observation during the year, shared among them 14,289 diseases and defects."

Approximately 7 handicaps to each infant! Robert Hutchinson¹⁰, when referring to "growing pains" continues, "That gentleman is a phrase which has crippled a great many hearts." And as pediatricians, a similar phrase occurs to us, "He will grow out of it as he gets older, especially when he is seven." That also has crippled countless lives. 2,172 infants, 14,289 diseases and defects!

Greenwood⁸, referring to the analysis of the results of physical examination by medical boards, from November 1st, 1917 to October 1st, 1918, gives the official figures: "2,425,184 men were examined or re-examined, and more than a quarter of a million men, were found to be totally and permanently unfit for any kind of military service."

We say emphatically that the policy of closing the stable door after the horse is stolen, which hitherto has been pursued with reference to our child life, is criminal. It is not, primarily, bottles of medicine, Liston's splints and osteotomies by which the ills of childhood are conquered. We need a completely new view point, whereby we

realise the paramount importance of prevention and education in the period of infancy.

3. *The Stigma of Illegitimacy.*

The Bradford figures² confirm the previous findings.

The Illegitimate death rate was 18.35 per cent. The Legitimate death rate was 6.86 per cent.

A. F. G. Spinks¹ reports, "These babies were considered as precious as other babies, and received the same consideration. The mothers were encouraged to feed the children naturally, and were given all available help for doing so." How can Barnardo or Stephenson cope with all the needy helpless children? Why stigmatise the offspring for an anti-social act of the parent? Whenever did two wrongs make one right? If it be true, and who doubts it, that "An Empire marches to its destiny on the feet of little children," then all are needed—illegitimate as well as legitimate. We add to our national burden and do not lighten it, when we leave the off-times unwanted child to sink or swim.

4. *Housing Conditions.*

The best commentary we can quote bearing upon the importance of the housing question to the child life of this country, is to show the mortality statistics¹ relating to housing conditions.

1 Room Conditions	198 per 1,000 births.
2. " "	135 " 1,000 "
3 " "	116 " 1,000 "

5. *Maternal Fertility.*

Helen Y. Campbell² has analysed the Bradford statistics with reference to the relations of mortality of off-spring to fertility.

Of 2,832 mothers under survey, 1,257 were Primiparae, 774 were Multiparae, having lost no children. 801 were Multiparae, having lost 1,378 children. 2,832.

Of these 801 mothers, i. 81.09 % lost 877 children (under 1 year and over 1 year). 47.56 % lost 501 children (miscarriage and still birth).

ii. A. To these 801 mothers who lost 1,378 children there remained 1,584 children = 4.69 pregnancies per mother.

B. To these 774 mothers who lost no children there remained 1,363 children = 2.76 pregnancies per mother.

"The fertility of the parents with bad productive histories, will therefore be seen to be considerably greater than that of the parents with good histories."

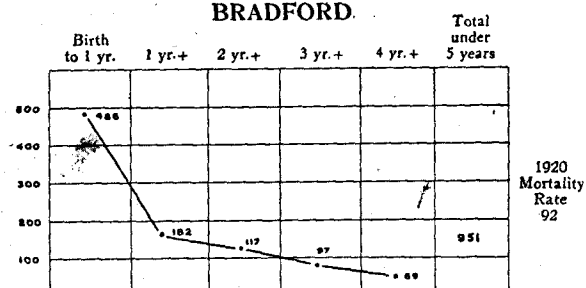
The probable causes are not far to seek: one pair of hands; all domestic work, perhaps helping in wage-earning in addition. Our view of

the welfare of children past the age of infancy cannot be complete until we realise that; as far as the State is concerned, fewer children associated with a diminished mortality rate provides the happy medium. We then might reasonably expect the child life of the country, to obtain a greater amount of individual attention than has formerly been possible.

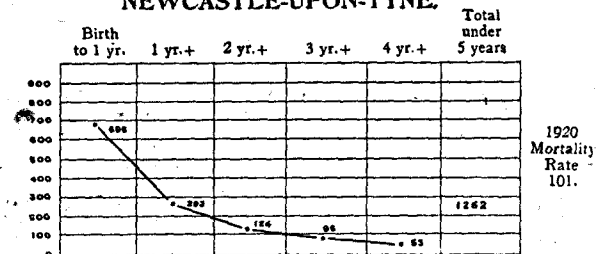
6. The Infantile Mortality Rate.

The children aged 2-10 years must be considered—in spite of any diseases and defects which we may notice later—as the successful candidate in the first stage of existence. They have survived the perils of infancy.

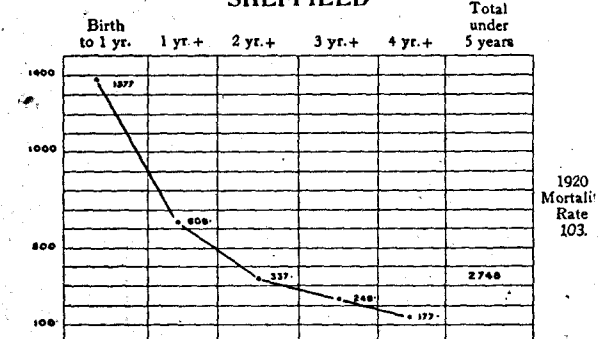
BRADFORD.



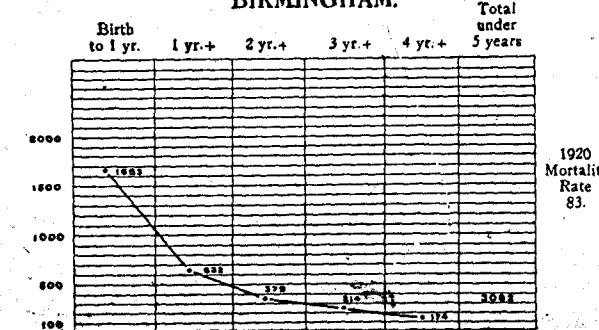
NEWCASTLE-UPON-TYNE.



SHEFFIELD.



BIRMINGHAM.



Thus, these four cities lost over 8,000 children under 5 years of age in 1920.

The Registrar-General⁴ has five chief classifications:

1. Common Infectious diseases (Measles, S.F., Wh. Cough, Diph.).
2. Tuberculosis diseases (all forms).
3. Diarrhoea and Enteritis.
4. Developmental and Wasting diseases; e.g., Malformation (Prem. Birth, Icterus, Sclerema, Atelectasis).
5. Miscellaneous group.

The first four groups account for 56 per cent. of total deaths. The last group accounts for 44 per cent. of total deaths.

We have, for better or worse, changed the character of this country from one fundamentally agricultural to one industrial in type. Are we surprised that young human life wilts and withers ere it is well begun? In 1918 the Infantile Mortality Rate for England and Wales, was approximately 1 in 10 of every baby born. The army statistics showed a total unfitness of our male population for military service of 1 in 10. We lost of the men in the armies approximately 1 in 10 by death.

Where else can this national deficiency be made good, except by concentrating upon the young generation? How much national, cohesive, detailed and intensive investigation, are we at this present moment carrying on against the great factors of infant mortality and child wastage? The cynic remarked with truth that all the "interesting" medical cases die, whilst the surgical ones recover. How few can be enthused with a zeal for "prevention" as opposed to "treatment."

Death from Scarlet Fever, Measles, Whooping Cough, Diarrhoea, Enteritis, Tubercle, the list is unending; nor is our duty finished by a diagnosis, however brilliant. One generation caring for the prosperity of its young, and arresting the terrific waste, could in this island alone, make good the population of Australia, New Zealand and Canada within its own life-time.

We can never expect to make any definite advance so long as the mediæval philosophy of medicine is retained. The modern conception of prevention as opposed to cure, will have to be fully explored before the problems of infant and child life wastage can be adequately grappled with.

That such a mental conception is gaining ground is manifest even to the casual observer. As a nation we must press for its fuller acceptance.

Having surveyed briefly the outstanding features affecting the welfare of infancy, we are now in a position to consider the condition of our national child life.

1. Malnutrition.

Cates⁵ states that, from statistics supplied by the School Medical Service, 10 per cent. of the school population suffers from Malnutrition. Therefore, estimating the National School population at 6,000,000 (the number³ of children in average attendance at the Public Elementary Schools during 1919-1920 was 5,187,000), we have no fewer than 600,000 suffering from Malnutrition.

Having survived the conflict with infected milk, unsanitary surroundings, ill-health of parents, the stigma of illegitimacy, the cramped environment of the town and city, 1 in 10 of the successful ones are found to be under fed and emaciated, though not organically affected. The feeding of necessitous cases, therefore, has won the day and so made of no effect the remark by Gorst,⁷ that "it is the settled principle of the Board of Education that they, and the local authorities which act under them, have no responsibility for the bodily health of the children whom they force to attend for instruction in their schools." Foggin⁶ shows that, out of 16,049 children examined in course of routine inspection, 1,533 suffer from Malnutrition, 1,554 from dental diseases, and 3,645 were referred for treatment. He notes that the good will of the parents to this procedure is a special feature. He quotes three interesting objectors with comments.

1. Dear Miss,—

Just a line in respect to doctor. I object to the doctor examining my children. When they want seeing to, I will get my doctor.

From yours truly.

The doctor's annotation to this epistle is:

Two girls, 8 and 13, both had nits, and the eldest girl had a very dirty neck. Her clothing not at all tidy.

2. Another objector wrote:

I strongly object to the medical examination of my daughter—particularly as our medical man is in constant attendance on her mother.

Again the School Medical Officer's note is:

One of the worst cases of verminous head I have ever seen.

He continues:

Some time ago I was asked to examine some boy bursars who desired ultimately to become teachers. One of

them had 8 decaying teeth, three of these being upper central incisors, the absence of which interfered with his speech. He was short sighted, and had no glasses. His tonsils were very large. He had had rheumatic fever 6 months before, and his heart was affected. He had never been medically inspected, as his father had always sent an objection.

Therefore, on the score of economy in child life, we may claim that one of the essential conditions for national child welfare is to retain, and when necessary, augment that supervision and care which makes possible the aims lying behind the Educational System of this country.

2. The System of Government Grants.

Each local Education Authority is naturally desirous of obtaining the maximum possible grant from Government in respect to educational expenses. Is there no better basis than that pursued at present, on which the amount paid is in respect to school attendances? Consider it with reference to that great scourge of child life—the exanthema group of diseases with others which clinically are regarded as contagious. Foggin⁶ states, "There is no doubt that school attendance suffers much from the incidence of infectious diseases . . . and but for vigilant supervision this absence factor would have probably been much greater. The annual grant may be taken as £2 per child for 44 weeks' attendance." The total average loss of grant in the school under his supervision from 1909-1913 = £2,255⁸.

Measles headed the lists as a cause for absence, and the monetary loss was £644. Scarlet Fever accounted for £205. "It will thus be seen that sickness accounts for a large amount—indeed the largest—of school absences, and this necessarily results in a serious loss of grant. It is unfortunate that this is so, as the anxiety of teachers and attendance officers to maintain a high level of attendance, is often in direct antagonism to the best interests of the ill or recovering child. School medical attendance is often blamed as conducing to a lower average attendance . . . the general child health is of greater importance than automatic attendance at School." On these two counts alone, therefore, the welfare of children past the age of infancy demands that the problem of malnutrition shall be dealt with, and that because of our ignorance of the causation and cure of measles, neither the School Authorities nor the individual child should be penalised by the conditions imposed by headquarters. "Early return to school after measles, scarlet fever, whooping

cough, etc., is undoubtedly responsible for eye trouble, ear trouble, and weakened health. The further extension of the school nursing service is essential to the school health of the children. In this way the early spread of infectious disease could be checked and long absences lessened.

Crippled Children.

Into this large group of childhood must be placed those suffering from effects chiefly of:—

1. Rickets.
2. Tuberculosis.
3. Poliomyelitis.

A violent storm is raging in the professional world concerning the first defect, its causation, prevention, and treatment. Vested financial interests prevent us from tackling the prevention of the second group, and, despite the voluminous amount of published works concerning the third group, as a profession we have to confess our ignorance as to its causation, prevention and cure. Nevertheless, the successful candidates in the struggle of infancy are called upon still further to withstand the assault and battery of this trinity. From a study of school statistics, we may reckon that one per cent. of the children of school age are "crippled." On the basis, therefore, of the school population, we possess 60,000 cripples. "The ordinary public elementary school is unsuitable for the majority of school children mainly for three reasons.

Firstly, the children are generally backward, and therefore in need of individual instruction impossible in a large class. Secondly, they are, as a rule, unable in the play grounds to withstand the buffetings of healthy children. And beyond this, they are often delicate, frail, and ill-nourished. In other words, they require the advantages of open-air life. In order to be self-supporting in after life, it is essential that the physically defective child should begin to specialise at an early stage, so as to acquire a degree of skill sufficient to compensate for the handicap which deformity imposes. Special day schools for children can accommodate about 5,000 children. There are residential schools for about 300 cases, so that for the majority of crippled children little is being done!

The ranks of the unemployed and destitute are still recruited from children mentally or physically defective.

Tuberculosis accounts for 50 per cent. of the cases. Poliomyelitis for rather less than 33 per cent. The deaths directly arising from Surgical Tuberculosis account for 5,000 persons annually, and thus the maimed may be reckoned at nearly 30,000.

Until such time, therefore, as an educated public opinion shall insist upon adequate supervision of the national milk supply, milk must either be boiled before use or dried milk be used. Coutts¹¹ has shown that, from the bacteriological point of view the dried product is far less contaminated with organisms than milk of certified A. Grade.

We are forced to the irresistible conclusion that the supreme policy of the State, both in peace and in war, is the safeguarding of the young life of the country. This calls for social measures and renewed professional activity. And the latter must be exercised primarily in the fields of prevention, and not in those of cure.

Dental Conditions.

Public ignorance may surely be held accountable for the fact that no less than 85-90 per cent. of our school children suffer from defective teeth. Out of 13,661 children⁶ examined in the schools of the local authority, only 14.7 per cent. showed sound teeth. 38.7 per cent. had less than 4 carious. 34.1 per cent. had more than 4 but less than 8 carious. 12.5 per cent. had more than 8 carious. These figures surely indicate that the welfare of children cannot be satisfactorily attended to, whilst the mouth is so frequently a septic cavity. The Hospital for Sick Children¹², Newcastle-upon-Tyne, has adopted the plan when dealing with all T. and A. cases in children, to ensure that, previous to tonsillectomy, all carious teeth shall be attended to. This enormously increases the work, but it diminishes the risks inseparable from the operation.

At the age of 4 years⁶, 68 per cent. of children examined showed sound teeth, at 6 years the total fell to 36 per cent. of children showing sound teeth, at 9 years the total was 11 per cent. It is surely no unfair question to enquire how many dental surgeons would be necessary in the country, either at full time or part time sessions, when 11,651 dental cases were discovered in one year's inspections in the schools of one Local Education Authority. It is sufficient that the children of our schools have or have not a medical attendant. How can we expect to have a complete overhaul of the child? The fact of the matter may be put shortly by saying that we must re-orientate our conception of child welfare work. Instead of judging a child fit because he shows no gross pathological lesion, we should assess the fitness of the child—using as the norm a physiological basis.

If we are to wait till the child suffers from toothache before attending to the teeth, then we are failing to appreciate the relationship of cause

and effect, and are thereby acquiescing in those agencies which cripple and impair our child efficiency.

Defective Vision.

To the school medical service belongs the credit of emphasizing to what extent the child life of our country is afflicted by defective vision. Very few of us would be able to hazard an approximate opinion as to the number of children affected in this way.

Analysis⁶ of the examinations shows that, out of 13,006 children, only 5,724 had vision $\frac{6}{6}$ = 43.9 per cent. Vision $\frac{5}{6}$ — $\frac{4}{6}$ occurred in 4,633 cases = 35.5 per cent. Vision $\frac{3}{6}$ and lower occurred in 2,301 cases = 17.6 per cent. 56 per cent. with defective vision! Is the diagnosis of defective vision sufficiently important to be included among the factors dealing with the welfare of children? There can be but one answer.

The Workers Available.

It is a notorious fact, familiar to all of us, that the junior ranks of the school medical service, regard the branch of work upon which they are engaged as a more or less "blind alley." As things are at present, it is quite impossible for each Assistant S.M.O. to obtain a Principal M.O. post. And yet we are content to acquiesce in the scheme of things whereby after a short term of service—as far as work is concerned—the junior school medical officers take up other more remunerative occupation. We see that our child life suffers from malnutrition, defective sight, defective environment. It is particularly prone to be swept by the scourges of scarlet fever, measles, and whooping cough. It has to run the gauntlet of forced pressure under the Educational Authorities. We can never seriously hope to deal with the wastage of child life, until we have enlisted the willing co-operation of the whole profession in the work.

We would suggest, therefore, that the first step in the preventive work amongst children, is to affiliate the School Medical Service with the Public Health Service under the final control of the Ministry of Health. At present it is more or less divorced from the current of professional life, and is subject to the Board of Education. This, we submit, is an anomaly, in illustration of which we see that the Board places the stamp of its approval upon a system which calls for the most attendance at schools. The welfare of the child not infrequently demands that the child shall be an absentee despite the loss of education. Another point of importance is that the work of the school medical service should not be a blind alley occupation. We have seen the overwhelming amount of

disability and defect in our child life. Surely that is sufficient to call for the utmost skill and attention. As things exist at present, even with the aid available in school clinics by the medical staff, only a small proportion of the children can get the necessary attention. Should the private practitioner be called upon to treat the condition, then the parent must pay. Should the latter be unable to do so, the child becomes one of the innumerable hordes of out-patients, or, if the condition is not instantly disabling, then the child is allowed to drift. Therefore, at present, the only public attention paid to the child life of the nation is the school medical service. Only if it becomes definitely ill is it left to the care of the private practitioner (if money is available). If indigent it becomes an out-patient at hospital. We need, we submit, a national scheme for so important a subject, in which the whole profession may co-operate. There would be no real difficulty in allocating the children of the nation to the individual members of the whole profession who wished to participate. The work could be grouped and co-ordinated, radiating out from the school medical service as the administrative centre. Hitherto, the profession has been paid only to deal with sickness. As far as child life is concerned, it would pay us as a people to remunerate the profession on a health basis, not a sick basis. The school medical service, instead of being a blind alley occupation to all except a favoured few, would be an occupation for a life time, reaching out on the one side to those agencies such as maternity and Child Welfare Nursery Schools, and blending finally into adult life. Its basis would be physiological rather than pathological, and its object prevention.

A further consideration in dealing with the problems before us is, to realise afresh how small the amount of work done from the point of view of research. Can we not develop to an infinitely greater extent than we have ever done a scheme of research work? Consider the problems associated with the welfare of our child life; the question of the infected milk supply; the incidence of measles, scarlet fever and whooping cough; the etiology and prevention of rickets; the crippling effects due to Poliomyelitis. Our knowledge of "Measles" extends back to the Arabian physician Rhazes¹³. As a cause of death in childhood it is acknowledged to hold first rank among the acute fevers, yet, in spite of all the known facts, we are quite as helpless to prevent or even to diminish the acuteness of an attack as we have ever been. We simply must realise that if we believe in the prevention of diseases we must as

a corollary develop research workers. With us, research work is spasmodic and miserably recompensed. Surely, as a national policy, we could find some way to utilise the help of our new graduates as research workers. This means, of course, that they be paid a living wage. After an education which has been obtained only at considerable expense, it is preposterous to think men will continue to live on "short commons" indefinitely.

The Jeremiahs of the press bewail the falling birth rate; they can see with the inspired vision of a prophet the approaching eclipse of our nation through self suicide. It has apparently never occurred to these gloomy citizens that as a people we have been too fond of seeing a large birth rate. It never seems to have occurred to them that by conserving the lives of the young we already possess, instead of allowing them to waste, we are taking steps to build up a nation not only strong in numbers but in virility. A large birth rate is only of secondary importance compared with a low mortality rate of our child life.

When we remember that in four of our English cities, Newcastle, Birmingham, Bradford and Sheffield, we lost in 1920 more than 8,000 children before the age of 5 years, we can surely see that it is more necessary than ever to consider afresh our national child welfare.

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THE LONDON EPIDEMICS OF CHOLERA.

BY

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The attempt was made last year to present a bird's-eye view of the history of typhoid fever in London during the last 70 years. When the disease first emerged to view, early in the last century, it is obvious that it was scrutinised merely from the clinical standpoint, and was thus differentiated from the medley of typhus and continued fevers, agues, sweats and the like of earlier centuries; then came the disentanglement of certain pathological appearances, following Bretonneau of Tours; this was later succeeded by development of ætiological lines of enquiry, which branched off in two diverging directions; on the one hand there was study of outbreaks deemed to have been traced to water, milk, and so forth; on the other, search for a causal organism, and then later for members of the typhoid group of organisms. These two diverging methods of enquiry resulted about 40 years ago in the division of investigators into two camps, contagionists and localists. For a long time the former had the upper hand, now the tide of battle seems to be turning; more particularly since the recognition of the fact that typhoid fever may be food-borne.

Last year, it was urged, there was good reason for surmising that many of the outbreaks attributed to water and milk in the sixties, seventies, and onwards, were really due to sewage contaminated fish or shellfish. This once clearly established, suspicion necessarily arose as to whether a like influence might not be traceable in the case of many earlier prevalences in which it had been hitherto unrecognised. During the last few months, with help from fellow workers at County Hall, a sorting out in time and place of the London prevalences of typhoid fever has been made for the entire notification period, now extending over more than 30 years, and this analysis considerably amplifies and confirms in unexpected ways the thesis of 1903, set out in a report of that year.

This earlier enquiry had been limited to the years 1894-1902, and it showed that in 24 areas occupied by poor persons, in widely scattered parts of London, prevalences of typhoid fever had been prone to occur, and these prevalences had shown a marked disposition to affect many of the 24 areas simultaneously. The months of the year especially in question were September and October, but earlier or later outbreaks were also encountered. The suggestion naturally presented itself that some of these prevalences might be

attributed to fish from the source suspected in 1900 and 1903, viz., the A₃ area in the North Sea, which includes the estuary of the Elbe and constitutes a shallow water area abounding with small flat fish. This hypothesis received considerable support when it transpired that, following upon agitation with regard to disuse of this particular area for trawling purposes, the autumnal prevalences in London of typhoid fever, after showing a marked tendency to flicker away in the years 1907-1912, practically disappeared upon the outbreak of the Great War.

The latest analysis, recently completed, relates to the years 1891-1922, and covers all the London sanitary areas. It shows outbreaks of typhoid fever affecting simultaneously a number of areas in London Boroughs. The 24 original areas again and again play a part, and others to which special attention had not before been directed also from time to time appear plainly to view. An added feature not previously detected is the occurrence, chiming in with that of the special typhoid prevalences in some of the boroughs, of one or two cases, or of outbreaks, of the disease affecting institutions, such, for example, as residential schools, prisons, asylums, hospitals and places of business.

At the time of the earlier enquiry, while it seemed clear some food was at fault, difficulty was experienced in deciding whether fish or shellfish came more generally under suspicion—an occasional oyster or cockle outbreak was discernible, but as to the vast majority of the prevalences, these two species of shellfish could be ruled out. Several of the larger outbreaks were traceable to fish, but nearly all the smaller ones affected persons who may have consumed either fish or shellfish of the cheapest sort, and as some occurred in the mussel season, it was at first sight, and indeed for some years, doubtful whether fish or mussels were more generally in question. The later analysis, by bringing out the simultaneity of occurrence of the fish outbreaks with some of the doubtful ones, renders it highly probable that fish has been the cause of many of the prevalences. It is, however, still probable that mussels, as well as oysters and cockles, have from time to time caused typhoid fever in London.

But on reaching this point the plot clearly thickens; the question in fact must be considered, have fish and shellfish played any part in cholera also? It seemed desirable, therefore, to add, to the bird's-eye view of typhoid fever, a telescopic view of the London cholera prevalences. Already

in the first outbreak of 1832-3 the suspicion that water might be concerned had been entertained (*vide* Creighton, Vol. II. p. 832). In 1849, Dr. Snow collected evidence, casting suspicion upon water. In 1854 his view was strengthened, and Snow, Simon, Farr and others, carefully examined a number of possible instances of water outbreaks. Again, in 1866, Netten Radcliffe wrote his great report on cholera in relation to the Old Ford Reservoirs.

When cholera appeared at Hamburg in 1892, Koch declared that there, and at Altona, water was at fault. It should be noted, however, that Pettenkofer consistently maintained to the day of his death the "localist" as opposed to the "water theorist" point of view. In this country it was hoped that at any rate the attention which had been given to improvement of public water supplies would make for safety, and, as a matter of fact, the British Isles escaped very lightly. In London, four illnesses presumed to be Asiatic cholera occurred in 1892-93. In one instance, the man had come from Ramsgate and may have been infected there; the remaining three had not, so far as could be learned, eaten shellfish—two of them had consumed fish from Grimsby, the third fried fish of unknown origin. It was, indeed, the occurrence of these three cases that contributed eight years later to strengthen the suspicion that fish might be concerned in the London typhoid outbreaks of 1900.

In the years following, similar questions arose, and in the Milroy Lectures of 1906 (p. 64), the subject was briefly alluded to; it was only natural to turn, at this time, with heightened interest to examine anew Mr. Netten Radcliffe's report on the cholera of 1866. In this masterly statement the pros and cons are set forth with remarkable impartiality; but there was of course then practically no alternative hypothesis. Mr. Radcliffe and readers of his report were thus compelled to rest content with the appeal made to the rough correspondence of the area covered by fatal cases in the early weeks of the outbreak, with that supplied from Old Ford. This distribution of deaths, in these three weeks, outweighed the scale against the exceptional difficulties specially cited by Mr. Radcliffe. The report leaves the reader, however, with a feeling that he is like "one lost in a thorny wood . . . not knowing how to find the open air, but toiling desperately to find it out." It was difficult, moreover, in 1866 to criticise a water thesis in view of the enquiries made a few years before

with regard to Southwark and Vauxhall water and the Broad Street pump.

Thus the water hypothesis of causation of cholera was after 1866 fairly launched, and ere long it was extended to cover quite a number of typhoid outbreaks. True, these did not, as a rule, occur in London; and, of late years, the behaviour of typhoid fever there, and especially the detailed examination of the notification statistics now available, call for a review of the evidence, perhaps even in some of the outbreaks outside London. Having progressed so far, there seemed nothing for it, therefore, but to hark back yet again to Mr. Netten Radcliffe. His detached and philosophical attitude was, indeed, fascinating, and undoubtedly encouraged scepticism. Once on the slippery slope it was inevitable that there should arise the question as to Simon's report on water in relation to the outbreaks of 1849 and 1854. "*Facilis descensus Avernus*"—it is the re-ascent as we know that constitutes the difficulty. The 1854 reports, however, are very cogently argued, and nearly bring one straightway up the steep again. It did occur to me at this stage, that at any rate the Branch might be interested in hearing a recital of some of the difficulties. Then in calmer moments it seemed presumptuous to raise even a doubt. But now an event happened!

When the vermin clauses in the Council's General Powers Bill were recently before the House of Commons Committee, an unexpected difficulty arose, and Counsel in charge of the case hesitated as to the right course to pursue. It so chanced that while his decision was hanging in the balance, the Honorary Secretary of this Branch was in the witness chair and was expressing himself, with an emphasis familiar to us all, in favour of retaining the wording, "as drafted," of the clause under discussion. Compromise was now out of the question, for as Counsel said "How can I compromise, my witness thumped the table"! It seems to me, after thinking it carefully over, that in the case of the problem of London cholera outbreaks also, the witnesses thump the table, and I desire, therefore, to appeal for further study in the light of present day knowledge of the *ipsissima verba* of the old reports.

The most satisfactory course to adopt will, I think, be to proceed like the crab, backwards, and examine briefly the facts relating to (a) the Old Ford Reservoirs in 1866, (b) the Southwark and Vauxhall water in 1854, (c) the Broad Street pump in 1854, (d) the outbreaks of 1848-49 and 1832-33.

(a) It is to be noted that between June 27th and July 21st, 1866, the deaths from cholera in East London were mainly within the area known to be, or, so far as some outlying parts of it were concerned, conjectured to be supplied from the Old Ford Reservoirs. Prior to this period of three weeks and subsequent to it, other portions of the area receiving East London water suffered severely. Thus the water causation thesis was one of a special influence (polluted water from Old Ford) superadded to certain other unknown causes which operated over a larger area and for a more extended time. The Old Ford Reservoir theory offered, in fact, merely a partial explanation of cholera in East London. Moreover, as Mr. Radcliffe remarks, "It is true, indeed, that the conclusion involves the assumption of the propagation of choleraic decomposition to a larger volume of water laden with excrementitious matter (the locked portion of the Lea from Old Ford to Bromley) than hitherto supposed, and the efficiency of the choleraic poison under a condition of enormous dilution not previously surmised, and these assumptions must not be lost sight of in estimating the probability of the conclusion."

Mr. Radcliffe deals at considerable length with the objections to the thesis. There was, on the one hand, the attack of localities not supplied with Old Ford water—Crown Court and the Bow Common Infirmary. Then, on the other, there was the escape of certain sections of the population actually supplied with the water, teetotallers, Customs and Post Office officials; also of certain institutions, the Limehouse pauper school and the Stepney and Poplar Union Workhouses; and, again, there was the immunity of particular localities, Stamford Hill, Lower Forest, Walthamstow, Buckhurst Hill, Leyton and N. Woolwich. Mr. Radcliffe agrees that these facts constitute a "serious objection to this theory," but, he argues, there is "*but one condition known* which might become capable of propagating cholera common to the whole area of the outbreak, namely, the water supply"; hence, he says, "*in the present state of our knowledge* of the outbreak, the positive and more generally applicable facts may justly, and for practical purposes, warrant a conclusion apparently in contradiction with certain negative facts of much more restricted application."

Mr. Radcliffe, however, quotes Mr. Thomas Orton, the Medical Officer of Health for Limehouse, as saying: "Let me add, pretty generally amongst all classes the theory of the water poison is repudiated, especially amongst the poor who

have chiefly felt the shock, and this opinion is very commonly shared by professional men." Again, Mr. Orton continues, "19 out of 20 adults who have perished were not water drinkers even occasionally, except in the ordinary cooking of their food." Again, he points out "it is a fact beyond dispute that out of 400 children in the Limehouse establishment for pauper children, who had free access (to the Old Ford water) and were drinking water all day long, there was not even one case of common diarrhoea." He adds that the medical officer of the school, which was "hemmed in by streets in which cholera prevailed largely, assigns as the cause of the escape of the children the free and unrestrained use of the water held by him to be then and usually very excellent." Furthermore, Dr. Corner, acting medical officer for Mile End Old Town, cites the "want of simultaneity of the outbreak in all parts of the district supplied with the suspected water," and affirms that of 100 fatal cholera cases investigated by him, "in not more than 5 per cent. had the patients drunk of the water at all, and those only after it had been boiled." It seems clear, moreover, from Mr. Radcliffe's map that not only did large sections of population escape, but in point of fact the areas specially attacked were limited to certain streets, courts and alleys occupied by the poor. The general conclusion as to the class of population affected is borne out by Mr. Radcliffe's remarks in his discussion of "filth" (p. 293) and of "locality" (p. 294); he refers, for instance, to Dr. W. M. Parker's testimony from Bermondsey, and, coming nearer home, he particularises localities "in Limehouse, within the angle formed by the Regent's Canal." And here it may be pointed out that a specially noteworthy feature is the focussing of the mortality from cholera on areas surrounding certain market streets; there stand out most conspicuously the aggregations of fatal cases around Salmon Lane and Chrisp Street, then, as now, well-known coster fish markets.

Appended to Mr. Radcliffe's report is an important "Note by medical officer." Sir John Simon says he does not "at present see his way to explain the apparent contradictions" to the thesis of water causation. He refers to "Pettenkofer's doctrine," and he attaches special importance to the exceptional case of the Limehouse school. In an interesting summing up he draws a distinction "between the *substance* and the *form* of Mr. Radcliffe's conclusion." He says, "In proportion as Pettenkofer's views may prove right, doubts will occur whether the morbid power of the Old Ford water in those eastern districts (granting it to

have been at fault) must have depended on the water being drunk." He continues, "It may be urged that if the drinking of that water was the essential condition of the outbreak, it is difficult to conceive how cholera should not have been carried indiscriminately wherever the water was drunk." "I can conceive how differences of soil and climate could modify the infectiveness of the water within the same continuous area of potability. But for the substance of Mr. Radcliffe's conclusions," he quotes, "Is it necessary to assume that the water was drunk?" In fact, he seems to incline to the view that it may have operated on or through the soil of the territory. "On this it may be remarked that there is need of explanation not merely of variation of incidence of cholera with difference of soil and altitude, but also with social differences and in particular with concentration of fatal cases around coster fish markets."

(b) The case against the Southwark and Vauxhall water in 1854 rests first upon the preliminary spade work of Dr. Jno. Snow; but second and substantially upon Sir John Simon's classical report. The former enquirer raised a presumption, the latter may be almost said to have compelled conviction. And yet Dr. Snow's was the original field work, resourceful and ingenious, the outcome of an enthusiastic but not entirely convincing advocacy; while Simon's report, the finished study of the master, has carried most readers with it; though it is not quite clear that the writer himself ever whole-heartedly accepted the thesis under consideration. His careful attitude towards a similar hypothesis, upheld by the equally judicial Netten Radcliffe, 12 years later, has been already referred to. Here, in 1854, however, Dr. Snow's impetuosity seems to have more or less for the time being carried Sir John Simon away, and he was carried along as it were to his conclusion. Thus, referring at the time to the almost simultaneous occurrence of the outbreak suspected by Snow and others to be due to the Broad Street pump water, he remarks, "while, however, . . . the evidence collected . . . strongly tends to justify their opinion, other and obvious facts give to the imputed operation at least an exceptional character." He was, moreover, greatly influenced by Pettenkofer, whose experience had led him to pronounce, so far as Munich was concerned, decidedly against water causation. But, despite all this, Sir John Simon's report set forth a weighty three-fold indictment. Thus:—

(i.) The population drinking Southwark and Vauxhall water suffered 3½ times as much

L15 MSB, M20
M20, 26

mortality as the population drinking the Lambeth water.

- (ii.) A table was presented showing for 1,517 houses supplied with Lambeth and 1,517 houses, in the same streets, supplied with Southwark and Vauxhall water, that 57 persons in the former and 164 in the latter died from cholera.
- (iii.) Third, the consumers of the Lambeth water (which was in 1849 taken from the tidal portion of the Thames and was at that time even worse than the Southwark and Vauxhall water) suffered in the outbreak of that year more than three times as severely as in 1854, when the source of supply had been removed from Hungerford Bridge to Thames Ditton, well above the part of the river affected by the London sewage.

The cumulative force of these three findings is great, but study of contemporary writings clearly shows that there are strong objections to the water thesis. Thus, (i.) The cholera, as has been seen was the case in 1866 also, was highly selective in its incidence. Much was written at the time upon the influence of altitude, and on incidence upon persons living on or near the river or dwelling in an insanitary environment. It is clear, too, that limited groups of poor persons were especially liable to attack, those, for instance, occupying certain courts or alleys, or housed in particular institutions, residential schools, prisons, workhouses, etc. Simon's second finding, that based upon his Table V., relating to streets supplied by both water companies, perhaps to some extent meets this difficulty; it is urged that the water supplied was the differentiating agent. But out of the 45 streets which appear in this table, the excessive incidence upon Lambeth water in 1849, as contrasted with 1854, is more especially marked in some five or six streets, and by no means uniformly distributed throughout. In the later year as many as 57 deaths, it will be seen, occurred among persons supplied with Lambeth water in these streets. Snow's account of his difficulties in determining the source of supply of water to houses, and his and Simon's references to allocation of unassigned supplies and workhouse supplies, should also be noted as suggesting sources of error in connection with the water theory of causation. Furthermore, the part played by impure water may have been merely of a predisposing character.

(ii.) The assumption is made throughout by Sir John Simon, and with some reservations by

Dr. Snow, that (apart from differing water supply) the Southwark and Vauxhall and Lambeth consumers were on a par, so far as other influences were concerned. But there is evidence to the contrary. The individual registration sub-districts in the registration districts 26-34 of Sir John Simon's Table III. vary considerably as regards social character. On the whole the sub-districts mainly supplied with the Lambeth water were less poor than the remaining sub-districts, which included St. Saviour's, St. Olave's and Bermondsey, the two poorest sub-districts (one containing "the Mint") in St. George's, Southwark, and Rotherhithe. It would appear, however, from contemporary evidence that some of the Lambeth supplied sub-districts were more overcrowded and poverty-stricken in 1849 than in 1854. Again, in North Lambeth the Lambeth company, having been first in the field, may have secured a larger proportion of better class customers. These points will be referred to later.

(iii.) It is difficult to reconcile the water thesis with 611 deaths among consumers of Lambeth water in 1853-54; and with the behaviour of the disease in the sub-districts of Brixton, Norwood and Streatham, and again, in certain workhouses and asylums and among poor children at Surrey Hall, where special local influences apart from water were presumably at work. It is noteworthy, too, that (so far as chemical examination was concerned) the Chelsea water in 1854 was worse than the Southwark and Vauxhall, and yet consumers of the former were less hard hit than those of the latter.

Finally, there is the fact, adverted to by Simon and Snow, that it was a case of water or nothing; there was no satisfactory alternative hypothesis. Now it has been seen that as regards 1866 the question of fish markets needs to be considered. The altered conditions obtaining in London in 1854 as compared with 1849 were, as was insisted at the time, noteworthy from a water point of view, but other remarkable changes were occurring in South London at about this period. There was much crowding of North Lambeth, in 1849, with labourers and particularly with poor Irish immigrants—the Houses of Parliament were being built, and the extension of the South-Western Railway from Vauxhall to Waterloo was in progress; the need for a market for the supply of fish to the poor had led some years earlier to the establishment of Hungerford Market; and in 1845 this market "was brought into close relation with the poor of North Lambeth upon the construction of Hungerford Bridge." The main coster fish

marketing of North Lambeth was in Lambeth Upper Marsh (now the "New Cut") and Lambeth Lower Marsh, i.e., in a neighbourhood very heavily attacked by cholera in 1849; and it may be regarded as highly probable that the newly-available Hungerford fish market was the source of supply of most of the coster fish then sold in North Lambeth. It is on record, moreover, that fishmongers and hawkers were to a disproportionate extent attacked in the cholera outbreak (Board of Health report, Dr. Guy's Table). Hungerford Market did not long remain an important source of supply of fish to the poor, but it was not until 1860 that it was finally cleared away to make room for the new Charing Cross Railway Station.

There thus emerges to view a supplemental, if not alternative, hypothesis to the water thesis, in explanation of the contrasted phenomena presented by cholera in S. London in 1849 and in 1854, which would even accord fairly well with the facts of cholera distribution among the South London populations consuming water from the two water companies. The Lambeth company's original intake was just opposite Hungerford Market. The Southwark and Vauxhall intakes were originally at London Bridge, on the one hand, and Battersea on the other. Lambeth water had at first a monopoly in North Lambeth, but after some years from east and west alike the competing water supply of the Southwark and Vauxhall company pressed in upon the Lambeth water company's area in North Lambeth, and had extended before 1854 to streets close even to the site of the original Lambeth intake. The coster market streets of North Lambeth, in 1849, ran from W.S.W. to E.N.E. more or less parallel to the river bank, and at a distance of about one-third of a mile both from the original centre of distribution of Lambeth water and from the newly-available Hungerford fish market. If cholera-infected food was distributed from this market to North Lambeth, in 1849, it would appear that the consumers of Lambeth water in North Lambeth may, by reason of this special circumstance, have been brought down upon a level, as it were, qua cholera, with the poorer populations to the east and south of them who were consuming Southwark and Vauxhall water; thus the groups of cholera deaths, in 1849, might, on the hypothesis named, affect more or less equally the areas supplied by both water companies. This distribution accords fairly well with the actual facts; though it should be noted some streets running into Lambeth Walk were also specially affected; there is, however, the possibility that Hungerford market fish may have also reached these streets.

Assume, now, that the presumed Hungerford Market centre of cholera infection, after being in full operation in 1849, had in large degree ceased to function in 1854, and the explanation of the greater development of cholera groups in the poorer parts of Southwark and Bermondsey as compared with North Lambeth in the latter year is ready to hand. It may be added that, as the original source from which Lambeth water was distributed was close to Hungerford Market, the radiation alike of cholera infection and Lambeth water from one common focus does not necessarily spell a cause and effect relationship between Lambeth water and cholera.

There is a further consideration, however, which must be kept in mind; up to the forties the river was comparatively free from sewage pollution and fishing was carried on locally by Wandsworth, Lambeth, etc., fishermen; though no doubt the main supply was from the fishing fleet at Barking or else from the ports on the south and east coasts. The local fish supplies may, however, have still played some small part in cholera distribution even up to 1854. By 1866 the condition of the Thames within London must have become incompatible with the existence of fish in the river. Parenthetically note may be made of some striking contrasts with regard to London's annual consumption of certain kinds of fish and shellfish 70 years ago and more recently, as follows:—

- (i.) Mayhew's estimate in 1851 was that London costers sold annually to the London poor half a million flounders and dabs at a penny a dozen, 29 million plaice at an average of 3d. each, and the huge total of 124,000,000 oysters at four a penny. In large part these came from the Thames estuary, including rivers tributary thereto.
- (ii.) The estimate of Bulstrode in 1894 was that the annual yield of the oyster fisheries of England was less than 28,000,000, the price of the vastly diminished supply averaging not four a penny, but 6s. 1d. a hundred. Flounders and dabs are no longer forthcoming from the Thames. As regards small plaice, the numbers marketed at Billingsgate from the North Sea were noticeably great during the 10 years following 1896.

(c) Turning now to the prevalence often referred to as the Broad Street pump outbreak, the facts are these. Some three or four weeks after the earlier developed South London prevalence, cholera appeared in epidemic form in other parts of London. The deaths in the three weeks ending August 26th had been, week by week, 644,

729 and 847 respectively, the districts south of the Thames claiming more than half the total deaths in each week. In the ten weeks following the deaths were:—1,287, 2,050, 1,549, 1,284, 754, 411, 249, 163, 66 and 31.

During the six weeks of especially high mortality the main stress of cholera was transferred from the poverty-stricken areas in Southwark and Bermondsey, which had, up to that time, suffered excessively, and continued to bear a heavy burden of deaths for five or six more weeks, to two other chief centres of activity—one a large area whose centre was about half a mile north-west of Charing Cross; the other, in the neighbourhood of Hughes Fields, Deptford, aroused but little attention at the time, as it was almost confined to two very poor streets, in which, however, some 100 deaths occurred. The larger prevalence had as its core an area in St. James', Westminster, including Broad Street, Berwick Street, and neighbouring streets, but extended therefrom north of Oxford Street into Marylebone and St. Pancras, eastwards into Soho, southwards into Westminster, St. Martin's-in-the-Fields and St. George's, Hanover Square, and even further afield into Kensington and Chelsea.

The idea that the water from the pump in Broad Street was responsible for some of the cases was confirmed in the minds of many when the outbreak came to an end soon after the pump handle had been removed. But, as a matter of fact, cholera began to decline just about this time in London as a whole. The Registrar-General, with a view to encouraging full study of the outbreak, gave details concerning all the deaths in five adjoining registration sub-districts (Berwick Street, Golden Square, St. James' Square, St. Anne's, Soho, and All Souls', Marylebone). Dr. Snow, busy as he was at the time with investigations into cholera in South London, made inquiry, in detail, respecting the 83 deaths registered as having taken place (in three of the five sub-districts, Golden Square, Berwick Street and St. Anne's) during the last three days of the week ending September 2nd. This sample of 83 cases selected from streets close to Broad Street, occurring, as Dr. Snow puts it, "in the locality belonging to the pump," yielded 61 instances in which "the deceased persons used to drink the pump water from Broad Street either constantly or occasionally." "In six instances," he adds, "I could get no information, owing to the death or departure of everyone connected with the deceased individuals; and in six cases I was informed that the deceased persons did not drink the pump water before their illness." Dr. Snow says there were, including hospital deaths, 197

deaths "up to the 1st and 2nd of September, which have been ascertained to belong to this outbreak of cholera; and many persons who were attacked about the same time as these died afterwards." He attempted two or three weeks later to extend his enquiries to these additional cases, but found "that there had been such a distribution of the remaining population that it would be impossible to arrive at a complete account of the circumstances." But the deaths registered from cholera in the 5 weeks extending up to September 30th in the 5 registration sub-districts selected by the Registrar-General reached a total of 655; and to these must be added at least three hundred more deaths from adjoining sub-districts (belonging to the districts of St. George's, Hanover Square, Westminster, St. Pancras and St. Martin's-in-the-Fields) which may reasonably be held to "belong to this outbreak of cholera."

Dr. Snow looked upon deaths, in these adjacent sub-districts, as hospital deaths appertaining to patients removed from the streets adjoining Broad Street and Berwick Street. That this assumption is not wholly justifiable is apparent on inspection of the selected death returns relating to the five weeks ending September 30th, published by the Registrar-General.

Thus, altogether, the special focus of infection in or near Soho must have been accountable for approximately a thousand deaths of persons living within half or three-quarters of a mile from, say, the junction of Broad Street and Berwick Street. Of these Dr. Snow had only obtained details concerning 67 belonging to the immediate neighbourhood of the Broad Street pump. The pump thesis of causation was also examined in the course of an official enquiry at the time by Dr. D. Fraser, Mr. Thomas Hughes and Mr. J. M. Ludlow (Appendix to Report of the Committee for Scientific Enquiries, 1855. Their conclusions appear at p. 153 of this Appendix.) The inspectors refer, as Dr. Snow had done (Snow, on the Mode of Communication of Cholera, 1855, p. 44), to two cases at Hampstead, and also to some other facts noted at the time; but they appeal on the other hand to their Tables, which show many cases "in which deaths in the infected districts occurred of persons who were not in the habit of using this water; whilst the range of the disease extended beyond the limits within which the water from this pump was drunk." The Committee for Scientific Enquiries (Neil Arnott, William Baly, William Farr, Richard Owen and John Simon) endorse the conclusions reached by the inspectors. The Committee say (p. 52 of the Report), referring to Dr. Snow's thesis: "After careful enquiry, we see no

reason to adopt this belief (in the pump thesis). We do not find it established that the water was contaminated in the manner alleged; nor is there before us any sufficient evidence to show whether inhabitants of the district drinking from that well suffered in proportion more than other inhabitants of the district who drank from other sources."

The Broad Street pump thesis rests in fact upon the curious circumstances relating to the Hampstead residents, which were communicated to Dr. Snow by Dr. Fraser, of Oakley Square; circumstances which Dr. Snow refers to as "perhaps the most conclusive of all in proving the connexion between the Broad Street pump and the outbreak of cholera." Briefly they are that the Hampstead lady and her niece, both of whom were fatally attacked by cholera, had lived with the lady's son at West End, Hampstead, while the son's business premises were in Broad Street, Westminster. A cart went from Broad Street to Hampstead every day and "it was the custom to take out a large bottle of the water from the Broad Street pump, as she preferred it." What else it may have taken out to Hampstead does not stand recorded. The circumstances of this case have, however, carried the day for the pump thesis, in face of the fact that only 61 out of a thousand cases could be averred to have been reputed consumers of the water, and that the contemporary official investigators (confirmed by the Farr-Simon Committee) definitely decided against the thesis at the time.

In the absence of any other working hypothesis, with regard to the prevalence, it is now a matter of some interest to note that the Berwick Street coster market (which had recently, following upon the removal of the Oxford Street, or St. George's, Market, assumed importance as a source of fish supply) was just at the centre of the explosion of cholera affecting the five sub-districts and the neighbouring parts of Westminster, St. Martin's, Soho, Marylebone and St. Pancras.

The more intense prevalences of cholera in 1854—that in South London, that in and near St. James', Westminster, and that in Hughes Fields, Deptford (which was attributed at the time to contaminated water from a company's main), all three, in fact, presented features compatible with fish or shell-fish origin, and such a mode of causation accords more naturally and simply with the behaviour of cholera in the three areas involved and in London as a whole than does a thesis of water causation.

(d) Study of reports on the earlier cholera outbreaks is of great interest, for as yet there was no generally accepted view with regard to them.

Dr. Snow's first report appeared, it is true, in 1849, but the water thesis does not dominate the writings of the time, as it began in 1853-54 and continued in 1866 to do.

The first note struck in the Board of Health's report of 1850 in that the "epidemic attacked in groups" (p. 23) . . . "it seized on a certain number of courts, alleys and streets, decimated their inhabitants, then ceased, and broke out in a similar manner, often at the opposite extremity of the district; occasionally returning again, after an interval, to the first locality. In this manner the occurrence of six, eight or even more deaths was not uncommon in a particular house; but such a house did not form a centre from which the disease spread to neighbouring houses and thence over the district." (See also Mr. Grainger's report, p. 36 and p. 141, and again see the general conclusions of the main Board of Health report, p. 146, "the disease is not in the common acceptance of the term contagious.")

Then there is full recognition of the escape of the well-to-do localities (p. 25). The following passage is of interest in common with the theories of 1849 and 1854: "It should also be borne in mind that the south district embraces many localities which are proverbially healthy, such as Dulwich, Norwood, Brixton; and the great excess, therefore, arises in those districts where there is defective sewerage, overcrowding, etc., such as parts of the parish of Lambeth, the parishes of Bermondsey, Rotherhithe, St. Olave, St. Saviour and St. George, Southwark and Newington." The water was consumed by rich and poor alike; the defective sewerage, the overcrowding and the "etc.," affected mainly the poor. The report says (p. 31) not the "extremely poor," and goes on to refer to the attack of 40 young women out of 96 inmates of an asylum in the Hackney Road; furthermore, later references are made to the escape in certain instances of inmates of common lodging-houses. All this accords closely with the modern behaviour of typhoid fever. Then, again, it is interesting to note references to absence of any special incidence on medical men, nurses and washerwomen (p. 35).

Three special pre-disposing conditions, on the other hand, are again and again emphasised: (i.) the haunts of cholera are the haunts of fever; (ii.) cholera occurs on the banks of harbours, rivers, foul canals and ditches (p. 49); (iii.) cholera is associated with bad food—"the oily kinds of fish as well as shell-fish" (p. 63) "distinctly traceable to the use of putrid fish" (p. 65) . . . "the influence of river localities" (Mr.

Grainger's report, p. 33) "the only food they could procure were muscles" (*sic*) p. 96 . . . need for avoidance of "salted and shell-fish" (p. 111) and finally in commenting upon "Cholera among hop pickers" and referring to East Farleigh, as the student of to-day with the Maidstone typhoid in mind will note with interest, Dr. Grainger (p. 26) agrees with Dr. Plomley of Maidstone in attributing the fatal outbreak of cholera of 1849 in that place, *inter alia*, to "impure food, sold at a cheap rate by unprincipled itinerant vendors of putrid fish and adulterated bread."

So much, then, for a distant view of these cholera outbreaks in the London of the middle of the last century. But it may be said, is not all this past history? How can it interest the medical officer of health of to-day? Surely for the reason that cholera and typhoid fever are still causing heavy mortality in the world, and are even now possible sources of danger to this country. In the last 50 years, it is true typhoid fever has diminished more than 15 fold in London. In the same time cholera has practically disappeared. Some say it is largely the improved water supply, some say improved drainage, scavenging, cleanliness generally, are accountable for it, there are enthusiasts who appeal to warfare waged upon bacilli and healthy carriers of bacilli as the *deus ex machina*, quite unmindful of the fact that this assumed cause has appeared upon the scene considerably after the event it is supposed to have occasioned.

Amid this class of opinions, it seems worth while remembering Sydenham's dictum that mortals "Never will learn how nature acts, but only what she does and where she does it." Sewage polluted waters are undoubtedly forcing houses for cholera and typhoid fever, and estuaries and foreshores, where shellfish and small flat fish abound, are the places where most of the mischief has been done. May it not reasonably be claimed then, that the increased attention given to such pollution, when in the near neighbourhood of sources of food supply, has been one of the main causes of the reduction in the amount of typhoid fever and cholera?

In conclusion it may be pointed out that at the present time two important measures which may have incidentally a bearing upon the subject under discussion are being advocated. The first is the recommendation of July, 1921, of the Plaice Committee of the International Council on Fisheries in the North Sea. This Committee has advised that fishing by steam trawlers and motor vessels of more than 50 h.p., within a 12 fathom limit,

in certain areas along the Eastern and Southern shores of the North Sea, should be absolutely prohibited, and fishing limited, at a depth of between 12 and 15 fathoms, within a particular zone, to April, May, and June. This recommendation is still under the consideration of the International Council; if adopted, by preserving the small flat fish it should materially increase the yield of marketable fish from the North Sea; incidentally it would prevent the sale of small flat fish from a locality which must be regarded as a specially dangerous area. The second proposal referred to is that of the Departmental Committee on Street Trading, which has recommended that all street traders should be registered, and that persons carrying on their business at a recognised street trading centre should be licensed by the local authority. It has been largely, though not exclusively, by costers, that typhoid-infected, and probably also cholera-infected fish and shellfish have been in the past distributed to the London poor, and from this point of view alone a claim for registration of these coster vendors might reasonably be urged.

The review of the history of cholera, in fact, enforces the lesson learnt 20 years ago from study of typhoid prevalences in London, and further illustrated by recent analysis of typhoid notifications. All these lines of investigation lead to the same conclusions. They help to support the claim now being made by enlightened leaders in the fishing industry for regulation of the marketing of small fish from shallow water areas, and they also emphasize the need for supervision of the sale of such fish, in the event of its reaching the sea ports and markets of the country and thus being distributed among the poor in large industrial and mining centres.

DR. E. A. FARR, medical officer of health for the Andover rural district, and a Fellow of the Society of Medical Officers of Health, has been re-elected for another year as mayor of the borough of Andover.

THE following Fellows of the Society of Medical Officers of Health were called to the Bar on 17th November:—At Lincoln's Inn, Dr. G. H. Dart, medical officer of health for Hackney; at the Middle Temple, Dr. W. W. Jameson, medical officer of health for the Finchley urban district; at Gray's Inn, Surg.-Cdr. R. St. G. S. Bond, R.N., professor of hygiene, Royal Naval College, Greenwich.

NOTES FROM BRANCHES.

THE MIDLAND BRANCH.

BIRMINGHAM SCHOOL MEDICAL OFFICERS.

At a meeting of the Central Division, Birmingham Branch, of the British Medical Association held on December 14th, the present position of the Assistant School Medical Officers in relation to the Birmingham Education Committee was discussed (see Branch Notes, November). It was stated that on no less than four occasions had steps to be taken with a view to improving the condition of the Assistant S.M.O.'s in Birmingham. On this occasion the Education Committee after receiving advice from a source which need not here be discussed, decided to allow the unsatisfactory scale fixed twelve months ago to remain; and in order to escape the impasse are advertising for an Assistant S.M.O. at a salary of £500, rising by annual increment of £25 to a maximum of £600, stipulating that candidates to be eligible for appointment must have had two years' experience. The nature of the requested experience is not stated.

Locally the B.M.A. is anxious to support the Society of Medical Officers of Health in every way. In fact, the Association had made arrangements for a deputation headed by Dr. A. Cox, the Medical Secretary, to wait upon the City Council to express their views in regard to the Education Committee's Medical Service as a whole. In view of the above decision, however, it is felt that such a deputation would not serve any useful purpose at present.

Reference was made to the scale of salaries for Public Health Appointments agreed to a few days ago by a Joint Committee of the B.M.A. and the Society of M.O.H., and which will be submitted for the approval of the Representative body at the summer meeting of this Association. When this scale has been confirmed the local branch have promised to use all its power to see that it is applied in Birmingham.

Local public health officers have themselves contributed to the satisfactory relations which exist by becoming members of the Association, attending branch meetings and stating their case. It is wonderful how apathetic the average medical man is towards us until he is made to see that our plight is also his danger.

Everyone who is employed in the Public Health Medical Service should at once consider the advisability of joining the British Medical Association. The time is ripe for local propaganda in order to ensure the enthusiastic and whole-

hearted support of the Association, without which our efforts would be futile; and it is unreasonable to expect this from an Association to which we do not lend our support.

BORIC ACID IN SPONGE CAKES.

An analysis of a large number of sponge cakes was made in Birmingham during 1921, and it was found that nearly all sold at bakers' shops contained from .3 to .8 per cent. of boric acid. On the instruction of the Public Health Committee a letter was sent to all bakers in the city pointing out that in more than one half of the samples examined boric acid was present in such an amount as to be injurious to health, that there appeared to be no doubt that the boric acid was derived from "liquid egg" used in the manufacture of the cakes, and that the cakes used by bakers who used "frozen eggs" or "shell eggs" were quite free from boric acid. It was suggested that the bakers should demand from the firms supplying them with materials a guarantee of freedom from boric preservatives.

This letter caused the importers of "Liquid Egg" to approach the Ministry of Health, and in the first quarter of 1922 the Bakery Trade Journals ("The National Association Review," "The Grocer," "The Baker and Confectioner") contained frequent references to the subject. The Bakery and Allied Traders' Association appears to have been given power to deal with the whole question, and as a result of an interview with the Ministry of Health the Association in July last gave an undertaking that liquid whole-egg would not be manufactured or imported containing more than one per cent. of boric acid and in imported liquid yolks the maximum percentage of boric acid would be 1.5. The trade also promised to state on the invoice to the buyer the fact that boric acid was contained in these preserved eggs, so that the ordinary baker knew what he was dealing in, and the Association gave an undertaking on behalf of the bakers that "Liquid Egg" should not be used in the manufacture of sponge fingers, biscuits and 2d. sponge cakes, viz., those kinds of cakes which are specially used by infants and invalids. Subsequent inquiries show Birmingham bakers to have adopted the scheme very well. One man failed to comply with the instructions, and at the Birmingham Police Court on November 10th Charles Weare, Baker and Confectioner, was fined £10 for selling sponge cakes which were mixed with boric preservatives equivalent to about 33 grains of boric acid per pound (.47 per cent. of sponge cake was boric acid), so as to render such article of food injurious to health, contrary to the Sale of Food

and Drugs Act, Section 3 of 1875. In conjunction with Section 5, it is laid down that no person shall be liable to be convicted if he shows to the satisfaction of the court that he did not know that the article of food was so mixed and that he could not with reasonable diligence have obtained that knowledge.

The contention on the part of this defendant was that he had no knowledge that there was any boracic acid in these eggs which was likely to injure health, but admitted that he knew they contained boric acid. He denied receiving the circular letter from the Health Committee cautioning bakers against the use of boric acid. Postage of the circular to the defendant was proved and a considerable number of questions were put regarding the prominence given to the subject in the newspapers. The City Analyst stated that the cakes were analysed the same day as bought, and the question of evaporation did not arise.

Dr. Robertson, Medical Officer of Health, stated in evidence that the sponge cakes were sold and contained boric acid distinctly injurious to health and more injurious to a certain section of the community than to others. He said that years ago there had been some controversy among medical men as to whether boric acid was injurious, but he thought they were as near unanimity as possible now. In milk and cream boric acid caused or was likely to cause indigestion or gastritis.

No medical evidence was called in opposition.

The Chairman, in giving his decision, stated that he was satisfied that the defendant was not entitled to the benefit of Section 5 of the 1875 Act. Notice of appeal was given, which has since been withdrawn.

CONVERSION OF PAIL CLOSETS TO WATER CARRIAGE SYSTEM IN NOTTINGHAM.

The conversion of sanitary conveniences was the subject of an exhaustive memorial from the National Federation of Property Owners and Ratepayers to the Minister of Health in 1921 in which the anomalies and inconsistencies of the various acts dealing with the subject were dealt with. It was pointed out that there was a great lack of uniformity of procedure as regards closet conversions in different parts of the country. Numerous Local Authorities had not adopted Section 39 of the Public Health (Amendment) Act, 1907, while in some districts neglect to keep existing pan closets, particularly floors, roofs, etc., in complete repair has led to action being taken under Section 36 of the 1875 Act on the grounds of "insufficiency."

The positions in Nottingham is not without interest. At one time there were upwards of 37,000 pail closets and this number was gradually reduced to 30,000, mainly by voluntary conversion by owners, who received an allowance of approximately £2 10s. per conversion.

In 1919 the City Council adopted Section 393 of the P.H. (Amend.) Act, 1907, by which the municipality became responsible for the cost of conversions and obtained permission to borrow the sum of £300,000 for the purpose of a conversion scheme, but as this work progressed it was found that the cost would greatly exceed the original estimates, and in July, 1921, application was made for a further loan of £200,000.

Owing to the increased cost of materials and labour it is probable that the actual cost of conversions completed, including the sum paid by the landlords in respect to ashbins, main drainage, etc., works out at from £18 to £20 per conversion.

Where the conditions did not admit of a separate closet to each house the Health Committee were prepared to sanction conversion of one closet to two houses.

Rapid and continuous progress was made, and from April, 1920, to January, 1922, 22,000 conversions were completed. Further satisfactory progress has been made, and the work so far as pail closets are concerned is now nearing completion. The City Building Surveyor supplied the following figures in October last:—

Conversions completed	...	...	28,175
Work in progress	...	...	419
Estimates approved but work not commenced	...	...	352
			28,946
Number to complete (approx.)	...	...	1,700
			30,646

LOCAL GOVERNMENT IN THE POTTERIES.

The Stoke-on-Trent Council have decided to promote a Bill in the ensuing session of Parliament giving powers, amongst other things, to make better provision for health. The Mayor, in moving the resolution, said the object of the Bill was to confer on the Potteries the most up-to-date powers possible in order to be in the forefront of Corporations in the country.

The claims are very wide and include many of the provisions found in local Acts in force elsewhere. A few examples of the more advanced powers being sought may be quoted.

(a) Sufficient and proper food storage accommodation to be provided in every dwelling-house

erected after, and, where reasonably practicable, before the passing of the Act.

(b) A proper water supply to be provided in every dwelling-house and one-third of the amount expended by the owner in consequence to be repaid by the Corporation.

(c) Owners of working-class houses to repaint woodwork, repaper or distemper interior walls and whitewash all ceilings at least once in every seven years.

(d) Power to take samples under the Sale of Food and Drugs Act outside the Borough ($1\frac{1}{2}$ —4 miles) of milk consigned to purchasers in the borough.

(e) Power to close Sunday schools and exclude children from places of public entertainment and to restrict attendance at Sunday schools and places of assembly when infectious disease prevails. (Infectious disease includes measles, German measles, whooping-cough, chicken-pox, and influenza.)

(f) Compensation to persons ceasing employment at the request of the Corporation or the Medical Officer of Health, for the purpose of preventing the spread of infectious disease.

(g) Provision of public slaughter-houses and the prohibition of private slaughter-houses, compensation only to be paid in respect to slaughter-houses registered prior to the P.H. Act, 1875.

BIRMINGHAM SANATORIA.

A new dining and recreation-room at Yardley Road Sanatorium was erected at a cost of £6,000, and was formally opened a few weeks ago. The new building, which is of one storey, is for the use of the male patients. The dining-room will accommodate 100 persons, and the recreation-room, fitted with a platform, has a seating capacity for 250. There is also a billiard-room.

This sanatorium, which is situated within the City boundary, is one of four set aside for the treatment of pulmonary tuberculosis in Birmingham, and was originally opened in 1910 with 52 beds. In 1914 a large administrative block, containing kitchen, stores and accommodation for Medical Officers, Matron and Nurses was opened, and a pavilion for women and children was also added, bringing the total number of beds up to 207.

Recently the pavilion for male patients has been remodelled and a workshop for patients has also been added. The sanatorium to-day has accommodation for 325 beds for adult males and females, and for children a large school-room has been provided. Thus, bit by bit, a really good and successful institution has been built up. In view of the marked fall in the number of pulmonary cases

notified during the last few years from 2,704 in 1919 to 1,969 in 1921 when the proportion of notified cases per 100 deaths was 221, and the death-rate 0.97 per thousand, it is hoped that no further extensions of this institution will be needed, and that the 700 beds which this city now possesses for the treatment of pulmonary tuberculosis will be sufficient for all time to come.

OZONE IN VENTILATION.

By the experiments of Flugge, Haldane and Leonard Hill, temperature, movement and relative humidity, as well as renewal of air to ensure removal of bacteria, etc., are shown to be the essential factors of ventilation. At a special general meeting of the Institute of Heating and Ventilating Engineers, held at Birmingham, on December 5th, an interesting paper was read on the above subject, followed by discussion, an account of which can be seen in the official journal of the Institute.

The speaker described various types of ozone generators and claimed that ozone was a purifier and deodorizer, and replaced the lassitude experienced by workers in confined spaces by a distinct sense of invigoration. He stated that the chief engineer of the St. Louis Board of Education in 1920 reported favourably on the effects of ozone added to the air he re-circulated in his buildings, and in this way claims to have been able to correct trouble resulting from poor design or imperfect operation of mechanical ventilation systems, relying principally on leakage for fresh-air make up.

After having 15 schools equipped with ozone, 5 more were to be so equipped. Each of these schools accommodating 1,000 pupils, the entire work being under medical supervision.

When pressed, the speaker relied on 0.5 parts per million of ozone for his results, and stated that three times as much was being added to the Central London Railway Tubes, that an ozonising plant was installed at Blackburn Public Halls, certain London factories, Bloomsbury Victory Cinema, and other places.

There appeared to be a commercial stimulus behind the paper.

In the discussion which followed, several speakers expressed dissent, from the suggestions contained in the thesis. They were asked to take too much for granted. Consequently many of the statements were not authoritatively supported. The recirculating system of ventilation advocated chiefly on account of the saving in heating costs was strongly condemned. It was pointed out that it was shown by the experiments of Hill and Flack (Proceed. Royal Society London B., 1911,

lxxxiv., 404), it required 13 parts of ozone per million in air to influence bacteria, and this is far beyond the limits of human physiological tolerance. Pure ozone was found to be irritating in dilutions of one part per million and exposure for two hours to a concentration of 15 parts ozone per million endangers life.

Ozone in effective concentration was therefore a poison rather than a purifier. Further, the New York State Commission on Ventilation found that ozone failed to destroy body odours in the recirculated air of a school. The general feeling of the meeting was that until further and reliable evidence is forthcoming the exaggerated claims of ozonisers are not justified as they tend to conceal faults in ventilation while not correcting them.

THE METROPOLITAN BRANCH.

NEXT MEETING.

Several important matters will be brought before the Branch at the next meeting, which will take place at the Society's house, 1, Upper Montague Street, W.C.1, on Friday, 12th January, 1923, at 4 p.m.

LONDON GOVERNMENT.

The members will be asked to express their views on the Report of the Special Committee of the Society on London Government, issued after a review of the evidence laid before the Royal Commission and suggesting certain principles which should guide the policy of the Society in relation to the re-adjustment of local government areas. The Committee are of opinion that the inordinate growth of London is attended by great risk to the public health, and that the control and direction of this expansion is a problem within the sphere of the Society.

THE SCHICK TEST.

For the January meeting a paper of considerable interest has been promised. This will deal with Diphtheria, with special reference to the Schick Test and active immunisation, and will give the results of two years' work by Dr. Eagleton, Dr. Okell, Miss Baxter, and Dr. O'Brien, of the Wellcome Physiological Research Laboratories. The paper will be read by Dr. O'Brien.

NEW JOINT SCHOOL SUB-GROUP.

The President desires to express the hope that all possible assistance will be given by members in connection with the formation of a Joint Sub-Group of the School Medical Service Group for the Metropolitan and Home Counties Branches.

SMALLPOX.

The occurrence of a number of cases of smallpox of a particularly virulent type in East London and rumours of others elsewhere during the latter part of 1922 seem to have given a tremendous fillip to vaccination in all parts of the metropolis. Many of the large business houses and institutions have deemed it prudent to advocate this measure amongst their workers, and vaccination on a fairly extensive scale has taken place. It may be of some interest to give here the number of smallpox cases which have occurred in the metropolis year by year since 1870, together with the mortality rate. The figures are compiled from the statistical returns of the Metropolitan Asylums Board and the Registrar-General.

Year.	Cases.	Mortality per cent. of patients treated.	Year.	Cases.	Mortality per cent. of patients treated.
1870	582	20.8	1901	1,743	18.5
1871	13,139	18.9	1902	7,916	16.6
1872	2,359	17.8	1903	355	
1873	174		1904	449	
1874	112	17.0	1905	53	
1875	89		1906	27	5.4
1876	2,134	21.6	1907	2	
1877	6,516	17.9	1908	1	
1878	4,558	18.0	1909	15	
1879	1,628	15.7	1910	5	
1880	1,982	15.9	1911	70	15.7
1881	8,551	16.6	1912	5	25.0
1882	1,799	13.0	1913	1	
1883	598	16.1	1914	1	
1884	6,363	16.0	1915	11	18.2
1885	6,146	15.8	1916	1	
1886	99		1917		
1887	56		1918	45	
1888	62	14.3	1919	25	16.0
1889	5		1920	50	14.0
1890	22		1921	2	
1891	63		1922	55	32.7
1892	325	11.3	(to 9th Dec.)		
1893	2,376	7.6			
1894	1,117	8.9			
1895	941	6.4			
1896	190				
1897	70				
1898	5	7.3			
1899	18				
1900	66		Total	72,977	

ROYAL SANITARY INSTITUTE CONGRESS.

The thirty-fourth Congress of the Royal Sanitary Institute is to be held at Hull from July 30th to Aug. 4th, 1923. Sec. A (Sanitary Science will have as President and Recording Sec. respectively Dr. W. H. Hamer, M.O.H., London County Council, President of the Branch, and Dr. Charles Porter, M.O.H., St. Marylebone, Hon. Secretary to the Branch. Dr. Porter will be glad to hear from any member willing to read a paper in the sanitary science section or to take part in the discussions.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.

SPECIAL COUNCIL MEETING.

A special meeting of the Council was held at the house of the Society on Friday, December 8th, 1922. In the unavoidable absence of the President, Dr. E. H. Snell was voted to the chair, and there were present Prof. H. Kerr, Drs. G. F. Buchan, Cates, Shadick Higgins, Lyster, and Frederic Thomson. Letters of apology for absence were received from Drs. Bertram Hill, Wheatley, Peyton, Howarth, Stocks, Joseph, Gibbons Ward, Auden, Jolly, Prof. Kenwood, Lt.-Col. F. E. Fremantle, M.P., and Lt.-Col. Herbert Jones.

The Chairman explained that the meeting had been called to sanction minor amendments in the Scale of Salaries approved by the Council on November 17th. That scale had been discussed by the Joint Conference appointed by the B.M.A. and the Society, on November 28th. Several amendments were proposed by the representatives of the B.M.A., and all of them were accepted by the representatives of the Society as involving no serious weakening in the claims of the Public Health Service. The effect of the amendments had been communicated to all the members of the Council, and the Executive Secretary had received letters from the majority of those unable to attend accepting the B.M.A. amendments. The scale as revised by the Joint Conference for submission to the B.M.A. Council on December 13th would read as follows:—

Medical Officers of Local Authorities—Minimum Salaries.

	*Minimum Salaries per annum.
RESIDENT MEDICAL OFFICERS	£350 plus emoluments.
DEFINITION.—These are Medical Officers employed in Hospitals, Sanatoria or other Institutions without responsibility for the work of other Medical Officers.	
MEDICAL OFFICERS EMPLOYED IN DEPARTMENTS.	
DEFINITION.—These are Medical Officers without responsibility for the work of other Medical Officers, but who shall have had at least three years' experience in the practice of their profession subsequent to obtaining a registrable qualification.	
Working directly under a Senior Medical Officer.	£600

SENIOR MEDICAL OFFICERS IN CHARGE OF DEPARTMENTS, e.g., Port Sanitation, School Medical Departments, Tuberculosis Departments, Mental Deficiency Departments, Maternity and Child Welfare Departments, Venereal Diseases Departments, or any other similar department or combination of departments, and Medical Superintendents of Hospitals, Sanatoria or other Institutions.	Without Assistants.	£750
	With 1 Assistant	£900
	2	£950
	3	£1,000
	4	£1,050
	5-6	£1,100
	and for every completed two or less.	an additional £50

DEFINITION.—These are Medical Officers who are in charge of departments and are directly responsible to the Medical Officer of Health or otherwise.

DEPUTY OR ASSISTANT MEDICAL OFFICERS OF HEALTH.	A salary equal to 60 per cent. of the salary of the M.O.H., but not less than the salary of next grade of medical officer in the department.
DEFINITION.—A Deputy or Assistant Medical Officer of Health is a medical officer duly appointed as deputy or assistant medical officer of health by the local authority to assist the medical officer of health in the general administration of the health department and the carrying out of the various Acts, bye-laws, orders, rules, regulations, etc., required to be or usually administered by the medical officer of health; the title deputy or assistant medical officer of health to be limited to medical officers carrying out these general duties.	

	Population.	
MEDICAL OFFICERS OF HEALTH.	Under 35,000	£800
	" 50,000	£900
	" 75,000	£1,000
	" 100,000	£1,100
	" 150,000	£1,200
	" 200,000	£1,300
	" 300,000	£1,400
	" 400,000	£1,500
	" 500,000	£1,600
	" 600,000	£1,700
	Over 600,000	£1,800

- NOTES.—(A) These salaries are nett, any expenses necessitated by the duties being provided in addition.
 (B) Population means population at the latest Annual Report of the Registrar-General.
 (C) No existing officer should be prejudicially affected by the operation of the scale.
 * (D) ANNUAL INCREMENTS should be at the rate of 5 per cent. per annum rising to 40 per cent. above the minimum basic rates.
 * (E) BONUS. The current Civil Service cost of living bonus should be applied to the foregoing scales.

It having been moved and seconded that the revised scale be approved and adopted, Dr. Frederic Thomson pointed out that in several respects it did not meet the claims of the Fever Hospitals Medical Service. Dr. G. F. Buchan

explained that the Salaries Committee had had great difficulty in framing a scale that would apply impartially to every branch of the Public Health Service, but they believed substantial justice had been done. He pointed out certain features that had been misunderstood by Fever Hospital medical officers, and promised to attend the next meeting of their Group to explain matters. Dr. Thomson accepted this offer, but suggested that a clause should be inserted in the scale to avoid any misunderstanding regarding the position of deputy, or chief assistant, medical officers. Dr. Buchan readily assented to this, and it was agreed unanimously to ask the B.M.A. Council to insert in the scale the following additional clause:—

DEPUTY OR CHIEF ASSISTANT MEDICAL OFFICER (Hospitals, Sanatoria or other Institutions or Departments).	A salary equal to 60 per cent. of the salary of the Medical Superintendent or Senior M.O. in charge, but not less than the salary of a medical officer employed in a department.
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With this addition the scale as revised by the Joint Conference was adopted unanimously. The meeting then adjourned.

COUNCIL MEETING.

A meeting of the Council was held at the house of the Society on Friday, December 15th, 1923, the President (Dr. T. Eustace Hill) in the chair. There were present: Prof. H. R. Kenwood, Lt.-Col. Herbert Jones, Drs. Snell, G. F. Buchan, Barlow, Garstang, Joseph, Wheatley, Stirk, Frederic Thomson, Lyster, Cates, Shadick Higgins, J. T. C. Nash, Gibbons Ward, Ewart, Wilshaw, Jolly, Porter, Clements, and Veitch Clark.

The minutes of the meeting on November 17th and of the special meeting on December 8th having been approved and signed, letters of apology were received from Dr. W. J. Howarth, Dr. Buck, Dr. G. H. Pearce, Dr. E. W. Rees-Jones, Dr. R. W. Stocks, and Prof. H. Kerr.

Correspondence.—(1) From the National Milk Publicity Council, asking the Society to elect a representative on that body for the year 1923. *Resolved:* That Dr. J. Wheatley be re-elected to the N.M.P.C.

(2) From the President, asking that Prof. J. Robertson might be nominated in his place to

represent the Society on the general committee of the World's Dairy Congress, 1923. *Agreed.*

(3) From the London Council for the National Registration of Plumbers, asking the Society to appoint a representative to serve on their Council. *Resolved:* That Dr. Charles Porter be appointed.

(4) From the Yorkshire Branch, reporting a complaint that the Society had not acted promptly when asked to assist a member, and enquiring if arrangements could be made for dealing with urgent matters without awaiting the next meeting of the Council. The Executive Secretary was instructed to reply that the special case referred to had occurred in the holiday season and concerned a communication to the Ministry of Health involving a decision which would apply to many medical officials. No immediate consideration of the matter by the Ministry was at all probable, and a suitable explanation of the delay was sent to the complainant. The Executive Secretary was further directed to ask the indulgence of Branches in this and other cases that might occur owing to the rapid expansion in the Society's business. Members were making increasing use of the Society, not only when they required assistance in reference to the terms and conditions of their appointments, but also as a clearing-house of information regarding various developments of public health administration. In consequence the volume of correspondence had greatly increased, and although it was usually possible to deal immediately with really urgent matters, it had become obvious that further clerical assistance must be provided for the routine work of the office, as soon as the financial position of the Society will permit. It was referred to the officers of the Society to report in this connection to an early meeting of the Council.

The Scale of Salaries.—A letter was received from Dr. Cox, medical secretary of the British Medical Association, stating that his Council, meeting on December 13th, had agreed to recommend the Scale of Salaries, as finally approved by the joint conference of representatives of the Soc. M.O.H. and the B.M.A. (see minutes of Special Council Meeting, Soc. M.O.H., December 8th, 1922), for adoption by the Annual Representative Meeting to be held at Portsmouth in July next. Dr. Cox also stated that the B.M.A. Council were in general agreement with the scheme recommended by the joint conference for closer co-operation of the two bodies, the details to be subject to further consideration. Dr. Cox's letter was received with great satisfaction by the Council, and the Executive Secretary was directed to convey the thanks of the Society to the British

Medical Association, and more especially to Professor Bolan, and the other representatives of the Association at the joint conference, who had used their great influence with the Council on behalf of the Public Health Service.

Interchange of Health Officers (Rockefeller Grants).—A letter was received from Sir George S. Buchanan, as British Member of the Health Committee of the League of Nations, with reference to the scheme for giving medical officers opportunities of studying conditions of health administration in other countries than their own, the necessary funds being provided by the Rockefeller Foundation. The letter referred to the recent attendance of representatives of the Society at the Ministry of Health to meet Prof. Madsen, president of the health committee of the League, and Dr. Rajchman, medical director, when it was agreed that the Society should be asked to appoint a committee to make the arrangements for a party of foreign medical officers who would be visiting Great Britain early in 1923, and to advise regarding reciprocal visits to be paid by British medical officers to other countries. The following committee was appointed: The President, Dr. R. A. Lyster, Dr. Charles Porter, Dr. W. J. Howarth, Dr. E. H. Snell, Prof. H. R. Kenwood, Dr. Veitch Clark, Dr. G. F. Buchan, and Dr. Cates, with power to co-opt.

Administration of the Midwives Act, 1902.—A letter was received from the Royal Sanitary Institute, enclosing correspondence with the Dorset County Council, the Ministry of Health, and the C.M.B. regarding difficulties in administering the Midwives Act, 1902, owing to the interpretation of Section 1, Sub-section 2. After some discussion, it was decided to appoint a committee, consisting of the President, Drs. Cates, Lyster, Barlow, and Clements, to enquire into the whole working of the Act, such committee to invite the B.M.A. to appoint three or four representatives to serve with them when the scope of the enquiry was settled.

Resident Medical Officers.—On behalf of the West of England Branch, Dr. Stirk drew attention to a recent advertisement for a resident medical officer for a sanatorium, aged 35-50, who must reside in the institution accompanied by his wife, but without young children. The Branch suggested that a regulation of this kind, excluding married persons with children, or separating children from their parents, was open to grave objection. The matter was referred to the Salaries Committee.

Attendance at the Society's Meetings.—The West of England Branch reported a case where a

medical officer of health had declined to grant leave of absence to one of his staff who wished to attend the meeting of a Group of the Society. The Executive Secretary was directed to address a letter to the Branches urging that medical officers of health should arrange as far as possible for the attendance at branch and group meetings of the Society of those members of their staffs especially interested in the subjects under discussion. It was suggested that the West of England Branch should bring this letter to the notice of the medical officer of health referred to above.

Charges for Treatment at School Clinics.—The President drew attention to a letter addressed by the Board of Education to Education Committees urging the adoption of a scale of charges at School Clinics. It was agreed that the recommendations of the Board were quite unworkable, and the President, the Hon. Treasurer, and the Chairman of the School Medical Group were appointed to draft a letter explaining the objections to the Board's proposals.

The Croydon Vacancy.—It was reported to the Council that three members of the Society had applied for the appointment of medical officer of health for the county borough of Croydon, although aware that the terms of the appointment were not approved by the B.M.A. and the Society. It was referred to the Salaries Committee to report on this matter at the next meeting of the Council.

The Council then adjourned.

NORTH-WESTERN BRANCH.

The annual luncheon of the Branch was held at the Midland Hotel, Manchester, on Friday, December 8th, 1922, when the President (Dr. E. W. Rees Jones) presided and about 40 members attended.

In proposing the toast of "The N.W. Branch" the Lord Mayor remarked on the importance of the work of medical officers and the part they had played in reducing Manchester's death-rate. He mentioned that in 1875 the Manchester death-rate was 28.3 per 1,000, and in 1920 it had been reduced to 14.1—about half, whilst the infantile mortality rate, which was 198 per 1,000 in 1875, had been reduced to 105. The work of a medical officer who was determined to do his duty was very difficult, for he could not always avoid treading on somebody's toes.

Dr. T. W. N. Barlow, O.B.E., in responding on behalf of the Branch, said that the manner in which the recent difference between the medical profession and the Corporation of Manchester was

composed showed that the Corporation consisted of men with a wide enough outlook to appreciate that the medical men were quite as much concerned about the welfare of Manchester as they were about the advantage of their own profession. As officials they were more sensible than the man in the street of the dignity and of the respect due to a large Corporation. They were also very jealous for the success of the public health services of the country and fully conscious of the great potentialities that existed for further success in the future. They realised, therefore, that the best brains were necessary in the service, and the best brains could not be attracted without money considerations being taken into account.

The toast of "Our Guests" was ably proposed by Dr. Veitch Clark, who, after thanking the Lord Mayor for appreciative references to his appointment as the new medical officer of health for the city, referred in turn to the other guests of the day.

In replying, Sir William Milligan said that medical officers of health stood for preventive medicine, and, after all, prevention was the highest ideal of the profession. What all medical men desired to do was to prevent disease rather than give their attention to its cure or so-called cure. Therefore it was very necessary that medical officers of health should be men of high scientific attainments and men of great tact and discretion. Indeed, he knew of no position in which a medical man needed more circumspection. When he took part in the negotiations concerning the medical officership of Manchester he felt very strongly that an important city ought to have a highly educated and talented man, who should be well paid. The opposition which had to be met was of a perfectly genuine nature. It was felt that times were bad and money was short. He pointed out that it was very poor policy not to pay well for the work that had to be done. Those who took part in the negotiations did not get all they thought the medical officer ought to have, but they were able to arrive at a compromise that was satisfactory to all concerned, and he was sure that in the near future the emoluments of the post would rise to the figure they had in mind originally.

Alderman Benson (Chairman of the Wigan Health Committee) said he would like to see more co-operation between health authorities and medical officers. He had observed it for years and knew that the work of the latter, especially in the matter of sanitary reform, was very difficult, because when reforms were carried out someone was bound to suffer, and there were often members of

the health authorities who were interested in property and who naturally did not want to see their pockets emptied. Again, medical officers were supposed to be experts in everything. In fact, they were expected to know so much that he doubted if any of them really did know it all. Therefore it was gratifying to know that the work was becoming more and more whole-time work and that it was beginning to be divided among specialists, with the medical officer superintending as an administrator.

Following the lunch an ordinary meeting of the Branch was held, at which 26 members were present.

Lieut.-Col. Herbert Jones gave an excellent address on "The Need for Co-operation between the Society of Medical Officers of Health and the British Medical Association." At the outset he mentioned instances of the great support which had been given by the B.M.A. to the health services of the country. From time to time various suggestions had been made as to the desirability of the Society of Medical Officers of Health having the right to nominate two members upon the Council of the Association and even at the Annual Representative Meeting. It was far more important, however, that we should exert ourselves not so much as medical officers of health, but as medical practitioners. First and foremost, every medical officer ought to become a member of the B.M.A., and, secondly, should take an active part in the work of the Association and as far as possible endeavour to get into office in the branches and divisions. He drew attention to the efforts at present being made to arrive at an agreement as to an adequate scale of salaries for medical officers in the public health service, and submitted that it was reasonable to suggest that the average M.O.H. should have remuneration equivalent to that of the average general practitioner, and the more successful M.O.H. to the more successful general practitioner. In a joint conference of members of our Society with members of the B.M.A. slight alterations had been mutually agreed upon in the Society's scale, and one very important one was with regard to the minimum salaries of medical officers of departments working under senior medical officers and having no responsibility for the work of other medical officers under them. The Society had fixed £600 per annum as the minimum in these cases, but exception had been taken to this in some quarters on the grounds that it was too high for a newly qualified man. The general practitioner may begin to earn money as soon as he is qualified, but the prospective M.O.H. under the

new regulations cannot obtain his public health qualifications until two years elapse. It had been agreed, however, that this minimum of £600 should apply in cases where the medical officer appointed had had at least three years' previous clinical experience. Take, for instance, the cases of two newly qualified medical men each with £500 capital, one electing to go into private practice, the other into the public health service. The former could begin to earn money immediately, whereas the latter would have to spend his capital in keeping himself for the two years necessary for obtaining his public health qualification. If in addition to this it was stipulated that the minimum should only apply where the medical officer had had three years' previous clinical experience, then surely the sum of £600 per annum was not exorbitant. By giving way on this point it indicated that medical officers were not only actuated by the desire for personal gain, but in drawing up the scale were endeavouring to obtain the best service for the community as a whole. Every member of the Society should do his utmost to induce his colleagues in the various branches and divisions of the B.M.A. to vote for our scale in order to ensure its acceptance at the next Annual Representative Meeting of the Association, and Colonel Jones advanced various points that might be useful in persuading possible opponents. He said that it was frequently urged that as public health officers we enjoyed certain advantages over the general practitioner, *e.g.*, no night-work, ability to arrange social functions, holidays, etc., more accurately, and so forth, but it must not be forgotten that we had disabilities too. The newly qualified general practitioner could choose the area in which he wished to reside and could, therefore, study not only his own conditions, but those of his wife and family. The medical officer of health cannot choose, but is dependent on a vacancy occurring in any district. Once in a district it may happen that the medical man might wish to remove. The general practitioner can do so often at only slight financial loss. The M.O.H., once past 45 years of age, cannot get away. Again, it is often overlooked that once a medical man becomes a public official, to a certain extent his citizenship is lost. This may not appear important to some men, but still it is a fact that whole-time medical officers have rarely, if ever, been Mayors or served on public bodies, whereas general practitioners are able to if so inclined. Lastly, the general practitioner has something to sell at the end of his career—he is all the time accumulating capital in the value of his practice. However hard the M.O.H. may

work he may not increase either his capital or his income. There are practically only ten years in the life of the M.O.H. (*viz.*, between 35 and 45 years of age) in which he is able to get any improvement in his position. Although our scale may appear high in some grades, it must be remembered that such posts are few and far between and only very few men out of the large numbers in the service can ever hope to attain them. Dr. Jones, in conclusion, reiterated the necessity for every medical officer not only joining the B.M.A., but becoming an active participant in the work of the divisions and branches. It is wrong to say the B.M.A. is no use to the M.O.H. It may not appear to be to a certain individual, but the question was a much broader one than that. We must not only think of ourselves, but of the benefits that may be derived by our colleagues.

In proposing a vote of thanks to Col. Herbert Jones for his most interesting and instructive address, Dr. Meredith Young gave his opinion that however amiable a fellow practitioner was in ordinary life, he appeared to be a different individual entirely once he became a member of a public body or committee. He agreed with all that had been said by Dr. Herbert Jones, and if there was anything to be criticised it was that, considering that medical officers of health are specialists—legalised specialists—their remuneration should be compared not with that of general practitioners, but with that of specialists.

Alderman Dr. Benson (Wigan) said he could not understand for a moment why every practitioner is not a member of the B.M.A. In Wigan some time ago he succeeded in getting practically every man to join. When Government Departments commence negotiations with the medical profession they are begun through the B.M.A. He hoped there would be a great response to Col. Jones' advice to all practitioners to join the B.M.A., which organisation had the power to do everything needed for the welfare, both of the general practitioner and the public health service.

Dr. Wheatley testified to his gratitude to Col. Herbert Jones for always endeavouring to help M.O.H.'s. Throughout his career no man had done so much for them. To advance the idea of co-operation was of great importance. The B.M.A. had made mistakes in the past—for instance, when they failed to recognise that school medical inspection work was essentially preventive. But this had gone now. Although the B.M.A. will be of great assistance to us, yet we shall only advance finally by showing the public the enormous importance of Public Health work.

Treatment is personal, but national preventive medicine is so important that treatment sinks into insignificance, and one of the greatest drawbacks to our work is the labelling of certain comparatively minor diseases as preventible. Probably more than 90 per cent. of disease is preventible to the exclusion of others. It was necessary to take every opportunity to impress these facts on our Committees. He considered that to improve the service the examination for entry must be made of as high a standard as possible. In the meantime in our efforts to obtain adequate salaries we must work as part of the great medical profession. There were signs that we are beginning to recognise this.

Dr. Garrow wanted to know how far we as M.O.H.'s had failed on our side in getting the terms we wanted. He thought our mistakes fell into two categories: (a) personal mistakes in various areas of petty interference with the Private Practitioner or aggression on the part of the M.O.H.; and (b) errors of policy on the part of the Society as a whole. If it was true that there was a feeling among members of our Council that we were more Local Government Officers than Medical Officers it ought to be strenuously opposed.

Dr. Peck thought that the fact that a medical man held opinions at variance to those of any organisations did not by any means warrant him holding aloof. It was much better to join the Association and endeavour to convert his colleagues to his point of view.

The vote of thanks was unanimously accorded to Col. Jones for his most useful address, and it was felt by all members that it would be of the greatest value to our Society if Col. Jones could be prevailed upon to address similar meetings throughout the branches.

WEST OF ENGLAND BRANCH NOTES.

BRANCH MEETINGS.

There was a good attendance at the Pensions Hospital at Bath on November the 21st, when a full and frank discussion on difficulties arising between the Ministry of Pensions on the one hand and Tuberculosis Officers on the other, took place. The Ministry was represented by Dr. Sandison, who gave a very interesting address, Col. Young, D.C.M.S., and Dr. Halliday Sutherland. This meeting illustrated what is so often true, that a short conference helps to dissipate misunderstandings more effectively than a great deal of writing

and correspondence. It may be possible to give some notes later on about the chief points dealt with.

A proposal was made that the next meeting should be held in Bristol at the end of January or early in February, and that it should be preceded by a lunch. The subject suggested as a suitable one for discussion was "The Milk Supply." Full details of the arrangements made, however, will be sent to members in due course.

SECTION 14 OF THE MIDWIVES ACT, 1918.

The extent to which paragraph (4) of this Section should be enforced has been the cause of much consideration by Health Committees and their Medical Officers. To press too hard for payment from a patient, who is unable perhaps to appreciate either the need for calling in a doctor or the legal obligation of the midwife to send for medical assistance, may cause a good deal of dissatisfaction in various ways. On the other hand, failure on the part of an Authority to exercise its right to recover from a patient, when this is reasonably possible, fees which it has already paid out to the doctor, may lead to other undesirable consequences.

In this connection it will be of interest to give certain details relating to two counties and one large town in the West of England during 1921. Figures obtained from reports shew that out of every 100 births attended by midwives in Somerset medical aid was summoned in 20.6 cases. The corresponding number for Wilts is 16.5 and for Bath 21.3. In Somerset claims for fees were made to the Authority in respect of 66 per cent. of cases where a doctor was so called in. In Wilts the figure was 44 per cent., and in Bath 65 per cent. The Somerset County Council was able to recover from patients 30 per cent. of fees paid out to doctors, in Wilts 36 per cent. was recovered, and in Bath 30 per cent.

The figures are approximate in the sense that some of the debts recovered in one year had been contracted in the previous one, and for other reasons, but it seems probable that they do, in fact, represent with fair accuracy what is taking place. It should be noted that in Somerset a scheme to enable patients by payment of a small sum previously to avoid having a doctor's account sent in, has been working satisfactorily for some years, and a large number of mothers appear to have availed themselves of its advantages.

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Editorial.

THE CASE FOR THE SCALE.

The attention of members of the Society of Medical Officers of Health is directed to the statement published on page 138, which summarises the arguments in favour of a Scale of Salaries for the Public Health Service. During the next six months the Scale will be discussed by every Division of the British Medical Association, and they should make it their business to attend the meetings of the Division to which they belong and to explain any points which may not be clear to their colleagues in private practice. If the facts set out on page 138 are thus brought to the notice of the B.M.A. Divisions we shall feel no misgivings regarding the fate of the Scale when it is submitted to the Annual Representative Meeting of the Association to be held at Portsmouth in July next.

MILK CIRCULAR 325.

Evidence against the extraordinary Circular 325 continues to accumulate. The Clerk to the Durham County Council has addressed the following letter to the Ministry:—

"I was directed by the Durham County Council at their meeting held on the 8th instant to forward the following observations on Circular 325:—

"The subject of adulteration in general and of new milk in particular has been made the subject of special study and special administration in the County of Durham, and the Council regret to have to state that, in their opinion, the Circular is a decided retrograde step and an incitement to milk adulteration, where a vendor is so inclined.

"The Circular will undoubtedly be used by the legal representatives of defendants in order to overthrow the opinion of Local Analysts and Local Officials, and in view of the fact that many

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Farmers' Associations and the like permanently retain their own legal advisers who specialise in this branch of law, it appears that convictions will be very difficult to obtain except in cases of exceptional gravity.

"During a very recent period of three months, 105 samples of milk were obtained in this Administrative County, but it was not necessary to institute proceedings in any case, and it is submitted that this satisfactory state of affairs was only brought about by the watchful and tactful administration of the Sale of Food and Drugs Acts in accordance with the Law and Regulations which were in existence prior to the publication of Circular 325. Taking these 105 cases as an example of the detrimental effect of the Circular in question, all these vendors would, according to the effect of the Circular, be able to commence to adulterate their milk and to continue adulterating it without risk of prosecution and punishment until 'a series of tests have shown repeated default' in each of these cases. The result would be that, generally speaking, the whole of the milk supply in the County would suffer and we, as a Local Authority, would be powerless to protect the interests of the community until a time had elapsed by the taking of a series of tests showing repeated default.

"The Law and Regulations existing prior to the issue of Circular 325 have on the whole worked well in this County which, coupled with an efficient administration thereof by the Officials of the County Council, have resulted in maintaining a high standard of milk, and the County Council view with apprehension in a thickly populated industrial County like Durham, the probable results of the administration of this Circular.

"The honest milk vendor is amply protected, as the Durham County Council are always willing to consider exceptional circumstances in his favour, and the Officials here have no desire to obtain convictions merely for the sake of obtaining them. It is, however, felt strongly that the Circular in question operates favourably in the case of unscrupulous milk sellers, who will now find a means of enriching themselves at the cost of the community with less risk of punishment than has hitherto been the case.

"I am therefore directed to express the strong disapproval of the Durham County Council of Circular 325 and to ask the Minister to give instructions to have the Circular unreservedly withdrawn without delay."

The circular has also been considered by the Sanitary Committee of the Corporation of

London, and the Town Clerk has forwarded the following letter to the Ministry:—

"I have the honour to inform you that the Sanitary Committee of the Corporation have had under consideration Circular No. 325 issued by the Ministry of Health on the 17th July last, together with a report by the Medical Officer of Health for the City of London (Dr. W. J. Howarth, C.B.E.), on the subject, with which the Committee agreed, and I was directed to forward you a copy of the said Report and to express the hope that the Minister of Health will see his way to withdraw the circular in question."

ASSOCIATION OF COUNTY MEDICAL OFFICERS OF HEALTH.

ANNUAL DINNER.

The Association of County Medical Officers of Health for England and Wales met on the 15th December, 1922, in Pagani's Rooms, Great Portland Street, London, at their first social function or dinner since the creation of the Conference in 1906 which preceded the formation of the Association in 1914. Dr. G. Reid (Staffs.) occupied the chair, and the guest was Sir George Newman. Thirty-two members were present.

After the toast of "The King," the President, in proposing "The Guest" (Sir George Newman), reviewed briefly the evolution of the Association, and its relation to legislation, to the Government Public Health Departments, to the British Medical Association and the County Councils' Association. Dr. Reid diagnosed that the times portend to a more onerous position for County Medical Officers. Dr. Bostock Hill, who supported the President in the proposal of the toast, eulogised the work of Sir George Newman as a friend, adviser and colleague, and in all these capacities he had, without doubt, won the affection of the members of the Public Health Service.

Sir George Newman replied in a terse and pithy speech, in which he reviewed his work and relationship to the profession. He felt amply rewarded by the friendship returned by the County Medical Officers of Health.

The evening proved most enjoyable and created an unanimous demand for a repetition of the dinner annually.

The next congress of the Royal Sanitary Institute will be held at Hull from 30th July to 4th August, 1923, by invitation of the mayor and town council.

*THE INFLUENCE OF MILITARY SERVICE ON HYGIENE.

BY

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This time last year Sir Percy Bassett-Smith addressed you, as your President, on the Progress of Hygiene, Pathology and Bacteriology in the Royal Navy. The subject on which I propose to address you this evening is "The Influence of Military Service on Hygiene," although from a somewhat different point of view, and more in the form of historical retrospect than as an indication of progress. But before doing so I should like to rectify a grave omission on my part—and I may say also on yours—in not referring at our last meeting to Sir Percy Bassett-Smith's work as president of the group during the past year. Sir Percy entered on his duties imbued with that enthusiasm for which he became so well known not only in the Royal Navy but also in many circles outside it; and during his year of office he has won for himself our admiration and affection. I hope, therefore, that you will join me in expressing to him our deep appreciation of the services which he has rendered to the group.

When he handed over the chair at our last meeting, Sir Percy referred to the work of Major Daukes, as secretary of the group, and I would ask you to express our cordial thanks to him also for his services. His task was by no means a light one, and I am sure we all regret that his work is making such demands on his time as to oblige him to resign the secretaryship. At the same time we give a hearty welcome to Flight-Lieutenant J. H. Wood for so kindly taking up the burden, which Major Daukes has thus been compelled to throw off.

In approaching the subject of the Influence of Military Service on Hygiene, I should explain that my object is to show historically the direction in which armies and the demands of armies dealt with health problems rather than to present to you the manner in which hygiene as a whole benefited by military service. From the historical notes, however, which I have ventured to put together, some indication may be gathered of the extent of the influence which military service brought to bear on questions of health preservation, and prevention of disease.

The maintenance of physical fitness, physical training, the hygiene of the march, the relationship between food and energy, camp sanitation

* Presidential Address to the Naval, Military, and Air Force Hygiene Group.

and all that it implies, are aspects of hygiene, which belong specially to the domain of military service. But there are other features (such as the prevention of epidemics and preservation of the health of communities of individuals, living in close contact with one another) which have been influenced to a great extent by the experience of armies in the field and military service in general, although they have an equally important bearing on civil life. The subject of medical topography also owes much to the experience of military service in various climates and countries. If the influence of military service, therefore, were to be explored fully, a subject of unwieldy dimensions would present itself; and I propose to touch on a few only of its more salient historical features this evening.

The maintenance of physical fitness and individual health is the earliest manifestation of the hygienic sense, if I may so call it. It assumes a prominent position in the history of campaigns from the earliest times; for it implies the manpower, which enabled a nation to defeat its enemy and win battles. Consequently we find much in the writings of the ancients and in military literature at all times regarding the selection of recruits, and the training, feeding, clothing and housing of the soldier. In fact, from the principles underlying these and the measures taken to prevent armies being attacked by epidemics, the science and practice of hygiene may be said to have emerged and to have expanded into civil life.

It was the army, for example, which constructed the public works, sewers and water courses in ancient Rome, drained swamps and engaged in other sanitary work. As Lt.-Colonel Garrison, of the United States Army, puts it, "the general sanitation of the Roman Empire was largely the work of the army." In this connexion it is interesting to note that the United States appears to have followed the example of the Romans, for the United States Corps of Engineers is employed in peace-time in the construction of public works. No better instance of this need be cited than the construction of the Panama Canal, which became possible only after the work was undertaken by the Engineers and Medical Services of the United States Army.

The selection of the best type of recruit is a subject which crops up constantly both in ancient and modern writings. Vegetius, for example, who wrote on the art of war in the fourth century A.D., devotes a whole chapter to it, discussing questions of physique, age and previous occupation. He lays great stress on the graduated training of men, recruited from cities, and accustomed

to luxurious and sedentary lives, and compares them unfavourably with the hardier and stronger men from rural districts. In modern times the importance of this subject is indicated by the physical classification of the manhood of the nation during the recent war, and the voluminous and meticulous data published recently by the United States military authorities. Even Moses appears to have found it necessary to estimate physical fitness, by numbering the men "from twenty years old and upwards, *all that were able to go forth to war.*" Constant reference will be found, therefore, to the selection of the best type of men physically and mentally from the earliest times up to that most recent development of the subject in the experimental work which was carried out in the military physical test station in Edinburgh by Professor Henry Briggs in 1918.

With regard to *physical training*, the exercises and sports of the ancient Greeks, in the open air and stripped of clothing; gymnastics or gymnics in other words, differ in principle but very slightly from the doctrines preached in more recent times. Alexander the Great issued a strict order to his soldiers to take care of their bodies, and gymnastics and sports were their chief amusements. Vegetius, whom I have already referred to and will refer to again, as of all the ancient military writers he appears to have been the greatest exponent of military hygiene, states that those skilled in the art of war considered that daily exercises did more than the doctors to preserve the health of the soldiers. Amongst more modern hygienists, Sir John Pringle, the Physician to the Forces in the war of the Austrian Succession of 1741 to 1747, expressed the opinion that more sickness was caused by inactivity than by fatigue, and recommended encouragement of sports of all kinds, with a caution as to excess. A mean between love of ease and pursuing the most violent exercise was the principle advocated by him.

Robert Jackson, than whom there has been no greater or more courageous and adventuresome army medical officer, although he died in obscurity in 1827 in his 77th year, unnoticed by the authorities of his day, had much to say on the subject of recruiting, training and exercise, repeating practically the observations of Vegetius. A whole section of his remarkable work, "A systematic view of the formation, discipline and economy of armies," published in 1804 with a second edition in 1824, is devoted to these subjects. He extols dancing, fencing and gymnastics as important elements in physical training; and he enforced the principle of graduated training and of carrying

out exercises in the open air. Jackson's attempts to influence hygiene is expressed in the words of his biographer, Dr. Borland: "He had a pervading anxiety respecting the health and well-being of the soldier."

It is curious to note how soon the principles enunciated by Jackson and the earliest writers were forgotten or ignored; and it is to this fact that we must attribute the recommendations which appear, in strong protest, from time to time in the writings of subsequent military hygienists, so much so that, as recently as 1908, a committee had to be appointed by the War Office to investigate the physiological effects of food, training and clothing of the soldier, with the result that, so far as training was concerned, all that could be said was that it should be graduated and carried on out of doors, as far as possible. The ancient Greeks and Romans told us that; the great military hygienists of the three last centuries told us it; yet in 1908 we had to produce a new system of training, in accordance with these principles, in the "Manual of Physical Training" published in that year.

The opposition of military commanders to the advice of medical officers in this respect was no doubt due to the influence of the Prussian system of drill introduced by the father of Frederick the Great and to the writings of Clausewitz, whose classical work "On War," written in 1827 and published after his death from cholera in 1831, has been the Bible of the General Staff Officer, at any rate of the German Staff Officer. The theory that tall men, with stiff necks and "ramrods down their backs," were the acme of military efficiency seems to have dominated the military hierarchy for more than a century after the time of Frederick the Great, in defiance of the wisdom of men like Pringle and Jackson, and, indeed, of the great military commanders of ancient times. In an old pamphlet of 1799, for reference to which I am indebted to Mr. Hudleston, the War Office librarian, the following significant passages occur—"such an army as he (General Burgoyne in North America) had was not fit to fight in woods, composed of heavy useless Germans and high dressed British infantry." The Austrian troops of the period are alluded to in the same pamphlet as "high dressed, stiff and unwieldy."

Clausewitz's influence appears to be still more pernicious, for he states that the theory of sanitary measures has not such an influence on strategic decisions as to make it worth while to include a consideration of them in the theory of war. The first English translation of his Art of War

appeared when Lord Wolseley was commencing his great career; and I wonder whether it could have inspired his well-known opposition to the sanitary officer? "The sanitary officer," he says in his Soldier's Pocket Book published in 1886, "is the creation of recent years and as a general rule he is a very useless functionary." In any case, I feel sure that had Lord Wolseley lived to witness the spread of sanitary organization into every nook and cranny of the field and the marvellous activity of the sanitary officer and his influence in maintaining man-power and efficiency during the recent war, he would have expressed differently his appreciation of the value of sanitation.

But this is digressing somewhat from the subject of physical training; a subject which carries us on to the *hygiene of the march*. Here again we find remarkable evidence of how well the military commanders and writers in early times understood the importance of the principles, preached by modern military hygienists.

It is difficult to realize the extraordinary marches recorded in ancient times. They make one doubt the veracity of historians. Herodotus, the Father of History, was also called the "Father of Lies," and, if I remember rightly, our modern Pepys, Colonel Repington, quotes M. Briand as saying that "history is a lie promoted to the rank of truth by repetition." However that may be, we have in Xenophon's narrative of the march of Cyrus' army of Persians and Greek mercenaries from the coast of Cilicia against Artaxarxes in the year 401 B.C.; and the subsequent retreat of the Greeks from the battle of Cunaxa, south of Baghdad, up the Tigris and across the mountains of Kurdistan and Armenia to Trebizond on the Black Sea, a record of a march of 3,465 miles in 215 marches averaging over 15 miles each. This record was surpassed some 70 years later by Alexander the Great's famous expedition, as told by Arrian, into India through Persia and Afghanistan and back from the mouth of the Indus through Baluchistan.

Another famous march, quoted by historians, is the march of Marlborough's army from the Meuse to the Danube before he fought the battle of Blenheim. Here again some historian has made an error as to the distance and time, for Lt.-Colonel Garrison in one of his articles this year in the "Military Surgeon" quotes it as a march of 1,176 miles in 86 days; whereas the distance as the crow flies is not more than 300 miles, and two military authorities which I have consulted make the march either 250 or 300 miles, although the

time of the shorter distance is given as six weeks and of the longer just under that period.

But, whatever may be the truth regarding these historical marches, all are agreed that they were only possible by strict attention to the hygiene of the march and the food, clothing, equipment and individual care of the soldier.

The pace of Cyrus' march was apparently 3 miles per hour, and this has been regarded as the most economical pace by all military hygienists. It was proved scientifically by experiments made by Cathcart and others during 1917 and 1918. They showed that the expenditure of energy in marching at a pace much slower than 90 yards per minute (that is to say, a little over 3 miles an hour) was much greater than marching at that rate or, indeed, at a rate up to 130 yards per minute.

Almost the only contribution of Clausewitz to military hygiene is in connexion with the march; for he points out that a succession of even moderate marches is certain to tell on the instrument and that a succession of severe ones will, of course, do so much sooner. He regarded 6 or 9 English miles as the most economical distance for an army to travel daily and was strongly in favour of periodic rests. But in discussing the subject of rests he makes some observations, with which no hygienist will agree. Apparently the objection in his time to prolonged rests was that soldiers would then be confined to crowded camps and billets; but he considered that this could be ignored because, to quote his words, "it is so easy to give them while at rest in packed quarters both air and exercise so that the want of these can never be a cause of sickness!"

In more recent times hygiene of the march has been closely studied in its physiological aspects. A remarkable and standard work was published by Marey on "Le Mouvement" in 1868. Thurn in 1872 wrote on the diseases caused by severe marches, and in 1901 Zuntz and Schumburg published a volume on the "Physiology of the March" in V. Coler's well-known library of military medical books. In 1905 a French writer, Manoeuvrier, wrote a short monograph on methods of classifying recruits based on estimating scientifically their capacity for marching.

Investigations of a similar character have been carried out by military medical authorities in England, but more in connexion with the *expenditure of energy in relation to food*. Thus, in 1875 Edmund Parkes carried out an experimental march from Netley to test the restorative values of rum, coffee and meat extract; and in 1909 an experimental march, known as the "hunger

march," was made by 25 soldiers under the medical charge of Lieut.-Colonel Melville, Major Beveridge, as he then was, and Captain Dunbar Walker, of the R.A.M.C., to investigate the amount of food required by men on active service and the composition of the iron ration. A second experimental march was made under the same direction in the following year.

During these marches many points were noted, such as the importance of marching with open jacket and shirt and of graduated and progressive training. The results were embodied in the Infantry Training Manual of 1911.

The chief consideration, however, in connexion with marches, and especially prolonged marches, such as those historical ones which I have just mentioned, was sufficiency of food. All historians agree that the success of the march of the Persians and Greeks in Xenophon's time and of the British to Blenheim in Marlborough's time was due to the careful arrangements made for feeding the soldiers, as well as to the regulation of pace, daily length of the march, periods of rest and individual care. It is this relationship of food to work, and the calculation of the requirements and constituents of a soldier's ration, that form perhaps one of the most important features in the influence of military service on hygiene. Until more modern times, of course, scientific calculations of the value and nature of food constituents were not made; but there is much that is of interest in the general organization of the ancients for feeding armies during prolonged expeditions.

Let us take, for example, the arrangements made by Cyrus in his march to Babylon. They have a close resemblance to those of modern armies, and consisted of:—

- (1) A regimental train, organized for carrying sufficient food for each unit to last from one source of supply to another.
- (2) A three days' halt for rest in a locality where there was abundance of supplies and where areas for requisitioning supplies could be exploited.
- (3) Trading canteens, forming a mobile market, where troops could supplement their rations by purchase.
- (4) A reserve supply column for providing rations when the distances from one supply area to another were too great for the supplies to be carried in the regimental train.

The essential constituents of the ration in Xenophon's time were cereals, fresh meat, fruit,

vegetables, cheese, wine and oils; and there is no record of those deficiency diseases, which were so prevalent in the campaigns of the Romans, in the Middle Ages and in more modern times.

Both Pringle and Jackson devoted considerable attention to the question of the soldiers' diet, but they discuss its nature and amount more from the point of view of what is good for the soldier to take than from the point of view of physiological constituents.

Jackson sums this up by saying that the diet should be "wholesome in kind and spare in measure." He believed in Spartan diets and Spartan habits. Pringle also laid much stress on the evil effects of excess in food, as well as on the dangers of such diseases as scurvy arising from scarcity of food. He has many pertinent remarks on the subject. He believed scurvy and malignant fevers to be due to putrefaction of the blood, and that this could be prevented or retarded by the use of foods that had, in his opinion, antiseptic qualities. In fact, he carried out a series of experiments for the purpose of noting and standardizing the efficacy of various substances in preventing or delaying putrefaction. An account of these experiments was submitted to the Royal Society in a series of seven papers, read before it, between June, 1750, and February, 1752. Pringle's belief in the value of certain constituents of diet in counteracting putrefaction of the blood is expressed in the following quotation:—

"Hopped beer, wine and vinous liquors, coming more and more into general use, have been some means of suppressing putrid diseases. Greens and fruits are likewise more universally eaten, and salted meats make a much less part of our diet than formerly. To this add the more general consumption of tea and sugar, which I have shown elsewhere to be no inconsiderable antiseptics."

In more recent years military problems led to detailed scientific investigations on the physiological importance of the *chemical constituents of food and their relationship to expenditure of energy*. Much of this investigation was initiated by Pettenkofer and Voit in Germany, but also by the Rev. Professor Haughton in this country. In military service it attained much prominence in the writings of Edmund Parkes and his successors; more especially when concentrated and preserved foods became more or less essential in the army in order to reduce bulk in transport and at the same time give the soldier a ration sufficient to maintain his physical fitness and vigour. The estimate of the chemical constituents of

every variety of food and their conversion in terms of calories into work represent the direction in which military service influenced this branch of hygiene. During the recent war and when the shortage of food was felt, much additional knowledge was obtained in this respect by the work carried out under the Food (War) Committee of the Royal Society in 1917. New tables of food values, supplementing the well-known American tables of Atwater and Bryant, were then prepared by Plimmer of London University, and these, combined with the work of Cathcart and Orr on energy expenditure, have a scientific value which is bound to exercise a lasting influence on the hygiene of food in relation to work.

Associated with this we have the exhaustive investigations into food deficiency diseases and their prevention, which resulted from the experiences of the Great War, notably those carried out in the Lister Institute by Miss Hume and Miss Chick and other able lady workers, together with the practical experience of the physicians in Egypt and Mesopotamia; although we must credit the Japanese for going far, long ago, in the direction of preventing and eliminating the cause of food deficiency diseases in their army and navy.

Another important result of the war was the careful supervision of the manufacture of preserved foods. I remember, too, in the South African War, when complaints reached the War Office of the calf's foot jelly supplied to hospitals, I was deputed to inspect the factories, when some interesting facts, throwing light on the cause of the jelly going bad were noted. Again only last week Professor Kenwood told us in his lecture at University College how the war had increased the practice of milk pasteurization in the milk trade.

While on the subject of food it may be of interest to refer to the many controversies that have taken place on the value of the so-called "*Rum ration*." Wines and vinous liquids have always been a constituent of the soldier's ration in the armies of ancient Greece and Rome, and in the present day in the armies of wine-growing countries. Rum is a peculiarly British ration, dating probably from the time we owned sugar-growing colonies. Consequently we hear little about its effects before the time of Robert Jackson, who spent much of his service in the West Indies, and who was strongly opposed to its issue. Pringle, however, some 50 years earlier was a great advocate of the value of wine and

alcoholic drinks as a constituent of the ration, as I have already indicated. He was probably influenced by his experience on service in Flanders and Scotland. "As to spirits," he writes, "it is to be observed that even when drunk in excess they tend more to weaken the constitution than to produce any of the common camp diseases." And again, "soldiers have often to struggle with the extremes of heat and cold, with moist and bad air, long marches, wet clothes and scanty provisions. Now to enable them to undergo these hardships it is proper that they should drink something stronger than water or even than small beer, which is commonly new and bad in camps." He considered that the danger was greater from excess in eating than in drinking, and quotes Celsus on this point, "*Si qua intemperantia subest, tutior est in potione quam in esca*." Pringle, it may be mentioned, drawing a conclusion from his theory of blood putrefaction and the antiseptic qualities of wine, referred to the greater prevalence of pestilential fevers amongst the Moslems than amongst neighbouring Christians as being due to their abstinence from wine and fermented liquors. Parkes' experimental march in 1875 appears to have settled the question and to have established the present military views with regard to the "rum ration," namely that it is of value at the end of a day of fatigue and exposure, or in order to induce special effort over a very short period of time. This is exemplified by the evidence given before the recent War Office Committee on shell shock by Lieut.-Colonel Rogers, who had a very special knowledge of soldiers in the trenches as regimental medical officer of the 4th battn. of the Black Watch. "Had it not been for the rum ration," he said, "I do not think we should have won the war. Before the men went over the top they had a good meal and a double ration of rum and coffee." The ration, as you know, is only issued on the recommendation of the medical officer.

But on controversial matters such as these, to use the words of Jackson, when he discussed the hygiene of clothing, "opinions of men fluctuate like the tides of the ocean."

We come then to the influence of military service on the hygiene of clothing. In 1901 a War Office committee dealt with the question and introduced the present field service dress on principles of hygiene which had been preached long before. It was the Prussian influence, to which reference has already been made that kept

us back, and against which Jackson so strongly protested. He makes scathing remarks on the "spit and polish" of the army. "Pipe clay," he says, "is employed to cover dirt." "A soldier notwithstanding he might be encrusted from head to foot, was said to be clean if his small clothes and facings were covered with pipe clay, and his head was said to be dressed if the hair was matted with a paste of grease and flour." Against this Jackson emphasised the importance of clothing which gives freedom of movement to the chest and limbs and of boots the natural shape of the foot, such as did the War Office Committee of 1901. Similar views were held by the Maréchal de Saxe in 1738, when he issued orders for greasing hands and feet as a protection against cold and for the abolition of foot and leg clothing which impeded the circulation. Nor were these principles of hygiene ignored by Xenophon, who issued orders for the prevention of trench foot or frost bite, which were practically the same as those issued in France during the war; for his narrative records that the lacing of the shoes of his men caused constriction with resulting frost bite and gangrene, and, under a rigid system of discipline, he ordered his captains to see that the men removed their foot gear at night, rubbed and dried their feet, anointed them with oils and fatty substances, and were kept moving or employed in exercises such as felling trees to maintain bodily warmth.

We come now to *camp sanitation*, a subject more than any other on which military service has taught us most. When the children of Israel fled from Egypt "with their armies" and prepared for warfare in the Land of Promise, Moses, as all who read the Bible know, issued laws which were to be obeyed in war, and drafted regulations for camp sanitation, not unlike those of the present day, for they include such basic principles as the isolation of infectious diseases, the prevention of venereal disease, care in the selection of food, sanitary disposal of excreta and waste products, and sanitary inspections. The priests were the sanitary officers, authorised to see that the regulations were obeyed. How far similar sanitary measures were carried out by future generations in Palestine cannot be traced, but Lt.-Col. Garrison notes that the Saracens in the middle ages had a system of sanitation which included the digging of trenches for dead animals and excreta outside the camp and filling them in with earth, the selection of pure water supplies and the detection of impure sources.

In the military writings of the Greeks and Romans camp sanitation takes a prominent place. Vegetius more especially devotes space to this subject, saying that measures for preserving the health of troops comprise the selection of camping grounds, water supplies, shelter and so on, and that if an army is left too long in the same area during summer and autumn, the fouling of the ground, the pollution of the water supplies, and aerial infection spread epidemics which may cause its destruction. His remedy was frequent change of camping grounds and sanitary inspections. In his day there were camp commandants, who seemed to have command over the medical services, and to them and to commandants of labour companies was entrusted the duty of sanitary officers. These duties were, in many respects, similar to those of the sanitary officers in the recent war and included sanitary inspections of tents, huts and constructions generally.

Pringle held strongly to the opinion that pestilential fevers were caused by foul sites of camps and sanitary billets. His theory was that the remittent and intermittent fevers of the army in Flanders originated in putrid air, and that the infection spread from fæces and foul latrines and from the occupation of low-lying marshes and damp ground, and dirty and overcrowded billets.

Jackson never went so fully into questions of camp sanitation as his predecessor, Pringle, but urged the importance of *medical topography*. Medical topography, in his opinion, was as important as military topography, and disregard of it was destructive of the forces in the field. This was certainly so in the case of the ill-conceived Walcheren expedition of 1809, and of many other expeditions, such as that of the French in Madagascar in 1895, and indeed to some extent of our own occupation of the Struma Valley in 1916. Napoleon well knew the importance of medical topography, for he realised what would happen to the British in Walcheren when he refused to send a force against them, saying that within three months fever would finish them; and in Napoleon's correspondence of August 16th, 1811, there is the following passage:—

"Il vaut mieux donner la bataille la plus sauglante que de mettre ses troupes dans un lieu malsain."

In connexion with camp sanitation, we have the problem of *water supplies and their purification*. Purity of water was not ignored in the military services of ancient times. Although we do not hear very much about the methods of

purification, there are a few indications that military commanders were not indifferent to its importance.

I am again indebted to Mr. Hudleston, the War Office Librarian, for the following quotation from Herodotus regarding Cyrus the Great in his warlike expeditions—"There is also carried with him water of the Choaspes, which flows near Susa, for the King drinks of no other; wherever he goes he is attended by a number of four-wheeled carriages, drawn by mules, in which the water of Choaspes, *being first boiled*, is disposed in vessels of silver."

I had been under the impression that the passage, which I had read a long time ago, had occurred in Xenophon or Arrian, and that it referred to Alexander the Great, and it was only after searching their *Anabases* carefully and failing to find it that Mr. Hudleston came to my rescue.

Sterilisation of water by boiling was, therefore, no new discovery; but it appears to have been a luxury, granted only to the mightiest in the land, although possibly it may have been more generally practised than history records.

Again Arrian tells us that Alexander the Great took care that those who came to the water first should not run into it with their feet, and thereby render it unwholesome for the rest of the army.

The Greeks and Romans added vinegar to water to render it palatable and wholesome. Jackson refers to this and himself advocates its use, when water is flat or mawkish, but was opposed, as usual, to the British adding rum for the same purpose. He does not go further, however, in connection with water supplies than to mention the use of alum for clarifying water.

Vegetius considered muddy and polluted water a danger to health; and required all officers to pay particular attention to the question of water supplies and the diseases caused by bad water, from the first day of a campaign. He was referring specially to dysentery.

But it is only in modern times that the hygiene of water supplies was investigated scientifically; and much of the progress in this direction has been due to military service. Chemical impurities were first investigated and limits of permissibility of chemical constituents standardised. The Manual of Military Hygiene by Edmund Parkes went a long way to disseminate knowledge of this kind. Later, as we all know, bacteriology took the field and changed the character and standards of water analysis. At

our last meeting Colonel Anderson told us of the wonderful work which was done in the war to purify water supplies. In this direction military service has brought us to a stage in hygiene, in which the most foul and poisoned water can in an incredibly short time be clarified, sterilized and converted into a table water.

Reviewing the whole question of water supplies and camp sanitation, one is impressed by the fact that advances in consequence of modern civilisation have only been technical in character, and that the principles underlying this branch of hygiene were realised in the military service of the ancients as much as in that of the present day. The means for maintaining cleanliness in camps, disposing of waste products and purifying water can only be described as technical advances in hygiene and in these technical advances the British Army has undoubtedly taken the lead. The history of sanitation in the recent war forms a compendium of information on the subject.

Passing now from the influence of military service on camp sanitation, or what might be called sanitation by improvised measures as distinct from municipal sanitation, we come to the influence of military experience on the *hygiene of habitations*. Pringle and Jackson were apostles of this branch of hygiene. "The want of pure and wholesome air," writes the former, "cannot be compensated by diet and medicine." "The best rule is to admit so few patients into each ward," speaking of hospitals, "that anyone unacquainted with the danger of bad air might imagine there was room to take in double or triple the number." "I have generally found those rooms most healthful where by broken windows and other wants of repair the air could not be excluded." Pringle also recognised the value of open fires and chimneys for ventilation, and describes a form of ventilator. He recommended the dispersal of the sick into a number of small hospitals, instead of concentrating them together in one large overcrowded hospital, and had thus in his mind the germ of the pavilion system of hospital construction.

Jackson urged disinfection of walls and floors in barrack rooms; and specially the prevention of overcrowding in *transports*, a subject which military hygienists have been constantly impressing upon the authorities in recent times. He noticed the ravages of contagious fevers in transport ships, describing them as terrible; and considered it important that in taking up a transport, the character of the ship, its wholesome-

ness and freedom from infection should be investigated, that there should be a definite tonnage allowance per man, that the height between decks should not be less than 7 feet, and that there should be proper equipment of bedding and arrangements for sleeping, accommodation for sick and convalescents, general means of ablution, etc., and careful inspection and classification of troops before embarkation.

There is probably no branch of hygiene in which the teachings and experience of Pringle and Jackson suffered so much neglect as the hygiene of dwellings, of hospitals and of transports. It was this neglect that led to the onslaught on the military and medical services by Florence Nightingale in the Crimean War, with all the subsequent results. Modern hygiene, in fact, as set forth in Parkes' immortal classic, "A Manual of Practical Hygiene," dates from that war. The Royal Commission appointed in 1857 to inquire into the army introduced reforms which gave the army medical officers authority to advise commanding officers on all matters affecting the health of the troops whether as regards garrisons, stations, camps and barracks, diet, drill, duties or exercises. (Previously medical officers were only entrusted officially with the care of the sick.) Parkes wrote his manual to meet these demands, but found that, as the general principles of hygiene were involved and could be illustrated by examples drawn from army life, it might be made applicable to civil as well as to military communities. It is fortunate that Edmund Parkes was appointed to the Chair of Hygiene, the first chair of its kind, in the new Army Medical School, for no one of higher attainments or wider philosophical outlook in connexion with hygiene existed then or subsequently. As Florence Nightingale says of him in one of her letters, "his knowledge and instruction, diffused from the Army Medical School as a centre, has extended and will extend wherever the English language is spoken and beyond."

The Crimean war had thus far-reaching results in the application of hygienic principles to practical sanitation both in civil and military life. It led, amongst other details, to the introduction of standards of cubic or superficial space in houses, barracks, hospitals and institutions; to the pavilion system of hospital construction; to standardizing of hospital statistics, such as those introduced by Dr. Graham Balfour in the Army Medical Department Reports, and to many other inquiries into problems of the preservation of health, prevention of disease, and the incidence

of epidemics. The Barracks and Hospitals Improvement Commission which followed the Royal Commission on the health of the army entered into details of warming and ventilation, drainage and water supplies, all of which had a bearing on civil as well as on military constructions. It was, in fact, in this direction that military service at that time had its greatest influence on hygiene; and, in fact, led to the Public Health Acts, which followed the Crimean War.

The story of the influence of military service on the prevention of specific diseases is a long one, and there is time only for a superficial glance at it. Generally speaking, this influence only commenced to be felt within the last half-century. Up till then the knowledge of specific causes of disease had not been determined with scientific accuracy, and it was not until bacteriology, protozoology and entomology assumed the importance they now have that definite progress was made. Previously measures of quarantine were relied on for the prevention of epidemics, if we except the vaccination methods of Jenner in the prevention of small-pox. Quarantine methods were in vogue from early times. According to Garrison, quoting Sudhoff, the wars of the middle-ages brought extensive epidemics of bubonic plague and led to a system which included "sanitary control of incoming vessels, observation stations, isolation hospitals and methods of disinfection, all of which measures have been adopted in modern times, in more definite and rigorous form but with relatively few changes." These measures were adopted first by the great trading ports of Venice and Marseilles in the fourteenth century.

It was military service in Malta that brought to light the causes of mediterranean fever. David Bruce's discovery of its micro-organism was made while he was a young army medical officer there in 1886, and the demonstration of the micro-coccus in goats' milk led to the total elimination of the disease from military life. Service in Malta added also to our knowledge of sandfly fever, through the investigations of Marrett and Birt, following those of Doerr in Austria.

Prophylactic inoculation against enteric fever was first tried in the South African War by Almroth Wright. Leishman perfected the vaccines and methods of inoculation in the laboratories of the Royal Army Medical College with results in the recent war that form one of the most brilliant chapters in the history of disease prevention.

The American war with Spain had an almost equally great influence, for it led to the determination of the mosquito transmission of yellow fever and to the practical elimination subsequently of that disease from localities where it was previously endemic. It was this war, too, that drew attention to the influence of flies in transmitting disease. The observations made in the camps in Florida proved that flies carried faecal matter to food and from that time onwards the disposal of excreta by incineration and the prevention of fly breeding have been routine measures of sanitation. It is interesting in this connexion to note that Pringle very nearly arrived at the truth with regard to the influence of flies in transmitting such faecal diseases as dysentery. In discussing the causes of dysentery, he says, "and here is an old observation that such seasons as produce most flies, caterpillars and other insects, whose increase depends so much on heat and moisture and consequently in corruption, have likewise been most productive of dysentery." "The first source of infection seems to be the privies, after they have received the dysenteric excrements of those who first fell ill." He even went further and refers to a curious dissertation by Linnaeus regarding the observations of a Danish doctor on the presence in dysenteric stools of minute motile "animalculae" scarcely visible to the naked eye.

With regard to malaria military service has taught nothing beyond the practical measures necessary to deal with the appalling and destructive outbreaks in armies which are forced to carry on operations in notoriously malarial areas, or which in peace occupy garrisons in malarial countries. The discovery of its causation was due more to independent investigators such as Manson, Ronald Ross and Laveran, than to those in military service, but an enormous amount was accomplished during the recent war in determining the habits of the mosquito carriers of the disease, more especially in Macedonia and Palestine, and in the malarial topography of these countries.

So, too, the Great War has had a profound influence with regard to the prevention of typhus fever, relapsing fever and trench fever, and their association with infestation by lice and other insects.

The Great War is responsible again in connexion with cerebro-spinal fever and influenza for establishing the greater importance of lateral space than cubic space—in determining conditions of overcrowding and for applying this

principle to the slinging of hammocks in transports.

Then again we must attribute to the influence of the war the investigations into the factors which produce and prevent food deficiency diseases, as I have already touched upon, the methods of transmission of schistosomiasis, the extraordinary propagandism and general activity in efforts to prevent venereal disease, and many other important practical details of sanitation. The work of combating venereal diseases during and after the Great War has torn the veil, which concealed them from the public eye, ruthlessly asunder. Incidentally Colonel Reece has drawn my attention to a curious line in Horace's epistle to Quintus which shows that diseases in his day were concealed by a pernicious sense of shame. *Stultorum incurata pudor malus ulcera celat.*

All of these are so much of the nature of recent knowledge and so well known to the members of this group of the Society of Medical Officers of Health, that I need do no more than merely indicate them. Future generations will be better able to estimate their influence on hygiene than we are in a position to do now. But I might venture the opinion that had there been no such incident as the national military service of the last war there would have been no Ministry of Health in this country to-day.

But what seems to me an important result of military service is the education of the individual in sanitary habits. I have always held that sanitation depends more on the individual than on the system. A perfect system is useless if the individual does not apply it. Now the individual experience gained in military service is a great factor in aiding the sanitation of civil communities, especially in the less advanced villages and towns. In speaking to me, some years ago, Surgeon-General Stechow, of the German Army, emphasised this and said that the training of the soldier in sanitary habits had a wide influence in civil life when he completed his service with the colours and returned to his home. Again, we have the enrolling of the priests in the sanitary sections of the Italian Army during the recent war in the hope that they would spread a knowledge of hygiene amongst their parishioners after they were demobilized.

Individual sanitary education, too, formed an important feature in the Japanese Army during the Manchurian Campaign, and was introduced into the British Army as a consequence of the

lessons learnt in that war. One cannot, therefore, attach too much importance to the sanitary education of the individual, and no better means of teaching individual sanitation exist than military service in the field.

In conclusion, I am deeply sensible of the many imperfections in the matter and manner in which I have presented to you this evening a subject that is full of fascination to those interested in the history of hygiene. I am fully aware of the fact that very many points have been omitted and overlooked in connexion with our knowledge of hygiene and its practice under the influence of military service. Still more am I conscious of the fact that the influence of the workers in civil life on military hygiene has been far greater, especially in modern times, than the influence of military workers on civil hygiene. The sanitary work during the Great War bears witness to this, and the nation can never repay what it owes to the medical officers of health and specialists in hygiene, who were enrolled from civil life in the Royal Army Medical Corps during the war, and by whom the bulk of the practical work in maintaining a high standard of health and efficiency was carried out.

I fear I have wearied you with a jumble of suggestions which will only leave in your minds the sense of there being "no intrinsic newness others have not had before."

I have merely ventured this evening to put before you only a few notes from such literature and impressions as have come my way during forty years of army employment, during which the problems of hygiene and sanitation have occupied no inconsiderable portion of my time; and I have to thank you for listening to me with so much patience and indulgence.

*PREVENTION OF ALGAE IN STORAGE TANKS.

BY

ALFRED ADAMS, M.D., D.P.H., Medical Superintendent, Liverpool Sanatorium, Delamere.

The preserving of the purity of a storage water supply is of such vital importance, that the members of this Society may find interesting the results of our experience at the Liverpool Sanatorium, Delamere Forest, in dealing with the matter.

Briefly, our water supply is obtained by pumping from a well bored through the red Cheshire

sand stone for over 400 feet, and raised to a cast iron tank of 40,000 gallons capacity, situated on the highest point of the grounds, open to the air, and containing about 10 days' supply; from this it runs by gravity through a ballcock to a 10,000 gallon concrete tank under ground, from which the institution is supplied. The water is of excellent quality, practically bacteria-free, and of about 12 degrees of hardness.

Whilst the water was stored in the closed tank no trouble arose, but with the larger storage in the open our troubles began. Attention was first attracted by a peculiar odour like "boiled cabbage water" from the hot water supply, which rapidly grew stronger, and on investigation it was found that the cold water system appeared free; but water from both had a slight green sediment, most apparent in the baths; and in the open tank was a greenish stringy growth adhering to the sides and bottom, and spreading into the water.

At once the tank was emptied, thoroughly cleansed, and painted inside with quick-lime: then refilled. Two weeks later there was a recurrence of the growth on a smaller scale, and it was evident there was a recurring contamination by a growth which required treatment.

Various remedies were suggested, including the covering of the tank and the use of algicidal chemicals, the most effectual of which are sulphate of copper or chlorine. On the advice of Sir Alexander Houston, Metropolitan Water Board expert, chlorination was tried; a dose of 1 cl. in 1 million being used, and the effect was marvellous; within half-an-hour of its addition the growth began to disappear, and 24 hours later the water was perfectly clear, and only a faint green sediment was to be seen at the bottom of the tank.

Army experience taught most of us that chlorine might be an efficient, but was certainly a most unpalatable, remedy for water troubles, and it was with great trepidation that, despite the continuously successful reports from authorities using this treatment without complaint, I first ventured on its application, but I am now convinced that the unpleasant memories of its effect on our water in the Army must have been due either to over-use or other causes. Where super-chlorination is required for a severely contaminated water to give the maximum security in the minimum of time, de-chlorination by $S.O_2$ or by permanganate is resorted to, and all flavour entirely removed.

Chlorination of water supplies was first adopted by Sir A. Houston in the case of the Lincoln water supply in 1904, and has been in growing demand ever since. Arrangements were made

that weekly a sufficient supply of chlorine should be added. The tank was first allowed to run down to a low level; then a measured quantity of chlorine corresponding to the amount of water, calculated by feet in depth to be pumped into the tank, was added, and fresh water pumped in to this level. The supply to the lower tank being meantime cut off for 24 hours, at the end of which time the supply valve was turned on again, and this system has since been adhered to with excellent results. The growth has been successfully prevented, and on no occasion has there been the slightest trace or complaint of odour or taste from the water.

The saving of the cost in labour, and power in emptying, washing and refilling the tank has been entirely obviated, and the serious expense of covering it with a sufficiently strong roof in the exposed position overcome, with the added danger of birds harbouring in the roof; by an infinitesimal charge for the chlorine, and with the additional advantage that we can rely on the supply being free from all organisms.

It should be noted that the growth is subject to seasonal variations: most marked in February-March and September-November periods, and it is interesting here to observe that the operators in the chemical factories appear to find during the same seasons that difficulties arise more frequently in the processes than at any other season.

The growth of algae in water supplies is one of the difficulties which arise in its storage in the open, and causes, in addition to its odour and appearance, obstacles to its filtration, rapidly blocking the filters and causing a heavy charge for their cleaning and renewal, and the use of chlorinated water, whilst not entirely preventing its growth subsequently, reduced the cost of cleaning the filtering beds in the case of the West Middlesex Reservoir by 35 per cent.*

Chlorine is an algicidal as well as a bactericidal agent, but copper sulphate is the better algicide, the main opposition to it being sentimental, as there is no danger of poisoning. The inhibiting effect wears off, and if re-infected it may grow again.*

The addition of .09 parts per million of ammonium hydrate to the Chlorine appears to act as a catalyst, increasing the rapidity of sterilization and also tending to cover the flavour of the Chlorine.**

We have tried this method here and think the claim is well founded; it is described in American literature as the Chloramine Process, but must not be confused with the Chemical Chloramine T. as

used in this country as an antiseptic, which gained prominence during the war.

Chloramine T.—Sodium Toluene P.—Sulphochloramide—has also been used for water purification, but as 40 parts per million are required to sterilize water, and it has a distinctly unpalatable taste, its use has been abandoned.

When chlorinated water is stored for a short time, there is no serious risk of growths developing, even if from time to time reservoir water is added which contains growths in abundance.*

The chief commercial articles for the purification of water are chlorine and bleaching powder. Chlorine can be obtained as a liquid in steel cylinders, usually containing about 74 lbs. of chlorine. The cylinder itself is about the same weight, and, therefore, forms a convenient package to handle; larger sizes can be obtained also, or it may be distributed in railway tank wagons containing 12½ tons. The purity of the chlorine is about 100 per cent., and it does not depreciate with keeping. The special apparatus supplied by the United Water Softeners or The Patterson Engineering Company enables the treatment of the water with chlorine to be simply and easily controlled.

Bleaching powder is sold in wooden casks containing 6 to 8 cwts., but can also be obtained in any size casks. It contains about 35 per cent. of available Chlorine, and if stored in a cool, dry place keeps well, the loss being about 0.1 per cent. of Chlorine per week. Bleaching powder contains a considerable amount of insoluble matter, and it is, therefore, necessary to make a solution before adding to the water of all available Calcium Hypo-Chlorite, and reject the sludge.

A simple apparatus for this purpose was invented and has been used satisfactorily for the past 6 years by the Metropolitan Water Board, and is illustrated in their 16th annual report.

The solution of Calcium Hypo-Chlorite containing 7 per cent. of available Chlorine is also obtainable in carboys or tanks. As the strength of this solution is so low the railway carriage makes the price delivered considerable, and it loses 0.05 per cent. of Chlorine per week on keep.

A solution of Hypo-Chlorite of Soda containing 14 per cent. by weight of available Chlorine is also obtainable. It is the best form for the treatment of small supplies where fresh solution can be obtained at regular intervals, but is apt to deteriorate, rapidly losing from .3 to .5 per cent. of Chlorine per week. This is a preparation which we have invariably used and found so satisfactory.

* Paper read at a Meeting of the N.W. Branch in Manchester, 12th January, 1923.

With regard to the cost of treatment, I have obtained from Messrs. Castner-Kellner, Weston Point, Runcorn, a comparative list of the various agents in the strength of Chlorine, and it will be noted that pure chlorine with a value of £30 per ton compares with Sodium Hypo-Chlorite costing £13 per ton at £92 17s. per ton of chlorine.

These prices are f.o.r. Runcorn, but the carriage weight would have to be added, and if conveyed to a distance the greater concentration of the chlorine would inevitably make it cheaper to convey than an article containing a diluent.

The prices of the different products are:—

Pure Chlorine	£30 0 0	per ton Chlorine
Bleaching Powder at £11 10s.		
per ton, containing 35% cl.	£32 17 0	„ „ „
Calcium Hypo-Chlorite at £3		
per ton, containing 7% cl.	£42 17 0	„ „ „
Sodium Hypo-Chlorite at £13		
per ton, containing 14% cl.	£92 17 0	„ „ „

I wish to sincerely thank Sir Alexander Houston, of the Metropolitan Water Board, for his advice and assistance, and also to acknowledge the information and assistance given by Dr. Haworth, of the Castner-Kellner Alkali Co., Ltd., Weston Point, on the comparative strengths and costs of the various preparations.

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“ DAMAGE.”

BY

J. JOHNSTONE JERVIS, M.D., D.P.H., Medical Officer of Health, Leeds.

Nearly a hundred years have passed since the first Act for the compulsory registration of births, deaths and marriages passed into law, and William Farr laid the foundations of our vital statistics. Much has transpired since that date; new values have been framed in connection with statistical evidence, and new interpretations placed on facts relating to health and disease. But, whilst we may have travelled far on the road towards a better and more complete understanding of health values, we seem to have got no nearer a true appreciation of the real meaning and significance of sickness and disease as factors in what may be termed “vital economics.” “Mortality” has been an obsession with us and has warped our vision and cramped our outlook. We have too readily accepted the death-rate as an index of health and sanitary progress, and have assumed that with

our finger on that pulse we could fairly sense the general condition of the whole body.

Let us examine the death-rate as an index of the healthiness of a community. We have in it—and no one will dispute the claim—a true representation of the actual wastage of life whether due to natural or extraneous causes. It tells us clearly what the losses in that community have been in a specified period of time. But death is not the only result of disease; it is not the only manifestation of unhealthiness. There is another, and to my mind more important, consequence, and that is “damage” resulting in loss of efficiency. Disease may, and does, extinguish a certain number of individuals, but it interferes with the effectiveness of a great many more. The resistance of the communal body to disease depends on the efficiency of its component units, and the measure of its healthiness is its ability to withstand attack and to emerge from the field of battle with its forces complete. It must be understood that the function of disease is not restricted to killing; it maims, wounds and incapacitates, and for every unit attacked with a fatal result there are at least four others (four is a conservative estimate) wholly or partly, temporarily or permanently, rendered ineffective. It is these disabled units which are the important consideration in estimating the efficiency of a population, not those which have suffered extinction by death. The latter rank as absolute losses and are written off as such, but the former remain partly on the credit, partly on the debit side of the account according to the nature and extent of the damage inflicted. The presence of these damaged units in a community constitutes a grave weakness, and the greater their number the more unhealthy and unsound the community is. We know that the measure of the strength of a chain is the strength of its weakest link, and the efficiency of a community is gauged by the number of its ineffectives. A community is always bound to provide for its cripples—its blind, its deaf, its halt, its imbeciles—and this is a provision of such a costly nature that without the help of the State many communities could not bear it. Another important point to be kept in mind in this connection is that the return on this large outlay is, practically speaking, nil. Perhaps I ought to explain what I mean by the term “ineffective.” I mean an individual who by reason of damage to his body resulting from disease or other cause is prevented from filling that place in the community for which his physical and mental attributes, had they remained unimpaired, would have fitted him. You

have heard of the misfit, the man or woman who occupies a place which he or she cannot fill because the ability to perform the functions attached to the position is lacking—it is thus one can explain many of the failures and tragedies of life. Many of these misfits are persons destined for other places, but by the intervention of disease or accident have been sidetracked and forced into positions for which they have neither aptitude nor liking, whilst their own appointed niches remain vacant. You will appreciate the result—inefficiency and failure leading often to unhappiness, poverty and crime. I cannot dwell longer on this particular aspect, but I hope I have said enough to show how complex is the problem of “damage,” and how vicious the circle may be to which it gives rise.

To resume my argument on the death-rate as an index of communal well-being, there is another point of considerable practical importance which ought to be mentioned as showing the ever-shifting value of mortality figures. In 1901 the general death-rate of England and Wales was 16.9, in 1920 it was 12.4, a decrease of 26 per cent. in twenty years. Assuming that the decline is maintained at the same rate for the next twenty years, the death-rate in 1941 will be 8. That is a very low figure; one which in my own estimation marks the limit of probability as far as this particular rate is concerned. One may expect that with steady progress and development in medical and sanitary science in the future the saving of life and the consequent reduction of the mortality rate will continue. But it is obvious that to this downward movement there must be a limit. A time must come when a figure is reached beyond which it is humanly impossible to go, and that figure for England and Wales is, in my opinion, that which I have already mentioned, viz., 8 or 9 per 1,000 of the population. That is merely an arbitrary figure, arrived at by reducing the number of deaths from preventable causes in all the age-groups up to the last (65-85) to a limit which I have thought consistent with possibility, and estimating the probable saving of life in each year up to a point where prevention ceases to operate and natural processes remain in possession. The age groups in which are found the largest number of non-preventable deaths and which are likely, notwithstanding ever-recurring rumours to the contrary, —to continue to baffle the scientist, are the first and the last. Death, implacable and inexorable, raises a barrier at the end of life beyond which the living may not pass in bodily guise and at

which the wisest and the strongest must stand in helpless impotence. If then there is a likelihood at the end of the next quarter of a century of the mortality figure being reduced to practical insignificance as an index of public health, would it not be wise that we should recognise this possibility now and alter or modify our standards to meet changing values. Our health statistics are euphemistically named “vital” whereas as a matter of fact there is far more of the “mortal” than the “vital” element about them. I do not suggest that we abandon the “mortal” (for after all “mortality” is “vital”), but I do plead for a fuller appreciation of the “vital.” This brings me back again to the central theme of this address—“Damage.” One feels almost tempted to plagiarise Brieux and say “damaged goods.” I have been amazed at the ignorance which prevails amongst the most enlightened of our profession, including some of those who specialise in the preventive side of the subject of medicine, concerning the effects, near and remote, of disease on the individual and on the mass. I have scanned the annual reports of medical officers of health, of infirmaries, hospitals and dispensaries (other than perhaps those of institutions dealing with the special disease Tuberculosis) in vain for any reference to the damage, permanent or temporary, resulting from disease. Now and again one may find the subject briefly touched upon, but no real attempt, as far as I am aware, has ever been made to assess or classify damage. One would have thought that after the eye-opening revelations of the medical examination rooms of the recruiting stations during the war, which labelled us a “C 3” nation, some endeavour would have been made to do this. But no! We seem to have forgotten the lessons we learnt then with so much bitterness and so many tears. To test the matter I recently addressed a questionnaire to the medical officers of all the principal towns in England asking for information as to the amount of temporary or permanent damage caused to persons suffering from the common infectious diseases treated in the isolation hospitals of their respective areas during 1920 or 1921. The result has surprised me. In no single case have I been able to obtain complete answers to my questions. Some have promised to look up their records and transmit the information as far as they possess it, others have supplied certain very incomplete figures, whilst the majority have been quite frank and told me they are not in possession of the facts and cannot obtain them as they are not included

in their records. I should say, however, that one medical superintendent did give fairly complete figures for scarlet fever, diphtheria and typhoid fever, which have been very helpful. The remarks of an M.O.H., one of the wisest and best in the Health Service, interested me because they indicated how easily some are frightened by the use of the term "damage." He spoke of it as something much too big and too nebulous to be reduced to figures, and doubted whether there were many so-called complete cures. I agree with his scepticism as to the number of complete cures, but surely there is nothing formidable about the term, for after all it is not expected that a medical officer should submit his patient to a microscopic examination in order to ascertain in what respect the tissues have been hurt. All that is wanted is a record of the obvious damage with a note as to the likelihood of its persisting. More than that is apt to be mere guesswork and of no statistical value. With a little practice the careful observer should be able to detect and estimate damage with the same accuracy as he does the signs of the disease which is the cause of the damage.

It might be helpful at this stage to illustrate the argument with a hypothetical example. Take a thousand cases of scarlet fever occurring in a community of the size of Leeds or Sheffield and treated in an isolation hospital, 12 result in death, 48 in damage which persists on discharge, and the remainder recover sufficiently to be returned to the population as "complete cures," or, to express it in another way, the Case Mortality Rate is 1.2 per cent., the Case Damage Rate 4.8 per cent., whilst the cures make up the remainder—94 per cent. Calculated per 1,000 of the population (480,000), the death-rate would be .025 and the damage-rate .1. If we analyse the damaged cases we should probably find that they include a certain proportion in which the damage is purely temporary, *e.g.*, enlargement of glands or slight deafness, as well as others in which it is permanent, *e.g.*, "Valvular Disease of the Heart," or "Brights Disease." From such a record we ascertain not only the actual loss by death, but also the virtual loss by disablement which has resulted in consequence of the malady. The permanency or otherwise of the damage can be tested by following up the cases after discharge. The importance of the after-history of recovered cases is not sufficiently realised. Without such a history it is quite impossible to get a true conception of the remote effects of disease and the disablement resulting. This is well illus-

trated in an investigation into the after-history of Measles which has recently been undertaken by my staff. I selected 10 cases quite arbitrarily from each of the seventeen wards of the City notified during the epidemic of 1916, or 170 cases in all, and by visits to the addresses given at the time of notification as well as by reference to the school medical records, I was able to trace 135 of the 170 cases, and obtain particulars of their health subsequent to the disease as well as of their present condition. The following is a summary of the results of the investigation. In 23 cases or 17 per cent., the report was that the child's health had improved; in 24 or 18 per cent. that it was worse; in 82 or 61 per cent. that there had been no appreciable change; whilst in 6 or 4 per cent. death had ensued. In 21 or 16 per cent. recovery was stated to have been incomplete, that is to say that the child never really regained its normal standard of health, and 25 or 19 per cent. of the cases had subsequently suffered from other complaints of a serious nature. The points of importance which emerge are, firstly that 16 per cent. were damaged by the disease, secondly that five years later the damage persisted in practically the whole of this number, and, thirdly, that of the cases in which recovery was said to be incomplete, all gave a history of subsequent illnesses—three cases were definitely stated to have Tuberculosis and to be attending certain institutions in the City for treatment—and 4 per cent. had succumbed. The series is too small to justify sweeping deductions, but it serves to show the importance of the point I have tried to make with regard to "following up."

It will be objected by some that the data necessary to determine the total damage resulting from disease in a community cannot be collected except from that limited group of diseases known as notifiable diseases. I agree, as things are at present, that is so, but I fail to see why notification should be restricted to a small and now-a-days comparatively unimportant group of diseases. If it is because they are of an infectious or contagious nature it might be pertinent to ask how many diseases there are known to medical science to-day which have been conclusively proved not to be of this order. I venture to suggest that if you exclude those conditions which result from the effects of ordinary wear and tear on the human machine which, as a rule, do not manifest themselves until the later age periods, and certain functional complaints, the number could be narrowed down to very small compass. As it is, some of the most important of the known infectious diseases—as far as damage is concerned—

are not notifiable. For example, the three "pioneer" diseases—Bronchitis, Whooping Cough, and Influenza—are absent from the list. I call them "pioneer" because though not mischievous of themselves they almost always act in consort with other more formidable and dangerous allies, *e.g.*, Pneumonia, Tuberculosis. If one could entirely eliminate these three diseases one could reduce the incidence of tuberculosis by 60 per cent., and the damage due to other sequelæ probably by as much. After all, what is the *raison d'être* of notification? Is it not to give the Local Authority an opportunity of rendering assistance to the sufferer and his family as well as to protect the public, or, in short, to limit spread and prevent damage and death. Correspondence on this subject has been going on recently in one of the medical journals. Certain medical officers of health have expressed themselves as dissatisfied with the results of notification and isolation in scarlet fever, and assert that these expedients have failed to prevent the recurrence of epidemics of this disease. Is not this a very narrow conception of the aims of notification and isolation? You do not rail at the umbrella-maker because it continues to rain, but you blame him if, through his negligence or bad workmanship, a good suit of clothes is spoiled. To cut short or prevent an epidemic of disease is certainly an important desideratum from a public health standpoint, but is it the most important? I think not. It is surely of much greater moment to preserve life and minimise damage. Think of what the damage rate would have been in the 1,000 cases alluded to in my illustration had the patients been left to the care of incompetent persons in many instances in overcrowded homes and bad and insanitary surroundings. And who will doubt that similar results follow the treatment of any disease under such conditions? It must be obvious to every one that lack of accommodation giving rise to unnecessary pain and discomfort, inadequate attention, bad air and unsuitable food, incompetent handling, make perfect recovery a physical impossibility, and to talk of convalescence under such conditions is a mockery. And yet it is under such disabilities that 40 per cent. of the people of our towns and cities have to face disease and fight some of the sternest battles of their lives. The wonder to me is not that so few die but that so many survive without permanent damage. What is the remedy? There is one way, and one way only, of tackling this problem, and that is by making all diseases notifiable and by extending nursing and hospital provision so

that the unfortunates who are called upon to join issue with disease and fight for their lives may do so under the best conditions. No mechanic, however skilful, could be expected to repair a damaged machine in the middle of a desert without material, tools or equipment, neither should nature be expected to repair damaged tissues in surroundings devoid of pure air, sunlight, and all those other influences which so materially assist the healing processes. A good environment is not only the best insurance against disease, but it is the surest aid to complete recovery. And should the struggle end in favour of the patient he should be encouraged to continue treatment until such time as his medical adviser is assured that recovery is complete and any damage which may have resulted is made good. Convalescence under the best possible conditions is essential if permanent damage is to be avoided, but the facilities for recuperative treatment are hopelessly inadequate, and more attention ought to be paid to this aspect of curative effort. But if, after all and in spite of all, damage should result, the fact should be notified to the Medical Officer of Health, whose duty it should be to keep and record all such facts for inclusion with other data in the vital statistics of the district.

Some of my audience may think such a scheme too grandiose, too Utopian, and quite impracticable. I do not agree. To notify one disease is as easy as to notify another, and if the general medical practitioner's interest in the proposal were enlisted from the very beginning, I am sure we should have his loyal and hearty co-operation. The general practitioner would be the first to welcome better nursing provision for the sick under his care, and if he were allowed to attend his own patients and could be assured that a bed would be available for any case he might want to be admitted, he would gladly, nay, eagerly, support any proposal for the extension of hospital facilities in his district. He would also, I feel sure, welcome proposals for the provision of proper and adequate convalescence with open and undisguised thankfulness. As to expense, any extra expenditure entailed by such a scheme as I have adumbrated would be more than compensated for by the increase in communal efficiency, the reduced outlay on special institutions, and the better control of disease.

As Medical Officers of Health it is our business to create new and better standards of health. If England is a "C 3" nation we, as the counsellors of the people in matters of health, are not entirely free from blame. We must remove the reproach

from our house, and, if there are avenues leading to the desired goal still unexplored, and if we are earnest believers in the possibility of an "A 1" nation, we must throw aside ancient shibboleths and discredited theories and strike out with energy and determination to find these unexplored avenues and the goal.

NOTES FROM BRANCHES.

THE METROPOLITAN BRANCH.

THE PRESIDENT HONOURED.

The warmest felicitations of the members of the Branch go out to the President of the Branch, who received a Knighthood when the New Year's honours were conferred. As Medical Officer of Health and School Medical Officer of the London County Council, Sir William Hamer will have been the recipient of widespread congratulations, but to the Metropolitan Branch, as shown at the last meeting, it is a particular source of gratification that its President for the second year in succession should have thus merited recognition. In a broader sense the London Health Service will feel justly proud of this appreciation of its manifold activities.

PUBLIC HEALTH ACT APPEAL.

An interesting legal point was raised in an appeal heard recently at the County of London Sessions as a result of a conviction obtained under Section 42 of the Public Health (London) Act, 1891, by a metropolitan sanitary authority against a builder, when in the absence of the defendant a fine of 40s. and £3 3s. costs was inflicted for constructing a water closet in such a manner as to be a nuisance or injurious or dangerous to health.

For the appellant it was contended that the summons was bad on account of duplicity, uncertainty and ambiguity in its wording, and that it was impossible to say which of the three offences created by the section the alleged offence was. Though the conviction was for one offence only, viz., for constructing a water closet in such a manner as to be a nuisance, it was argued that that was not a cure for the summons. Had the defendant appeared then the conviction would have been a cure, because the defendant would have heard the evidence and would have known the case which in fact was made against him.

Counsel for the respondent submitted that the wording of the statute constituted one offence: that the words "nuisance or injurious or dangerous to health" were mere words of description applied to the results of the construction of a

water closet, and that the construction was the offence. As to the non-appearance of the defendant to the summons, it was pointed out that the magistrate had followed the course laid down in the Summary Jurisdiction Acts in the case of a person who is summoned but does not appear, and service of the summons being proved had proceeded to hear the matter in his absence.

The Deputy Chairman considered that the appellant had only himself to blame for not being present when the summons was heard, and that he could not be in a better position than if he had appeared. In this case there were three offences specified in the summons and one specified in the conviction, and the evidence justified that.

The appeal was dismissed with costs, and the Deputy Chairman refused to state a case, seeing that one exactly on all fours had just been decided.

DIRTY MILK.

So many cases in which the aid of the law has been invoked in an endeavour to bring about a better milk supply have been noted in this column that it would seem to need little apology for including some details of a "clean milk campaign" carried out by less assertive means as a result of co-operation between a metropolitan health department and a West of England sanitary authority. Milk (ungraded) arriving at a London railway terminus was found on several occasions to contain excessive numbers of bacteria, pus cells, and considerable quantities of foreign dirt. On enquiry it appeared that the milk came from a wholesale factory which in turn received its supplies from numerous farms in the surrounding rural districts. The factory was said to be well conducted and equipped with modern centrifugal cleansing and pasteurising plant through which all milk passed prior to despatch to London. The firm, however, arranged to instal further plant; to replace old churns with new ones, and to provide discs of water-proof cardboard in order to make the churns dustproof. Many of the farms were thought to be not entirely free from blame, and the matter coming before the district sanitary authority instructions were given for copies of the regulations to be sent to every farmer in the area with a warning that active measures would be taken to enforce them. Particular attention was drawn to the necessity for using up-to-date hooded milking buckets. Following this action a special inspection of some 150 farms was carried out by the medical officers of health of the rural districts. As a result of the official steps taken and the wide publicity given to the subject in the local press definite improvement

in the milk supply from the locality in question is reported.

FORCIBLE ENTRY OF PREMISES.

Seldom, if ever, has action by a sanitary authority to obtain access to property been followed by discoveries as tragic as those associated with the case in which the Marylebone Health Department applied to the magistrate under Sections 10 and 115 of the Public Health (London) Act, 1891, for a warrant to enter certain premises in that borough. For over three months the house had been without a water supply and during that period no refuse had been removed. Subsequently a complaint was made by a neighbour of nuisance from refuse in the yard at the rear. Visits to the premises failing to elicit a reply it was inferred for a time that they were empty. Eventually, however, it was ascertained that the house was not entirely unoccupied, and renewed efforts to arrange an inspection were made, but without avail. Finally, the property was barricaded up by the occupier, and when the warrant was executed and forcible entry obtained the tenant (as extensively reported elsewhere) committed suicide on the spot, and further search revealed the decomposed body of a woman. It is interesting to note that largely the application in this case was made with the object of assisting the Police, who appeared to be without power to gain admission to the premises. Strange that the legislature should apparently trust the health authority rather than the guardians of law and order.

THE HOME COUNTIES BRANCH.

BIRTH RATES AND FERTILITY.

At a meeting of the Royal Statistical Society, Mr. T. T. S. De Jastrzebski read a paper on "Changes in the Birth Rate and in Legitimate Fertility in London, 1911 and 1921," which should cause considerable jubilation in the camp of the Neo-Matthasian League. In estimating fertility the "force of issue" (unit fertility) as given in the Appendix of the National Health Insurance Report for 1912 is taken. The figures are as follows:—

Under 25 years ...	4.5
25—30 ...	3.1
30—35 ...	.23
35—40 ...	.13
40—45 ...	.06

These figures are then multiplied by the number of married women of corresponding ages. Thus in 1911 the force of issue was .2191, and in 1921 .2174. This same process was repeated in the

boroughs, and there does seem reason to believe that the rate of decline has been greatest in the poorer areas. This would seem to suggest that the difference in the fertility dependent on social grade is tending to be reduced. The author speaks as follows:—

"In regard to fertility by social classes the results of the fertility inquiry at the census of 1911 show that there is in the more recent periods a tendency to the lessening of the gap between them. The "rapprochement" is brought about, not by any increase in fertility in the more advantageously placed classes, but by the more rapid decline among those in an inferior economic and social position."

Referring to the fall of fertility in the various countries of Europe, it seems to have been most marked in those with the lowest rates, and that it has been most rapid in those in which it set in latest.

It is also pointed out that one-third of the total female reserve is never used at all, and had these been brought into "use" the births would have been increased by 20 per cent. without any increase in the fertility rate. This interesting paper concludes with the following:—

"The forces that will effect the tendency to marriage or celibacy are too diverse or obscure to admit statistical treatment. Many of them are, as such, quite discernible, but the extent of their influence is not to be measured. No observer of the changing attitude of vast masses of the people toward ideas which have long been accepted as basic and fundamental will, however, rule out the possibility of some far-reaching and widespread modification of the popular conceptions as to marriage, the family and population."

MIDLAND BRANCH.

TREATMENT OF CRIPPLED CHILDREN.

The 23rd annual report of the Birmingham Cripples' Union, just published, is a history of successful effort on the part of an organisation supported by charity to deal with the crippling diseases of childhood.

The Union hope ultimately to be in a position to extend to every child in the city the best possible chance of treatment and cure that skill can devise and money can make possible.

The great advance in orthopaedic surgery which has taken place in the last few years has made the treatment more expensive than in the past, because it has opened up the possibility of treatment and cure to children for whom before nothing was

done, but the cost of this treatment is small compared with the maintenance by relatives or the State of the permanently crippled man or woman.

True economy consists in making permanent cures, and for this much time and money are required. It is no use sending a child suffering from tubercular bone disease away for treatment and return it to a slum home after a short period. Hospitals alone are inadequate. Home visiting is not enough; one must have a combination of the hospital, the convalescent home, the out-patient clinic and the home visitor in order to be in a position to deal adequately with this condition.

These are the lines on which the Union is working. The scheme of treatment is admission to the Woodlands, an ideal open air cripples' hospital with 97 beds, fitted with operating room, X-ray room and up-to-date massage, electrical and plaster rooms and a gymnasium. As soon as a child begins to get about a little he is transferred to the Forelands, a unique institution run on the lines of a residential open air school, where the aim is to encourage activity and confidence and make the children useful and self-supporting; the average duration of treatment for tubercular cases being about three years.

Both these institutions are well worth a visit.

At the out-patient clinic, where 7,000 attendances are made annually for treatment and massage, there is a system whereby patients pay a weekly flat rate of 6d.—1s. 6d. on the understanding that if reasonable care is taken the child's boots or splints or both will be kept in order. The payments are collected by the home visitors; thus relapses due to splints breaking or boots wearing out are prevented, while a policy of thrift and regular payments is inculcated. Arrangements have been made by the Public Health Committee to make a contribution towards the treatment of Birmingham children suffering from tubercular bone disease. The Board of Guardians pay in full for the provision of treatment in all cases chargeable to them.

The full cost of treatment per residential case is about 38s. weekly, and parents are required to contribute towards this cost according to their means, but no case is refused treatment because the parent is unable to contribute. A grant of £26 10s. is received per child per annum from the Board of Education.

THE CARNEGIE CHILD WELFARE CENTRE, BIRMINGHAM.

After obtaining reports in 1917 on child welfare work and conditions affecting child life in Great Britain from Dr. Hope, Medical

Officer of Health, Liverpool, and Sir Leslie Mackenzie, Scottish Board of Health, the Carnegie Trustees decided to offer the building and equipment of model child welfare centres to Liverpool, Birmingham and Motherwell, and central institutions to London and Edinburgh. Of these institutions those in London and Motherwell are now in use. The centre in Birmingham is in progress of erection and is situated in the centre of a densely populated district. The building itself will be a simple brick structure in which simplicity of design will be combined with a close attention to detail. The lower floor will be used as a dental clinic for expectant and nursing mothers, with lecture and demonstration rooms where this class in cooking, sewing and housewifery will be held. On the floor above is a large waiting hall about 60 feet by 30, and opening out of it are consultation rooms, dressing rooms, a weighing room and a nurses' room. There is also a large toddlers' play room on this floor and a staff room easily accessible from the vestibule. The upper floor contains an observation ward with eight cots, where it is proposed to receive children for the purpose of diagnosis and in order to educate the mother in the proper care of her child. In connection with this there will be the usual bathing and changing rooms, food preparation room, etc., together with accommodation for nursing and domestic staff. It is hoped to completely equip the centre by October.

The sum given by the trustees for building and equipment is £25,000, while the administrative expenses will come within the child welfare scheme for the city.

PROCEEDINGS OF THE SOCIETY OF MEDICAL OFFICERS OF HEALTH.

COUNCIL MEETING.

A meeting of the Council was held at the house of the Society on Friday, January 19th, 1923, the President (Dr. T. Eustace Hill) in the chair. There were present Prof. H. R. Kenwood, Lt.-Cols. F. E. Fremantle, M.P., and Herbert Jones, Drs. Wheatley, Evans, Garstang, Rees-Jones, Barlow, Snell, Stocks, Cates, Charles Porter, G. F. Buchan, J. T. C. Nash, Howarth, Wilshaw, McMaster, Frederic Thomson, Stirk, Shadick Higgins, Pedley, Clements, C. J. Thomas, and Ewart.

The minutes of the last meeting having been approved and signed, apologies for absence were received from Prof. Harold Kerr, and Drs. Gibbons Ward, Jolly, Lyster, Pearce, Horne, and Veitch Clark.

Correspondence.—(1) From the Ministry of Agriculture and Fisheries asking if the Society intends to send a representative or representatives to attend the World's Dairy Congress to be held at Washington next autumn, and whether the Society would contribute towards a fund to be raised by the British Committee to defray the expenses of such representatives as are considered necessary to complete the delegation. It was agreed that the Executive Secretary should inform the Ministry that the Society has no funds that may be used for such a purpose, but stating that the Society would be represented at the Congress by members who are attending on behalf of their Local Authorities. (2) From the Royal Sanitary Institute asking the Society to nominate representatives to attend the annual congress of the Institute to be held at Hull on July 30th and following days. It was agreed that representatives be nominated in due course. (3) From the Central Midwives Board notifying that Dr. Lyster's membership of the Board as representative of the Society would expire on March 31st, 1922. It was agreed that Dr. Lyster should be asked to report on the working of the Board at the next meeting of the Council, when the Society's representative for the ensuing year would be elected. (4) From the Queen Victoria's Jubilee Institute for Nurses stating that Prof. Kenwood's term of office as representative of the Society on the Council of the Institute had expired, and asking for the nomination of a representative for the three ensuing years. Dr. Kenwood having declined re-election owing to pressure of other duties, he was thanked for past services and Dr. Cates was elected as his successor.

Co-operation with the B.M.A.—The Council appointed Dr. W. J. Howarth and Dr. G. F. Buchan to confer with the Organisation Committee of the B.M.A. on the procedure to be adopted for carrying out the agreed scheme to assist closer co-operation between the B.M.A. and the Society. In this connection it was agreed that the Journal Committee should be held responsible for all editorial matter in the official journal which might be regarded as expressing the corporate opinion or policy of the Society.

Expenses of Delegates to Public Health Congresses.—The Executive Secretary was directed to write to the Ministry of Health in support of a proposal of the Borough Council of Holborn, viz., that the Ministry should sanction the payment by a Local Authority of reasonable expenses for one delegate (the medical officer of health) attending one health congress in each year. The

Executive Secretary was directed to point out to the Ministry that in the opinion of the Society annual congresses are of immense value as a means of educating public opinion on health matters, and that the small sums saved by disallowing the expenses of delegates do not represent a true economy.

Report of the Salaries Committee.—Dr. G. F. Buchan submitted a report from the Salaries Committee making recommendations in regard to propaganda, the position of medical officials at St. Helens, the salaries of dental officers, the attitude of the Scottish Board of Health in relation to medical salaries and other matters. The following paragraph referred to the pending appointment of a medical officer of health for Croydon:—

We report that an agreement has been reached between the Town Council at Croydon, the British Medical Association, and the Society of Medical Officers of Health, and that the post is now advertised at £1,300 a year. In this connection we submit the following recommendations to the Council:—

- (a) that Article 11 of the Society's Articles of Association be put into force against the members of the Society who were applicants for the appointment at Croydon.

Article 11 of the Society's Articles reads as follows:—

"if any member of the Association should be charged with conduct detrimental to the honour and interests of the medical profession or the Association, the Council shall have the power, after due inquiry of which at least fourteen days' notice shall be served on the member, specifying when and where he may be heard in his defence, either personally or by a representative, to admonish or call for the resignation of such member. Should he refuse to resign when so required, the Council may terminate his membership by expulsion. A majority of two-thirds of those present and voting at a meeting of the Council shall be required for the purpose of exercising the powers conferred by this Article."

- (b) that members of the Society be recommended to avoid as far as possible giving open testimonials available for any vacancy.

- (c) that members of the Society who knowingly give a testimonial for an appointment disapproved by the B.M.A. or the Society of M.O.H. shall be held equally culpable with the actual applicant and liable to be dealt with under Article 11 of the Society's Articles of Association.

A further paragraph referred to the salaries of Metropolitan Tuberculosis Officers, recommending that the London County Council be asked to fix them in accordance with the Society's scale.

The report was approved and adopted.

Report of the Journal Committee.—Arising out of a Report and Recommendations of this Committee it was agreed that a payment not exceeding £50 should be made for editorial expenses incurred since 1917.

The Sanitary Officers Order, 1922.—It was reported to the Council that of 13 candidates for the vacant post of M.O.H. at Hindley, 10 held the D.P.H. qualification. Four candidates were invited to meet the Selection Committee, and of these three held a D.P.H. In spite of the requirements of the Sanitary Officers Order, 1922, the Committee had recommended the Town Council to appoint the candidate without a Public Health diploma. It was agreed unanimously that this matter be brought to the notice of the Ministry of Health with a request that they withhold their sanction in this and other cases where it is attempted to evade the Sanitary Officers Order, 1922, without sufficient justification.

Congratulations.—It was agreed that a letter of congratulation be sent to Sir William Hamer, President of the Metropolitan Branch of the Society, on the honour of Knighthood conferred upon him by the King.

The President also expressed the pleasure of the Council at the attendance of Col. Fremantle after his recent accident in the hunting field. The suggestion was made that some means should be devised whereby Fellows of the Society who became members of Parliament should have a seat on the Council *ex officio*, and so be in a position to state the views of the Society. This matter was referred to the Special Committee for the Revision of the Society's Articles of Association.

The Council then adjourned.

ORDINARY MEETING.

An ordinary meeting was held at the house of the Society on Friday, January 19th, 1923, the President (Dr. T. Eustace Hill) in the chair. There was a large attendance.

The minutes of the last meeting having been approved and signed, the following candidates having been duly nominated, were elected to the Society:—

As Members:

Baxter, William, M.B., Ch.B., Aberd., D.P.H.; Gere (Mrs.), Dorothy Bellows, M.R.C.S., L.R.C.P.; Heaf, Frederick R. G., B.A., M.B., B.Ch., Cantab, M.R.C.S., L.R.C.P.; Mair, William, M.A., M.D., B.Sc., Edin.; Cole, Thomas Phillips, M.B., B.S., Lond., D.P.H.; Sparrow, Edward Cyril, M.A., M.B., B.Ch., Cantab., M.R.C.S., L.R.C.P.

As Associate:

Moore, John Batley, L.D.S., Eng.

A number of candidates were nominated for election at the next meeting.

Prof. E. Mellanby gave an address on "Some reasons why diet is an important factor in preventive medicine." An excellent discussion fol-

lowed, which with the address will be reported in an early issue of "Public Health."

The proceedings closed with a cordial vote of thanks to Dr. Mellanby.

THE CASE FOR THE SCALE.

In response to requests from the Branches the following statement has been compiled for the information of members of the Society who may be called upon to explain or justify the demands of the Public Health Service for the adoption of a Scale of Salaries:—

REMUNERATION OF MEDICAL OFFICERS OF LOCAL AUTHORITIES.

To Members of the

Society of Medical Officers of Health.

1. After negotiations which have extended over a period of three years the Council of the British Medical Association at its meeting on the 13th December, 1922, passed the following resolution:—

That it be recommended to the Representative Body that the following scale of minimum salaries for medical officers in the Public Health Service be adopted:—

		*Minimum Commencing Salaries per annum.
RESIDENT MEDICAL OFFICERS		£350 plus emoluments.
DEFINITION.—These are Medical Officers employed in hospitals, sanatoria or other institutions without responsibility for the work of other medical officers.		
MEDICAL OFFICERS EMPLOYED IN DEPARTMENTS.	Working directly under a senior medical officer.	£600
DEFINITION.—These are medical officers without responsibility for the work of other medical officers, but who shall have had at least three years' experience in the practice of their profession subsequent to obtaining a registrable qualification.		
DEPUTY, OR CHIEF ASSISTANT MEDICAL OFFICER (hospitals, sanatoria, or other institutions or departments).		A salary equal to 60 per cent. of salary of medical superintendent or senior medical officer in charge, but not less than the salary of a medical officer employed in a department.

		*Minimum Commencing Salaries per annum.
SENIOR MEDICAL OFFICERS IN CHARGE OF DEPARTMENTS, e.g., port sanitation, school medical departments, tuberculosis departments, mental deficiency departments, maternity and child welfare departments, venereal diseases departments, or any other similar department or combination of departments, and medical superintendents of hospitals, sanatoria, or other institutions.	Without assistants.	£750
	With 1 assistant	£900
	2	£950
	3	£1,000
	4	£1,050
	5-6	£1,100
	and for every completed two or less.	an additional £50
DEFINITION.—These are medical officers who are in charge of departments, and are directly responsible to the medical officer of health or otherwise.		

DEPUTY OR ASSISTANT MEDICAL OFFICERS OF HEALTH.		A salary equal to 60 per cent. of the salary of the M.O.H., but not less than the salary of next grade of medical officer in the department.
DEFINITION.—A deputy or assistant medical officer of health is a medical officer duly appointed as deputy or assistant medical officer of health by the local authority to assist the medical officer of health in the general administration of the health department and the carrying out of the various Acts, bye-laws, orders, rules, regulations, &c., required to be or usually administered by the medical officer of health; the title deputy or assistant medical officer of health to be limited to medical officers carrying out these general duties.		

MEDICAL OFFICERS OF HEALTH.	Population.	
	Under 35,000	£800
	" 50,000	£900
	" 75,000	£1,000
	" 100,000	£1,100
	" 150,000	£1,200
	" 200,000	£1,300
	" 300,000	£1,400
	" 400,000	£1,500
	" 500,000	£1,600
	" 600,000	£1,700
	Over 600,000	£1,800

* (A) ANNUAL INCREMENTS should be at the rate of 5 per cent. per annum rising to 40 per cent. above the minimum basic rates.

* (B) BONUS. The current Civil Service cost of living bonus should be applied to the foregoing scales.

(C) These salaries are nett, any expenses necessitated by the duties being provided in addition.

(D) Population means population at the latest Annual Report of the Registrar-General.

(E) No existing officer should be prejudicially affected by the operation of the scale.

NOTE:—BONUS.—The current Civil Service cost of living bonus varies according to the cost of living index figure published by the Ministry of Labour. This figure was 78 in December, 1922. Assuming a cost of living index figure of 70 the bonuses on the salaries in the schedule is as follows:

Salary.	Bonus.	Salary.	Bonus.
£350	£135	£1,200	£205
£600	£176	£1,300	£201
£750	£197	£1,400	£195
£800	£196	£1,500	£186
£900	£201	£1,600	£175
£1,000	£205	£1,700	£185
£1,100	£206	£1,800	£195

2. The foregoing schedule of salaries had been previously approved by a Joint Conference of Representatives of the British Medical Association and the Society of Medical Officers of Health. It now requires the endorsement of the Annual Representative Meeting of the British Medical Association to be held at Portsmouth in July, 1923.

3. To secure the passage of the scale through the Annual Representative Meeting every member of the Society is asked to lend a hand in one or other or all of the following ways:—

- By joining the British Medical Association;
- By attending regularly the meetings of the Local Division of the British Medical Association upon all occasions;
- By attending specially the meeting of the Local Division of the British Medical Association which will instruct its representative how to vote at Portsmouth;
- By presenting the case for the schedule of salaries at the meetings of the Local Division of the British Medical Association;
- By promoting good relations upon all occasions and in every way with Local Divisions of the British Medical Association.

4. In order that members may have full data for the presentation of the case for the Schedule of Salaries above given the following facts are placed before them to be used as they deem desirable.

5. The Memorandum of the Local Government Board dated 1910, dealing with the appointments of medical officers of health states that "..... The salary offered to the medical officer of health who devotes his whole time to public health work should in the Board's view be sufficient to attract men with good qualifications and to retain their services. The medical officer of health should not be placed in a position of inferiority in this respect to other medical men in the district..... It is not sufficient that a medical man is found to accept the salary offered, it is more important that the salary should be such that it will be worth the while of a capable man to accept it....." The first Annual Report of the Ministry of Health, dated 1920, dealing with the general subject of health officers states that "..... Public health work has become more and more a distinct branch of the medical profession calling for specialised training and experience....."

6. The training and prospects of a medical officer in the Public Health Service are important considerations relative to remuneration.

7. Every medical man entering the Public Health Service is a potential medical officer of health, senior medical officer in charge of a department, or medical superintendent, and accordingly qualifies himself to hold one or other of these positions. Only a minority of the entrants, however, reach these posts, because the number of medical officers in the employ of health authorities is much greater than the number in the senior posts indicated.

8. After obtaining the full medical and surgical qualifications necessary for practice, the medical man who proposes to enter the Public Health Service obtains an additional qualification in public health, involving at least nine months' further attendance at classes and study after he has become a doctor. [After January, 1924, this period is to become two years under the new Regulations of the General Medical Council.] For a further period he generally holds House Appointments or Assistantships, which are necessary to equip him for his future career. He commonly then enters the Public Health Service, having reached 24 to 30 years of age, as a resident medical officer in some hospital or sanatorium of a local authority.

9. After a longer or shorter period in one or other of the hospitals or sanatoria of an authority the aspiring medical officer is appointed as a Medical Officer in the Health Department and may be attached to the School Medical Service, Maternity and Child Welfare, or the like. In this position he is employed in the work of detection of disease in its early stages, and treatment. This is work of a difficult and responsible character, where the medical officer in question has the full responsibility of a doctor to his patient. The commencing age in these appointments usually varies from 28 to 35 years.

10. In a few cases medical officers employed in departments are promoted as senior medical officers in charge of departments or assistant medical officers of health. Such posts are available mainly in only large health departments, and relatively few men attain them. Candidates are selected on account of clinical and administrative ability, and hold positions of much responsibility. The commencing age in these appointments usually varies from 32 to 38 years.

11. The medical officer of health as a rule is chosen from senior medical officers or assistant medical officers of health and generally has distinguished himself as a clinician and medical

administrator in the course of his career. The difficulty of his work and the nature of his responsibilities are indicated below. The commencing age for a medical officer of health nowadays is about 40 years, and in the future is not likely to be less.

12. It is desirable to emphasize that only a small number of medical men will proceed to senior appointments, and a still smaller number to the position of medical officer of health. It is, therefore, necessary, in order that satisfactory and contented medical public health services may be secured, that the medical officers employed in departments, who represent the bulk of the medical men employed by the authority, should receive remuneration which is not less than that of their professional brethren generally, and at the same time is commensurate with the qualifications they have gained, the training and experience through which they have gone, and the services demanded of them by the public.

13. Grave dissatisfaction exists within the ranks of the Public Health Medical Services of Local Health Authorities for the following reasons:—

- (a) The remuneration accorded to whole-time medical men employed by local health authorities has always been poor, having regard to the average earnings of the medical profession, the additional public health qualification or other special training required, the responsibilities involved and the specialised nature of the work;
- (b) No adequate increase in remuneration has been given commensurate with the recent rapid and important changes in the character of the Public Health Medical Services, which require medical officers of special training and experience in various departments of medicine; and
- (c) No adequate increase has been accorded to meet the increased cost of living.

14. No other professional man is required to undergo so long and so expensive a course of training as a medical officer. After obtaining their degrees and diplomas medical officers of local authorities have to acquire experience in medical or surgical or public health practice either without remuneration or with remuneration only sufficient for mere living purposes before they are regarded as suitable candidates for even junior medical appointments in the Health Services of Local Authorities.

15. The work of a Health Department is not less in volume and importance than that of any other department of a local authority. The

Public Health work of the country has recently undergone great development and now comprises the following:—

I. ENVIRONMENTAL HYGIENE.

- A. Nuisances abatement;
- B. Housing inspection;
- C. Inspection and supervision of common lodging houses, houses let in lodgings, slaughter houses, offensive trades, canal boats, tents, vans, sheds and other moveable dwellings, cow sheds, milk shops and dairies;
- D. Health conditions in factories, workshops and work-places, and general industrial hygiene;
- E. Supervision of drainage work;
- F. Rivers pollution;
- G. Water supply;
- H. The inspection and supervision of food and drugs;
- I. Port sanitary administration at sea port towns; and
- J. Other conditions which have a direct bearing on the health of the people.

II. PERSONAL HYGIENE.

- A. Infectious Diseases, including:—
 - (1) Administrative control;
 - (2) The provision of hospital accommodation; and
 - (3) Treatment.
- B. Maternity and Child Welfare Work, including:—
 - (1) Home visitation of mothers and children under 5 years by health visitors.
 - (2) Ante-natal clinics for the care of the expectant mother.
 - (3) Clinics for the care of the nursing mother.
 - (4) Infant welfare clinics for the care of children under 5 years.
 - (5) Dental clinics for mothers and children.
 - (6) Provision for confinements at home, including the supply of a midwife and home help.
 - (7) The provision of hospital accommodation for and the treatment of
 - (a) Complications in the expectant mother.
 - (b) Normal confinement cases.
 - (c) Abnormal confinement cases.
 - (d) Complications arising after parturition, and
 - (e) Diseases of children under 5 years.
 - (8) Schools for mothers.
 - (9) The provision of milk and meals for necessitous mothers and children.

C. Medical work in connection with School Children, including:—

- (1) Medical inspection.

(2) Medical treatment involving the following:

- (a) Minor ailments clinics.
- (b) Throat, nose and ear clinics.
- (c) Ringworm clinics.
- (d) Eye clinics.
- (e) Skin clinics.
- (f) Dental clinics.

(3) The care of the abnormal child, *i.e.*, the blind, the deaf, the mentally and physically defective.

(4) Open air schools.

D. Tuberculosis work, including:—

- Domiciliary supervision.
- Dispensary treatment.
- Sanatorium treatment.
- Hospital treatment.
- Colony care.

E. Venereal Diseases work, including:—

Treatment at clinics, and general organisation of preventive measures.

F. Mental Deficiency work, including:—

- (a) The provision of mentally defective day and residential schools for the educable.
- (b) Homes or institutions for ineducable mentally defectives, idiots and imbeciles, and
- (c) Epileptic colonies.

G. Home Nursing.

H. The Administration of the Blind Persons Act, 1921.

III. VITAL STATISTICS.

Duties in relation to vital statistics include periodical reviews and intensive study of the vital statistics of the area, with the object of eliciting the causes of death and the conditions affecting the birth-rate, death-rate, sickness-rate and health generally.

16. The staff employed in connection with the work of a Health Department is a highly specialised one, and includes Medical Officers, Dental Officers, Veterinary Officers, Sanitary Inspectors, and Health Visitors and Nurses, with, in addition, non-professional workers.

17. The Medical Officer of Health is responsible for the conduct of the work and the control of the staff of the Health Department, and his responsibilities increase with the population of the area for which he acts.

18. Parliament is continually throwing upon Local Authorities new work, either in preventive or curative medicine, requiring the services of medical men with a wide knowledge of their profession. For the development of these new services for the improvement of the Public Health it is necessary to obtain medical men with good professional and personal qualifications and to give appropriate remuneration.

Class or Rank. Pay.	PUBLIC HEALTH MEDICAL SERVICE. (Salaries required in foregoing Schedule.)	ROYAL NAVAL MEDICAL SERVICE.	ARMY MEDICAL SERVICE.	INDIAN MEDICAL SERVICE.
Class of Pay.	Resident Medical Officers. Minimum Commencing Salary, *£350. With Annual Increments, *£350-£490. Index Figure taken as 70, *£485-£659. * With Board, Lodging and Wasting.	Surgeon-Lieutenant. £438-£529. (Pay fixed—May hold Specialist appointment with additional remuneration.)	Lieutenant. £606. (Pay fixed—May hold Specialist appointment with additional remuneration.)	Lieutenant. £488. (Pay fixed—Rupce taken as 1/3—May take private practice or obtain Specialist appointment with additional remuneration.)
Class of Pay.	Medical Officers employed in Departments. Minimum Commencing Salary, £600. With Annual Increments, £600-£840. Index Figure taken as 70, £778-£1,043.	Surgeon-Lieutenant-Commander to Surgeon-Commander. £638-£1,040. (Pay fixed—May hold Specialist appointment with additional remuneration.) Surg.-Lt.-Commander. 45 years. £450.	Captain to Major. £751-£988. (Pay fixed—May hold Specialist appointment with additional remuneration.) About 50 years. (After 25 years' service.) £450.	Captain to Major. £600-£1,125. (Pay fixed—Rupce taken as 1/3—May take private practice or obtain Specialist appointment with additional remuneration.) About 42-45 years. (After 17 years' service.) £400.
Age at Retirement. Maximum Retired Pay.	Old age. None.	By selection.	By selection.	By selection beyond Lieutenant-Colonel to Colonel and Major-General.
Class or Rank. Pay.	Senior Medical Officers in charge of Departments. Minimum Commencing Salary, £750. With Annual Increments, £750-£1,050. Index Figure taken as 70, £947-£1,263. Note.—The salaries of these officers are graded according to the number of assistants.	Surgeon-Captain on Promotion. £1,186. (Pay fixed.)	Lieutenant-Colonel. £1,171-£1,262. (Pay fixed.)	Lieutenant-Colonel. £1,312-£1,575. (Pay fixed—Rupce taken as 1/3—May take private practice or obtain Specialist appointment with additional remuneration.)
Age at Retirement. Maximum Retired Pay.	Old age. None.	55 years. Vide below.	55 years. £600.	About 52-55 years. (After 27 years' service.) £800.
Class or Rank. Pay.	Medical Officers of Health. Minimum Commencing Salary, £800. With Annual Increments, £800-£1,120. Index Figure taken as 70, £996-£1,320. Note.—The salaries of these officers are graded according to the appointment held.	Senior Surgeon-Captain. £1,460. (Pay fixed.)	Colonel to Major-General. £1,488. (Pay fixed.)	Colonel to Major-General. £1,650. (Pay fixed—Rupce taken as 1/3.)
Age at Retirement. Maximum Retired Pay.	Old age. None.	55 years. £900.	57 years. £800.	60 years. £800* plus additional allowances depending on rank and service.

19. Existing salaries for whole-time medical officers are based on a minimum which was fixed at a time when the responsibilities of medical officers of Local Authorities were confined to Environmental Hygiene, Infectious Diseases and Vital Statistics.

20. The remuneration of Medical Officers has to be considered in relation to that of other officers of Local Authorities. The Standing Joint Consultative Committee of the National Association of Local Government Officers has adopted the following scales:—

Population.	Medical Officers of Health.	Engineers and Surveyors.	Financial Officers.	Directors and Secretaries for Education.
Under 35,000	—	£700	£500	—
50,000	£1,000	£800	£600	£600
100,000	£1,100	£1,000	£700	£800
150,000	£1,200	£1,100	£750	—
200,000	£1,300	£1,200	£800	£1,000
300,000	£1,400	£1,400	£900	£1,200
400,000	£1,500	£1,600	£1,000	£1,400
500,000	£1,600	£1,800	£1,100	—
600,000	£1,700	£2,000	£1,200	£1,600
Over 600,000	£1,800	—	£1,500	£1,800-£2,000

Increments.—To be at the rate of 5 per cent. per annum, rising to 40 per cent. above the minimum basic rates.

Bonus.—The current Civil Service Cost of Living Bonus to be applied to all Scales.

21. The remuneration of Medical Officers of the Local Government Service has to be considered also in relation to the remuneration of Medical Officers in the Royal Naval, Army and Indian Medical Services. This is set out in the table on opposite page..

22. The remuneration of Medical Officers of Local Authorities has also to be considered in the light of the earnings of General Practitioners. The report of the proceedings of the Panel arbitration relating to the rate of medical remuneration which appears in the supplement to the "British Medical Journal," dated March 30th, 1920, gives certain information as to the rate of remuneration of Panel practitioners which seems to have met with general acceptance. The British Medical Association claimed that £1,800 a year was the gross income at present-day values (November, 1919, cost of living figure, 125) which an efficient medical practitioner expected to earn in middle age when working his ordinary full time. The Association also claimed that the expenses of

practice amounted on the average to 25 per cent. of the gross income, thus giving a net income of £1,350 per annum to an efficient medical practitioner working full time.

In the course of the proceedings it was stated on behalf of the Government that the pre-war fee of 7s. 3d. for Panel remuneration produced a whole-time rate of remuneration of about £1,000 a year, and the Government representatives suggested that a capitation fee of 10s. would produce a whole-time income of £1,300 a year net. The rate of Panel remuneration was (January, 1922, cost of living figure 92) fixed for two years at 9s. 6d. per insured person per annum—equivalent on the foregoing figures to a net income of over £1,200 per annum for an efficient medical practitioner working full time.

The rate of pay for part-time medical practitioners working at Maternity and Child Welfare Centres is fixed by the British Medical Association at £1 11s. 6d. per session of not more than two hours. This is equivalent to £1,264 per annum for whole-time work—a year being taken to mean 46 weeks of 36 hours per week.

23. Medical Officers of Local Authorities are in many instances specialists, and it is well known that the earnings of specialists far exceed those of general practitioners.

T. EUSTACE HILL,
President of the Society of
Medical Officers of Health.

GEORGE F. BUCHAN,
Chairman, Salaries Committee.

G. S. ELLISTON,
1st February, 1923. Executive Secretary.

THE METROPOLITAN BRANCH.

Meeting on December 1st, forty members of the branch took advantage of the invitation of the President (Dr. W. H. Hamer, Medical Officer of Health and School Medical Officer, London County Council) to take tea at the new County Hall, on the 1st December, 1922, and afterwards, by kind permission of the Clerk to the London County Council, made a tour of the building and inspected the heating and ventilating arrangements in operation. Mr. T. Moodie, M.I.Mech.E., of the Heating Section, Architect's Department, London County Council, read a short interesting paper on the subject, and, with the President, conducted the party round and ably demonstrated the machinery and apparatus at all points of the systems. A cordial vote of thanks was unanimously accorded to Dr. Hamer for arranging a meeting of such unique interest.

METROPOLITAN BRANCH.

A meeting of this Branch was held at the Society's house in London, on Friday, 12th January, 1923, the President (Sir William H. Hamer) occupying the chair.

Consideration of the Report of the Special Committee on London Government was adjourned till the next meeting, copies of the report to be circulated in the meantime to the members.

The Branch agreed with the Council of the Society that all possible facilities should be given by medical officers of health to their assistant colleagues for attendance at Branch or Group meetings at which matters of interest to them were down for discussion.

In regard to the suggestion of the Council that each branch should arrange for the Society's Scale of Salaries to be brought to the early notice of every B.M.A. Division in the area covered by the Branch, it was decided to communicate on the matter, through the local medical officer of health, with the Chairmen and Secretaries of the various divisions of the B.M.A. in the Metropolitan area.

The Hon. Secretary (Dr. Charles Porter) was appointed representative of the Branch on the Council of the Group of Medical Officers of Fever Hospitals.

It was agreed that it was unnecessary for the Branch to take action on a reference from the Metropolitan Tuberculosis Sub-Group, respecting the Scheme for Treatment of Tuberculosis in London (Revised 1922), with particular reference to salaries and the constitution of care committees, having regard to the fact that a conference with the London County Council to deal with these and other matters was to be held shortly.

The Branch expressed approval with a suggestion that tuberculosis officers might, if requested to do so, act as visiting physicians for treatment purposes on the staff of the poor law infirmaries.

In order to prevent overlapping, it was agreed that wherever possible the Society should be made aware of an intention to hold a conference in any borough, particularly meetings convened for propaganda purposes in specific "weeks" when it is desired to make a feature of any matter relating to health. Any action taken in this direction, it was considered, would be more effective if first brought to the notice of the Society and, if possible, carried through under its auspices.

"Diphtheria, with special reference to the Schick Test and Active Immunisation," formed the title of an interesting paper read before the Branch by Dr. O'Brien, of the Wellcome Physiological Research Laboratories, who also showed a

number of patients in connection therewith. Many of the members present took part in the discussion that followed, and Dr. O'Brien received a cordial vote of thanks for his paper.

It was unanimously agreed that arrangements be made for the presentation to the Society of a portrait of Dr. W. J. Howarth, Medical Officer of Health, City of London, who was President of the parent Society during the session 1921-1922.

NORTHERN BRANCH.

Meeting held in the Medical Institute, Newcastle-upon-Tyne, December 1st, 1922.

Present: Dr. T. Eustace Hill (Vice-President) and 21 members.

The minutes of the last meeting (October 13th, 1922) having appeared in the November issue of "Public Health," they were taken as read, and signed by the Chairman.

The President's Address upon Section 28 of the Housing, Town Planning, Etc., Act, 1919, was read by the Hon. Secretary. Dr. Hill moved a hearty vote of thanks to Dr. Horne for his address, and this was carried with acclamation.

Dr. Hislop moved that the Northern Branch nominate Dr. T. W. N. Barlow as President of the Society of Medical Officers of Health for the year 1923-24. Dr. Steedman seconded the motion, which was agreed to without dissent.

On the conclusion of the business the members adjourned to the dining-room where the annual dinner was held. Dr. J. A. Hislop, an ex-President of the Branch, presided, supported by the President of the Society (Dr. T. Eustace Hill) and the Executive Secretary (Captain G. S. Elliston).

The 29 diners present included as guests Dr. James Don, Secretary of the North-Eastern Branch of the British Medical Association, and a Member of Council of the Association; Dr. T. L. Bunting, Secretary of the Newcastle-upon-Tyne Panel Committee, and a representative at the Panel Conference in London; and Mr. D. Mackie, L.D.S., etc., ex-President of the North of England Odontological Society.

After the proposal of the loyal toast by the Chairman, the tradition of "no speeches" was broken owing to the exceptional circumstances of the occasion, and the Toast of the Society, coupled with the names of the President and the Executive Secretary, was proposed in a graceful and dignified speech by the Chairman, and accorded musical honours.

The toast was replied to by Dr. Hill, who emphasised the importance to the members of the efforts of the Council of the Society and the extensive nature of these, a theme Captain Elliston continued in greater detail in a long and most informative speech, which was listened to with closest attention, and followed by numerous questions.

The presence of the President of the Society, who was also ex-President of the Branch, and the visit of the Executive Secretary were not only highly appreciated by the members, but were of very solid value to the Branch in establishing a closer feeling of intimacy with the central body and with the B.M.A. and other organisations.

After dinner, which was concluded early for the convenience of those coming from a distance, the other amenities of the Institute were enjoyed, the billiard-room, cardroom, and lounge being fully occupied for the rest of the evening.

Meeting held in the Medical Institute, Newcastle-upon-Tyne, January 12th, 1923.

Present: Dr. Thomas Horne (President) and 26 members.

The minutes of the meeting held on the December 1st, 1922, were approved of and signed by the Chairman.

The Hon. Secretary read a letter from the Executive Secretary dated December 21st, 1922, regarding the refusal of a Medical Officer of Health to grant permission to one of his assistants to attend a Group meeting. It was held that no action was required by the Northern Branch.

The Honorary Secretary said that he had received a letter from Dr. T. W. N. Barlow thanking the members of the Northern Branch for nominating him for the Presidency of the Society for 1923-1924.

Dr. Kerr reported that a communication had been received from the Executive Secretary as to the report of a special committee on London Government, and it was decided to refer the matter to the Council for any action it may consider necessary.

Dr. Kerr referred to a circular letter from the Executive Secretary regarding a special committee which had been appointed to inquire into the danger to health resulting from the use of gas appliances for heating purposes where no

proper provision is made for dealing with the by-products of combustion.

The Honorary Secretary said he would be pleased to supply any of the members with fuller particulars on application.

A letter from the Executive Secretary was read referring to the negotiations with the B.M.A., and asking for early information as to the action to be taken by the Branch within its area.

The Honorary Secretary summarised the position at the moment, explaining the main points of the Report recently adopted by the Council of the B.M.A., and emphasised the importance of every member of the Branch doing his or her utmost to assist in securing acceptance of that report by the local Divisions of the B.M.A. when considered by them.

He paid high tribute to the valuable support and assistance rendered to the cause of the Public Health Service by one of the members of the Branch—Dr. R. A. Bolam—as Chairman of the B.M.A. Council, a tribute that was heartily endorsed by the meeting. In outlining the general scheme he referred to the census just completed of the members of the Public Health Service within the area of the Branch, and reported that of 207 of all grades 128 or 62 per cent. were members of the Society, and 149 or 72 per cent. were members of the B.M.A., figures that while good were capable of substantial improvement.

The suggestions put forward were that there should be:—

- (1) An active endeavour to bring all Public Health Medical Officers within both the Society and the B.M.A., thereby ensuring consolidation of mutual interests.
- (2) That members of the Society should make it a point of honour to be regular and active members of their B.M.A. Divisions, as the procedure most likely to lead to the breakdown of any aloofness that may still exist between public health and other sections of the profession.
- (3) That all members be informed of the principal officers and representatives of their B.M.A. Divisions in order that they may be influenced if opportunity offers or can be created, and that this be done immediately since the report may come before the Divisions at a very early date, and that an amended list be sent out after the next election of representatives, a month or two hence, in anticipation of the matter

coming before the B.M.A. Annual Representative Meeting in July, 1923.

After some discussion several questions were raised regarding the scale of salaries, Dr. A. T. Paterson (Durham County Council) suggested that the Society should require a written pledge from its members not to accept any appointment not approved of by the B.M.A. and the Society. The suggestion was not put to the meeting, but the Hon. Secretary undertook to forward it to the Executive Secretary.

No general resolutions were adopted, but general appreciation was expressed of the recommendations.

NORTH-WESTERN BRANCH.

Meeting held in Manchester on Friday, January 12th, 1923.

Present: Dr. Rees Jones (in the chair) and 15 members.

Nominations for the Presidency were considered, and it was unanimously resolved "that the N.W. Branch nominate Dr. T. W. N. Barlow, O.B.E., Wallasey, as President of the Society for the Session 1923-24."

A short paper on "The growth of Algae on Storage Reservoirs" was read by Dr. Adams, Medical Superintendent, Delamere Sanatorium, who detailed some experimental work he had carried out in collaboration with Sir Alexander Houston. A useful discussion ensued which was joined in by the President, Drs. Sharpe, Burton, Whitehead and the Hon. Secretary, and a hearty vote of thanks was accorded Dr. Adams on the proposition of Dr. Clay Beckitt, seconded by Dr. Beggs. The members then considered the steps to be taken to ensure that every Division of the B.M.A. in the N.W. area should be supplied with full information of the details of the scale of remuneration for medical officers recently adopted.

YORKSHIRE BRANCH.

A meeting of the Branch was held in the Education Offices, Leeds, on Friday, 24th November, at 2.30 p.m.

Present: Dr. Buck (President) and 15 members.

The draft agreement between the Society and the British Medical Association on the subject of minimum terms of service was discussed.

Dr. Cecil Williams brought to the notice of the Branch the delay which he alleged had taken place on the part of the Central Branch in dealing with the proposed action of his authority towards a reduction of his salary.

The Hon. Sec. was instructed to write the Executive Secretary, pointing this out and asking that in future such matters should be dealt with promptly.

Dr. Holden, M.O.H. of Dewsbury, then read a most illuminating paper on Cancer. He dealt fully with the various theories as to the causation of the disease, and outlined the steps which he thought might be adopted to secure early treatment. The paper was afterwards discussed by the President, Drs. Jennings, Scattertey, Lawrence, Moore, and Pearce.

The Secretary announced that the next meeting of the Branch would be held on the last Friday in January, when arrangements would be made for a discussion on the new Milk and Dairies Bill which came into force on the 1st September last.

MIDLAND BRANCH.

Meeting held at the Council House, Birmingham, on Thursday, November 2nd, 1922.

Present: The President (Dr. Gibbons Ward) and 22 members.

The minutes of the previous meeting were read, confirmed and signed.

The Hon. Secretary reported the results of the circular letter which he had been instructed to send to the Medical Officers of Health and School Medical Officers in the Midland Area asking if there were any difficulties in arranging for their assistants to attend the Branch Meetings on Thursday afternoons. He announced that replies had only been received from 15 of the 29 members written to. Eight Medical Officers stated that the necessary arrangements could be made, four replied that Thursday was unsuitable, and three said that their assistants would be at liberty to attend on alternate months.

An extremely interesting paper was read by Dr. W. H. Davison on the Housing Problem in Urban Areas.

Dr. Hamilton Wood followed with a brief but comprehensive summary of the powers and duties of a County Council under the Housing and Small Holdings Acts.

The Hon. Secretary then read some notes he had made on one or two points in connection with the subject, and the discussion was continued by the President and Drs. John Robertson, Clendinnen and Stocks.

Meeting held in the Council House, Birmingham, Thursday, December 7th, 1922:

Present: Dr. Gibbons Ward (President) and 18 members.

The minutes of the previous meeting were read, confirmed, and signed.

In the absence of Dr. Bailey, the Hon. Secretary presented the report of the Hon. Treasurer for the past year, which was received and adopted.

A letter was read from the Executive Secretary enclosing a report by a Special Committee of the Society on London Government, and stating that the Council would be glad to have the observations of the Branch thereon.

Resolved that the same be referred to the Council of the Midland Branch for consideration and report.

The President then called upon Dr. A. G. Wilkins for his paper, "The Compleat School Medical Officer." Many valuable suggestions were contained in this interesting paper, which was afterwards discussed by the President and Doctors Auden, Jolly, Bracey, Badger, and Davison. A unanimous vote of thanks was passed to the reader of the paper.

SCHOOL MEDICAL GROUP.

The seventeenth meeting of the School Medical Group was held at the Society's Offices, Russell Square, London, on Saturday, 18th November, 1922, Professor H. R. Kenwood, C.M.G., in the chair. The minutes of the last meeting were read, approved and signed. Correspondence was read. Fifteen members and eleven non-members, mostly medical officers to the London C.C., were present.

Professor Kenwood then inducted Dr. C. J. Thomas, Chief Assistant Medical Officer, London C.C., as President of the Group. He reminded the meeting of his constant interest in the School Medical Service, and it was during his presidency of the Society that the constitution was changed in order to give this and the newer groups official recognition and power to send a representative to the Council of the Society. He also spoke of the many years' association with Dr. Thomas as a teaching colleague in School Hygiene, which enabled him to speak highly of the President's unique knowledge of school hygiene.

Dr. Thomas from the presidential chair then thanked the Group for the honour of inviting him to become President, and Professor Kenwood for the flattering remarks. On behalf of the Group, the President gratefully acknowledged the recent useful presentation of Professor Kenwood of a splendid notice board, now hanging in the entrance hall to the Society's premises, with sections for the use by the respective groups, including the School Medical Group. The President then delivered his address on "Methods and Results,"

which was listened to with the greatest interest by all present. It reflected the various opinions held as to the value of school hygiene in the prevention of disease and improving the physique of the nation. He pointed out the necessity of medical inspection departments working in harmony with the education departments. He deprecated the lack of appreciation by the community of our work, thus keeping the status, and salary, too, low in comparison to the status and income of the average general practitioner.

A vote of thanks to the President for the interesting and learned address was proposed by Dr. Askins, of Bristol, and seconded by Dr. Hamer, L.C.C., and was unanimously passed by acclamation.

The formation of a joint Home Counties and Metropolitan School Medical Sub-Group was considered. The Hon. Secretary informed the meeting that the respective branches would welcome and help such a sub-group. He explained that the group rules give perfect freedom to sub-groups to appoint their own officers and discuss any scientific or business matter relating to the School Medical Service. An account of sub-group meetings, containing any resolutions, is sent to the Group, and if approved becomes the policy of the Group. Dr. Ashkeny then proposed: "That a joint Home Counties and Metropolitan School Medical Sub-Group be formed, and that Dr. W. J. M. Slowan be asked to act as *pro. tem.* hon. secretary, and failing him the Executive Secretary of Society and the Hon. Secretary of the Group select another person to act as *pro. tem.* hon. secretary, to convene a meeting, to constitute such a sub-group, and to elect officers." The President, in seconding the motion, referred to the now happy relations existing between the Metropolitan Branch and the medical staff of the London C.C. The motion, becoming a substantive resolution, was then passed *nem. con.*

Matters arising out of correspondence were considered:—

1. From the Society, requesting the Group to recommend a suitable person to represent the Society on the Central Association for Mental Welfare. It was resolved that Dr. G. A. Auden continue to act as such for another year.

2. From the Home Counties Branch, requesting the Group to accede to its desire for a joint meeting during 1923. It was resolved to accept this offer.

3. From the M.O.H. of a large urban district, desiring the opinion of the Group as to (1) what ailments should actually be treated at school clinics; (2) for what ailments the School Medical Service generally should be responsible for the

treatment of either at school clinics or hospitals or otherwise. A resolution proposed by Dr. Askins, of Bristol, was seconded and passed, that this matter be referred to a Committee appointed by the Group Council.

4. From the Medical Secretary, B.M.A., stating that the Secretaries of the Newcastle-on-Tyne and Worcester Divisions had been instructed to give all assistance to Drs. Pringle and Andrews respectively *re* salary and security of appointments.

Reports from sub-groups were considered:—

1. From Hon. Secretary of the West of England Branch, intimating that on 6th October a meeting unanimously decided to form a School Medical Sub-Group, and requesting the Group's approval. It was resolved to approve the formation of such a Sub-Group subject to the Sub-Group adopting the rules of the Group and the Sub-Group rules being approved by the Group Council.

2. Northern Sub-Group reports a meeting at Newcastle-on-Tyne on 28th September, when Dr. A. T. Paterson, Deputy S.M.O., Durham C.C., read a paper on "Eye-work in connection with School Children." Ten members were present. Dr. J. McConnell was elected Sub-Group President and Dr. R. F. Lunn reappointed Hon. Secretary and Treasurer.

3. North-Western Sub-Group. A meeting was held on the 11th November. The following officers were elected: Chairman, Dr. F. T. H. Wood, O.B.E., M.O.H., Bootle; Hon. Secretary and Treasurer, Dr. G. G. Wray, S.M.S., Lancs. C.C.

A resolution was passed "That the President and Hon. Secretary select suitable representatives to Group Council from non-sub-group areas to make up the required number of members on Group Council."

INFANT WELFARE—POST-GRADUATE COURSE OF LECTURES.

A course of Twelve Lectures on the Management and Feeding of Infants and Young Children will be given by Dr. Eric Pritchard, on Wednesdays and Fridays, at 6 o'clock, commencing on Wednesday, February 8th, at St. Marylebone General Dispensary, 77, Wellback Street, Cavendish Square, London, W.1.

NATIONAL BABY WEEK COUNCIL.

The "Daily Express" prize of one hundred guineas offered in July last to the writer of the best essay on the Problem of Male Infant Mortality has been awarded to Dr. F. E. Wynne, M.O.H. for Sheffield. The essay is appearing in the February issue of "National Health."

WEST AFRICAN MEDICAL SERVICES.

With a view to securing greater uniformity in the designations of medical and sanitary officers throughout the West African Colonies, it is proposed to change the titles of principal medical officer, senior sanitary officer, and junior sanitary officer to director of medical and sanitary services, deputy director, sanitary service, and senior sanitary officer respectively.

MESSRS. R. SUMNER & CO., LTD., are anxious to secure the consideration of School Medical Officers and others for the Vitamine Malt of which an advertisement appears on p. iv. Vitamine Malt contains a cod liver oil obtained from the Lofoten district in Norway, where it is prepared under conditions yielding the highest percentage of fat-soluble-vitamine-A; of this oil vitamine malt contains 15 per cent. A malt obtained from British-grown barley was selected, and an extract prepared from this *in vacuo* at a temperature below 55° C., thus ensuring the full diastatic power of the malt, on which its digestive property is dependent. This malt contains over 50 per cent. of pure malt sugar, and, therefore, together with the cod liver oil, is highly nutritious. The malt contains some water-soluble-vitamine-B, but not sufficient, therefore it is reinforced to the full extent with this vitamine and also with water-soluble-vitamine-C, so that it is claimed that Vitamine Malt contains the highest possible content of these three vitamins. In view of the instability of vitamins, especially the antiscorbutic factor, the greatest care has been taken to present them in vitamine malt in a stable form. Incidentally, the addition of vitamine products selected, far from rendering the preparation nauseous, has so improved the taste that it is much more acceptable to children and to invalids than ordinary cod liver oil and malt.

MANLOVE ALLIOTTS' STEAM DISINFECTOR for using High Pressure Dry Saturated Steam. In good order. Chamber 8-ft. by 5-ft. 5-ins. by 3-ft. Opens each end. Reasonable price accepted or will exchange for Smaller Size Sterilizer.—Cuxson, Gerrard & Co., Ltd., Oldbury.

STANNINGTON (NORTHUMBERLAND) CHILDREN'S SANATORIUM.

250 beds. Vacancies for cases of medical and surgical tuberculosis. Boys 2 to 15 years; girls 2 to 16 years. The Institution is fitted with X-ray and electro therapeutic department, operating theatre, plaster room, etc. There is an open-air school attached, and it is within easy reach of the railway in one of the healthiest parts of Northumberland. Resident Medical Officer, and staff of Visiting Physicians and Surgeons.

For further particulars and terms apply to Mr. John H. Watson, Hon. General Secretary, 140, Sidney Grove, Newcastle-on-Tyne.

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Editorial.

THE TEACHING OF VACCINATION.

One of the least satisfactory features of the existing medical curriculum in the schools is the teaching of vaccination. This opinion, which is now prevalent among the medical schools, is supported by many examiners who report that men presenting themselves for the final examination are usually lamentably ignorant of the principles and practice of the subject. In practically all other subjects the medical school is free to strengthen any weak places in its teaching arrangements, but, curiously enough, in this particular branch, which more than any other needs strengthening, the medical school is subject to an astonishing restriction of powers. In 1908 the Local Government Board issued a general Order under the Vaccination Acts providing that a certificate of proficiency in the practice of vaccination shall be signed by a teacher of that subject who has been authorised by the Ministry of Health, and there seems some reason to believe that the Ministry is inclined to limit its authorisation to persons who are public vaccinators.

There are substantial reasons against the limitation of the teaching of vaccination to individuals who are also public vaccinators. As a general rule, such a procedure means that the student is compelled to receive instruction in this subject away from his medical school, thereby wasting a considerable amount of time. The teachers, moreover, in such circumstances, are almost invariably men who have had little or no experience in teaching. Such instructors of vaccination are not connected with the teaching staff of the medical college and the teaching, therefore, forms no real part of the general curriculum. If the teacher proves to be unsatisfactory, the college has no power to improve it.

As a result of these handicaps the students develop very little real interest in the subject which

they, for the most part, regard as one only for "signing-up" purposes, so that a large number of students become qualified in almost entire ignorance of this part of their work.

Originally vaccination stood alone as an example of active immunisation, and was, therefore, quite properly provided separately. Now, however, vaccination against smallpox is merely one instance of the much larger subject of active immunisation, and it should logically be dealt with in connection with the instruction in that subject.

The unsatisfactory training of the average medical man in this important branch of preventive medicine is particularly unfortunate, because it happens to be a subject in which a large proportion of the public is interested, and to which a considerable part is opposed. This opposition, moreover, is actively and efficiently organised, and the strength of such opposition at the present time is probably due, to some extent, to the unfortunate lack of adequate instruction received by the average medical practitioner.

MILK CIRCULAR 325.

Seldom, if ever, has a circular issued by a Government Department been received with such universal condemnation at the hands of local authorities as has been accorded to the notorious Circular 325, issued by the Ministry of Health in July last. All kinds of local authorities have condemned the document and have called upon the Ministry to withdraw it. Perhaps the most scathing of all the hostile criticisms that have been made is that which has just been issued by the County Councils Association, which is as follows:

"The circular is highly objectionable. Apart from its unjustifiable assumption of an improper exercise of discretion by the local authorities, it is not an accurate statement of facts, inasmuch as conditions of a temporary character, though capable of causing variation in the quality of milk given by an individual cow, are not likely to have a similar effect in the case of mixed milk from a herd of cows. Furthermore, such a pronouncement by a responsible Government Department as is constituted by this circular may probably be interpreted by Justices (and with adequate excuse) as practically equivalent to the conferment of a right upon vendors of milk to be immune from conviction in the absence of a preliminary series of tests."

The Sub-Committee, in their report to the County Councils Association, expressed the

opinion that the circular is uncalled for, and is likely to prove detrimental to the efficient administration of the Sale of Food and Drugs Act. As the result of the report it was resolved "that the Association of Municipal Corporations be invited to co-operate with the County Councils Association in their endeavour to obtain the withdrawal of Circular 325 issued by the Ministry of Health."

THE RESPONSIBILITIES OF LOCAL AUTHORITIES.

Undoubtedly there is at the present time considerable irritation among Local Authorities arising from the tendency of Government Departments to assume direct executive and administrative functions for which they are not suitable, and to regard Local Authorities merely as the agents of a Minister or of a Government Department rather than the local agents of Parliament itself. The difficulty arises in an acute form in connection with the Regulations made under the Milk and Dairies (Amendment) Act, 1922. Under the Act the Ministry of Health (or their agent) is given the duty of licensing producers of graded milk, and the recently issued Regulations appoint County and County Borough Councils as their agents for this purpose.

Commenting upon the Regulations, the report which has just been approved by the County Councils Association says:—"The Sub-Committee desire to reiterate in the strongest possible manner the remarks contained in their first report as to the procedure by which the duty of licensing producers of Grade 'A' milk is sought to be imposed upon County Councils. Modern legislation displays an unfortunate tendency (well exemplified by the Milk and Dairies (Amendment) Act, 1922) to regard Local Authorities merely as the agents of a Minister or of a Government Department, rather than as the agents of Parliament itself. Such legislative methods, if persisted in, are likely to undermine the position and responsibility of local government, and are, therefore, in the opinion of the Sub-Committee, open to grave objection."

Another matter in connection with which the Ministry of Health seem to have failed to recognise the proper position of the Local Authorities is dealt with in the same report. Referring to the terms of the circular letter which accompanies the Regulations, and which the County Councils Association evidently regard as introducing a dangerous degree of interference with the minutiae of local administration, the report says:—

"The circular letter referred to raises an additional point to which the Sub-Committee desire to draw the attention of the Executive Council. It is stated that 'on receipt of an application from a farmer for a license to sell Grade 'A' milk, it will be necessary for the County Council to nominate a Veterinary Surgeon to examine the herd, and until further notice the Minister concurs in the nomination of any person for the time being holding the appointment of Local Veterinary Inspector of the Ministry of Agriculture and Fisheries or the appointment of Veterinary Inspector to a Local Authority under the Diseases of Animals Acts, without reference to the Minister. If in any cases it is considered desirable to nominate a Veterinary Surgeon who does not hold either of these appointments, a special request should be made for the concurrence of the Minister.'

"It appears to the Sub-Committee that, if County Councils are considered capable of supervising the production of Grade 'A' milk, they are a fortiori capable of appointing, without the necessity of consulting the Minister of Health, proper officials for the purpose. The Sub-Committee, therefore consider that strong objection should be taken to the restriction sought to be imposed by the paragraph quoted above."

CONDENSED MILK REGULATIONS.

The Minister of Health is about to make regulations as to the labelling and composition of condensed milk. The principal provisions of the regulations will provide for:—

I. Labelling.

1. Every tin of condensed milk must bear a label specifying its description (e.g., full cream, unsweetened) and stating the equivalent volume of milk (or skimmed milk) contained in the tin.
2. Every tin of condensed skimmed milk must be labelled "Unfit for Babies."
3. The name and address of the manufacturer of the condensed milk must appear on the label.
4. Any instructions as to dilution placed on a tin of condensed milk must be quantitatively accurate.

II. Composition.

Condensed milk must contain not less than the following percentages of milk fat and milk solids:—

	Milk Fat.	All Milk Solids.
Full cream, unsweetened ...	9% ...	31%
Full cream, sweetened ...	9% ...	31%
Skimmed, unsweetened ...	— ...	20%
Skimmed, sweetened ...	— ...	26%

III. General.

The regulations will come into operation on the 1st August, 1923, and will apply to all condensed milk intended for sale for human consumption, whether produced in this country or imported from abroad.

Copies of the draft regulations can be purchased from H.M. Stationery Office, Imperial House, Kingsway, W.C.2, either directly or through any bookseller (price 2d.).

REGISTRAR-GENERAL'S ANNUAL STATISTICAL REVIEW, 1921 (VOL. 1).

The first volume of the Registrar-General's Annual Statistical Review, which will henceforward take the place of the Registrar-General's Annual Report, is now published, price 15s. The changes made in form and arrangement are an outcome of the Census Act, 1920, which expressly required the Registrar-General "from time to time to collect and publish any available statistical information with respect to the number and condition of the population in the interval between one census and another." At the same time, in order to minimize any disadvantages arising from a breach of continuity, it was arranged to defer the introduction of these changes until the decennium beginning with the census year of 1921.

The revision has facilitated a change in form at from folio foolscap to royal octavo, which had been decided upon for the sake of both Parliamentary and public convenience.

Three main considerations have been observed in the course of the revision.

In the first place, an endeavour has been made to re-group the statistical matter according to the distinctive character of its interest. The tables

* Census Act, 1920, Section 5. It shall be the duty of the Registrar-General from time to time to collect and publish any available statistical information with respect to the number and condition of the population in the interval between one census and another, and otherwise to further the supply and provide for the better co-ordination of such information, and the Registrar-General may make arrangements with any Government Department or local authority for the purpose of acquiring any materials or information necessary for the purpose aforesaid.

have thus been divided into (1) medical statistics, and (2) civil statistics.

Secondly, it seemed probable, particularly in view of the increased scale of prices for Government publications now prevailing, that sections of the public would find it of advantage to be able to obtain a part in which they are specially interested instead of being obliged to purchase the whole publication. The Statistical Review will thus be issued in three separate-priced sections, viz., Text; Tables Part I.—Medical; Tables Part II.—Civil. A substantial further advantage accruing from this plan is that each section will be issued as and when it is ready, instead of, as hitherto, the issue of the tables being delayed by the preparation of the text, which cannot, of course, be undertaken until the tables are substantially completed.

Finally, the existing tables have been closely scrutinized with the object, not only of improving their value and instructiveness, but also of eliminating matter which appeared to have outlived its real utility, and of otherwise curtailing the tabulations wherever this seemed practicable without sacrifice of efficiency.

The present volume, representing "Tables, Part I.—Medical" in the first annual issue of the Registrar-General's Statistical Review, thus consists primarily of those tables contained in the old series which have a medical interest, suitably rearranged. It also comprises the annual figures of the Notifications of Infectious Diseases, hitherto separately published, which are now included, following the course already adopted in connection with the Registrar-General's Weekly and Quarterly Returns, by arrangement with the Ministry of Health in pursuance of the Section of the Census Act above cited.

The salient features of the 450 pages of tabular matter contained in this volume are:—

1. The Crude death-rates, 12.1 for persons (13.0 for males and 11.3 for females), per 1,000 living at all ages, are the lowest ever recorded since civil registration was instituted in 1837. Some idea of the progress made in the saving of human life may be gained from comparing the rates prevailing in earlier years. For the decade 1841-50 the death-rate was 22.4, for that from 1871-80 it was 21.4, for the first of this century (1901-10) it was 15.4. Had the deaths in 1921 been at the rate prevailing in the first of these periods they would have numbered nearly 850,000 instead of 458,629.

2. The Standardised death-rate, 11.5, is also the lowest ever recorded in this country. At all age groups up to 65 years the rates are lower than they have ever been before.

3. Of these 458,629 deaths, 53,710 are ascribed to Heart disease, or nearly 12 per cent. of the whole; Cancer was responsible for 46,022, just over 10 per cent.; Tuberculosis (all forms) for 42,678, or 9 per cent.; Pneumonia for 34,700,

or nearly 8 per cent.; and Bronchitis for 33,684, or over 7 per cent. These five causes represent 46 per cent. of the total deaths of the year. The deaths from influenza numbered 8,995 as against 10,665 in 1920, 44,801 in 1919, and 112,329 in 1918.

4. The rate per million living of deaths from tuberculosis (all forms) was 1,127, the lowest in the 11 year table shown, as were the rates for deaths from bronchitis and pneumonia. The cancer rate showed a slight increase and was higher than in any year since 1918; the greater part of the increase being among females.

5. Infant Mortality was 83 per 1,000 births, the lowest rate yet recorded except in 1920, when it fell to 80. This rate of 83 is 25 per 1,000 lower than the average rate of the five pre-war years. It was, as is invariably the case, highest in the North (97) and lowest in the South (71). Among the London Boroughs it ranged from 54 in Stoke Newington to 111 in Shoreditch; among the County Boroughs the maximum rate was 135 in Stoke-on-Trent.

6. If a similar comparison is made with previous records, it shows that the average rate of Infant Mortality was 153 per 1,000 births in the period 1841-50; 149 in that from 1871-1880; 128 in 1901-10; and 100 for the decade which has just closed (1911-1920). Had the deaths under one year been at the rate obtaining 75 years ago, they would have numbered 129,500 instead of 70,250—a saving of nearly 60,000 infant lives.

7. Among the cases of infectious disease notified during the year, Scarlet Fever was most prominent with 137,073; Tuberculosis came next with 74,952 cases, including 59,299 of pulmonary tuberculosis; and Diphtheria third with 66,506 cases.

8. There were 315 cases of Small-pox notified; of these 106 were in Nottingham City, 92 in the Administrative County of the West Riding of Yorkshire, 40 in Middlesbrough, and 16 in the Administrative County of Derbyshire. Only two cases were notified in London.

FEBRUARY "PUBLIC HEALTH."

We have received some protests concerning the late issue of the February "Public Health," and hasten to explain that all Editorial arrangements were complete in ample time for the issue of the Journal on February 1st. The Officers of the Society, however, decided to hold up the issue in order that it might contain the special Memorandum regarding the Scale of Salaries. In this connection our readers may like to know that reprints of the Memorandum are obtainable from the Executive Secretary for all who care to apply.

The following have qualified for the Diploma in Public Health of the University of Liverpool:—Christine C. Abernethy, Esther Ashworth, A. E. I. Connolly, C. E. Freeman and A. Speight.

CONTROL OF INFECTIOUS DISEASE.

BY

DR. R. PATON, M.B., D.P.H., M.O.H.,
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The following notes are intended to summarise the methods of control of infectious disease employed in Glasgow, apart from the part played by Isolation Hospitals. It is conveniently divided into two heads—(1) Housing, and (2) Disinfection; these items are to a great extent interdependent.

Under the heading of Housing, six Acts are employed:—

- (a) The Public Health (Scotland) Act, 1897, Section 16 (Nuisance Clauses);
- (b) Housing, Town Planning, &c., Act, 1919, Section 25;
- (c) Glasgow Corporation (Police) Order Confirmation Act, 1904, Section 9;
- (d) The Glasgow Building Regulations Act, 1900, Sections 31 and 104;
- (e) The Glasgow Police Act, 1866, Section 252; and
- (f) Bye-laws in terms of Glasgow Police (Amendment) Act, 1890, Section 33.

These Acts are all used by the Public Health Department as aids towards cleanliness, and the following notes indicate the reasons why they are of use in controlling infectious disease, in so far as housing is concerned. The closing of insanitary dwelling-houses, under Section 17 of the Housing, Town Planning, &c., Act, 1909, is not considered.

- (a) Section 16 of the Public Health (Scotland) Act, 1897, with special reference to paragraph 2.

Under this paragraph decayed woodwork, causing foul smells about sinks; water-closets in a filthy condition; foul ashpits; and kindred nuisances are all dealt with.

- (b) Under Section 25 of the Housing, Town Planning, &c., Act, 1919, the following defects are remedied as being those of most importance, from the point of view that efficient cleansing is all that is required as regards disinfections in most notifiable diseases:—

- (1) Broken plaster on walls and ceilings, inasmuch that walls and ceilings cannot be properly cleansed when the plaster is broken. This is also of importance, especially as regards those abominations—bed-recesses—where the plaster is frequently broken, and forms a suitable nidus for bugs. For the same reason,

broken and gaping woodwork round such bed recesses also receives attention. Loose, torn, and sagging wall-paper cannot be properly cleansed by the householder, and is also dealt with under this Section.

- (2) It is also held that the existence of broken, open, and yielding flooring is incompatible with the proper cleansing of a house, and these items are dealt with under this Housing Act.

- (3) Broken and defective woodwork around a sink, where there is no evidence of nuisance from decayed woodwork, causing smells, is also dealt with under Section 25 of the above Act.

These are the most important items which are taken under this Act, but there are occasions when defective woodwork of coal bunkers is considered to be also prejudicial to cleanliness; this is specially so in the small one and two apartment houses in which the bulk of the population of Glasgow is housed.

- (c) The Glasgow Corporation (Police) Order Confirmation Act, 1904, Section 9, empowers the sanitary inspector to inspect any premises at any reasonable hour in the daytime, when he has reason to believe that such premises are not in a cleanly condition. He has power to issue a notice for cleansing to be performed. If the proprietor of such premises is convicted, a penalty is exacted, and should the necessary cleansing not be carried out, the Public Health Department is empowered to do the work, and recover costs. Part 2 of the same Section deals, in the same way, with articles of bed or body clothing in a dirty, filthy, or unwholesome condition.

The other three Acts have a less intimate connection with the dwelling-house, but are important.

- (d) The Glasgow Building Regulations Act, Sections 31 and 104. Both of these sections are administered by the Master of Works.

Section 31 deals with the paving of back courts, and would appear to have had some influence on the reduced infantile mortality from Summer Diarrhoea. In connection with this subject of Summer Diarrhoea, the Public Health Department has initiated a scheme of spraying dung-pits

in connection with stables twice a week; from the beginning of June till the end of September. This practice has proved successful in reducing the summer fly plague, and so has also aided in reducing the infantile Summer Diarrhoea rate.

Section 104 is intimately connected with housing, and deals with the opening up of concealed beds to permit of their more effective ventilation.

(e) The Glasgow Police Act, 1866, Section 252. This Section deals with the cleansing and whitewashing of common stairs, lobbies, and staircases, reported to the local authority by the inspector of nuisances to be in a filthy condition.

(f) By-laws in terms of Glasgow Police (Amendment) Act, 1890, Section 33, for the cleansing of common stairs, sinks, lobbies, passages, and water-closets by the tenants in rotation. Rotation cards are issued to all tenement householders, and notice is given that the stairs, etc., must be swept daily and washed twice a week.

The effect of all this legislation is to give the householder all reasonable facilities for cleansing the house, and maintaining it in clean condition.

DISINFECTION.

In November, 1884, Dr. J. B. Russell,¹ late Medical Officer of Health, Glasgow, made the following statement in an address to the West of Scotland Branch of the B.M.A. at Kilmarnock:—

"As to apartments which have been occupied by a patient during an infectious illness, you may fumigate, if you will, but a thorough domestic cleansing is the best mode of disinfection, renewing wall-papers which are dirty; washing down paint; rubbing up furniture; burning all dust; and letting the air play freely through the open doors and windows as long as possible."

In the same paper, he states "that all contagia disappear, sooner or later, under the influence of air and moisture."

The statements were both made before the germ theory of disease gained general acceptance, but appear to have had little effect on the rationale of disinfection, which, even now, could be described in Simon's words as "a futile ceremony of vague chemical libations, or powderings, savouring rather of superstitious observance than of rational recourse to chemistry."

In view of modern knowledge regarding the viability of the infective material in some of the notifiable diseases, my second quotation from Dr.

J. B. Russell, if "air and sunlight" be substituted for "air and moisture," is still more applicable at present than in 1884, when our knowledge was not so exact. Dr. Russell's theory in regard to moisture was that, if the contagium whatever it was could be kept moist, there was little likelihood that it could cause infection. "In the water, all contagia are drowned at once, in the sense that they are imprisoned, and if the bulk of water be sufficiently large in proportion to the organic matter, decomposition proceeds apace, and they soon cease to exist as vital entities." The last remark is subject to qualification. Modern experiments by Houston² show that Typhoid inoculated water is potentially dangerous for a period. It would appear to be safe after three weeks' storage.

"The personal element"³—infection directly and immediately from one person to another—is undoubtedly the chief cause of infection; and the source of contagion is to be sought for in the persons who have been about the infected person, or in the patient himself. This is most applicable in Diphtheria, Scarlet Fever, Cerebro-spinal Fever, Small-pox, and the like. This group might be divided into two sections—(a) those in which the infecting agent is known, as in Cerebro-spinal Fever, Diphtheria, Whooping-cough, &c., and (b) those of unknown aetiology, as Scarlet Fever, Measles, Small-pox, &c.

In all the notified cases, a careful history of previous illness is obtained by the Inspector or Public Health representative, and missed cases of infectious disease are frequently traced. Again, the first-mentioned group admits of administrative control, in so much as the "carrier" cases can be segregated under the Infectious Diseases "Carriers" Regulations, but in the second group, especially in Scarlet Fever, the control is very difficult, as the duration of infectivity is not known. It has been thought to bear some relationship to the duration of desquamation, but this even is very equivocal. Many known cases with discharges from ear and nose have not given rise to return cases, even when they have been dismissed from hospital to mingle with susceptible children in their own homes; whereas apparently healthy children dismissed from hospital to similar homes have caused return cases.

The investigation of such cases should be undertaken by a highly trained pathologist. Some unpublished work has already been carried out in Glasgow by Kinloch, Assistant Medical Officer of Health of Aberdeen, regarding the complement content of blood in children causing return cases of Scarlet Fever; but further work is necessary

before any conclusions could be drawn. If the infecting agent could be demonstrated and cultivated, a considerable saving in the period of hospital isolation of cases could be made in the majority of cases, and methods of dealing with the known "carriers" of Scarlet Fever could be devised. In America at present, the Schick reaction is used to discover the children who are susceptible to Diphtheria, and such are immunised against Diphtheria by the subcutaneous injection of attenuated Diphtheria toxin. Vaccination, in a similar way, might be tried against Scarlet Fever to tide the child over the dangerous ages. Then again, in Whooping-cough, where the infecting agent is known, the text books recommend that the child be isolated till the whoop disappears—a quite unnecessary proceeding, as the Whooping-cough bacillus has never been recovered from discharges, or even by swabbing the pharynx after the fourth week of the disease.

CLASSIFICATION OF DISEASE, ACCORDING TO RESISTANCE OF CONTAGIA TO DISINFECTION.

(A).—Those diseases where the infecting agent is known to be of a resistant type—Small-pox, Typhus Fever, Tuberculosis, and Anthrax.

(B) 1.—Scarlet Fever and Chickenpox (in times of Small-pox prevalence).

(B) 2.—Diphtheria, the Typhoid Group, and Dysentery.

(C).—Other Infectious Diseases.

(D).—Vermin and *Sarcoptes Scabiei*.

Under (A), most thorough disinfection must be observed, and the methods in use are summarised in the following pages.

(B) 1.—With special reference to Scarlet Fever segregation would appear to have more effect than disinfection of premises.

(B) 2.—Current disinfection is necessary. By "current" disinfection is meant the daily, and, if need be, hourly disinfection of the discharges and excretions of the patient; the cleansing of articles used in feeding; and the placing in some disinfecting solution of the soiled articles, such as pillows, handkerchiefs, etc. Absolute cleanliness in the house is also essential. In Glasgow, the majority of Enteric Fever, Diphtheria, and Dysentery cases are treated in hospital till they are non-infective, and the Infectious Diseases "Carriers" Regulations allow of segregation of known carriers.

(C).—In the other infectious diseases, the sole use of disinfection would be to ensure that a thorough domestic cleaning would be carried out.

(D).—Steam disinfection and washing are certainly required.

TYPHUS FEVER.

Dr. J. B. Russell, in his afore-mentioned paper, states: "Hence Typhus, which spreads like wild-fire, with personal uncleanness and overcrowding, is absolutely disarmed by cleanliness and ventilation alone."

The evidence collected by Dr. Strong,⁴ International Journal of Public Health, and other observers during the war, would indicate that, in this disease, the principles of cleanliness must be thoroughly observed, if disinfection is to be effective. The trend of modern opinion is that the disease is carried by the louse (both caput and vestimenti), though there is some evidence of direct infection by inhalation of air contaminated by patients through coughing. There is, however, not sufficient evidence to exclude the louse as the causative factor even in these cases.

The louse and nit are very resistant to ordinary disinfection, such as the domestic washing; and the only satisfactory process of disinfecting clothing in such cases is by steam or hot air.

Ker,⁵ in his volume on Infectious Diseases, states that one medical man, when visiting suspected Typhus in rooms where ventilation was deficient, was accustomed to break the window panes with his walking stick to admit fresh air before he examined the patient. Strong maintains similarly that, where there is a well-ventilated ward, cross-infection does not take place, and explains it in so much as that the louse will not travel where there is cool fresh air. Where infection has been supposed to have occurred in nurses and doctors while examining sore throats in Typhus patients, the louse as the cause of infection has not been definitely excluded. The trend of modern ideas is that the louse, and louse alone, is the means of spreading infection. The methods for disinfection are similar to those described under Small-pox in the following paragraph.

SMALL-POX.

Disinfection in small-pox would also appear to be a more thorough process than could be carried out by the inmates of an infected house. In this disease, the time honoured process is still carried out, and cannot be improved upon. The inmates are removed to the City Reception-house, where they are bathed and clothed in clean clothing, while their infected clothing is being steam sterilised at the City Sanitary Wash-house. The house and all the articles therein, with the exception of such fabrics as are suitable for steam disinfection, are thoroughly sprayed with formalin or one of the coal-tar group of disinfectants, and

subsequently all articles of furniture are rubbed down thoroughly. The ceilings are whitewashed, and this procedure ensures that the floors will be thoroughly cleansed; on the return of the contacts from the Reception-house. The fabrics suitable for steam disinfection are steamed at the Sanitary Wash-house and returned to the home. After eighteen days' observation at the Reception-house, the contacts are allowed to return to their home. In no case has any case of small-pox developed which might be attributed to a house or clothing after such processes of disinfection have been observed.

ANTHRAX.

Anthrax cases are comparatively rare in this city, and cases of direct infection from man to man are practically unknown. The organism is particularly resistant in spore form, and the clothing and fomites in direct contact with a patient require steaming at 230° F. for at least half-an-hour to ensure thorough disinfection.

TUBERCULOSIS.

Disinfection in cases of Tuberculosis presents a difficult problem. The tubercle bacillus is an organism with considerable powers of resistance in ordinary circumstances, and disinfection must, therefore, be carried out thoroughly, where it is known that the bacilli are being discharged either in the sputum of Phthisis cases, or from discharging sores. Current disinfection is to be recommended here, and can be carried out most satisfactorily by burning the discharges, such as sputum or infected rags. It is essential that such burning be thorough. There would appear to be no satisfactory sputum cup at present on the market. The Army pint mug, with a protective covering of gauze, is the most satisfactory method I have seen employed. The mouth is wide, and the cup is easily cleaned. The gauze cover can easily be renewed when soiled. The sputum can easily be emptied into the water-closet without risk of soiling the closet.

If the odour of the sputum be offensive, some deodoriser or disinfectant may be placed in the cup, not with the intention of disinfecting the sputum, but merely as an æsthetic adjunct. Boiling water and soap is then all that is required to cleanse the cup.

When massive infection has occurred, and the patient has been removed, the carpets and hangings of the sick room should all be steam sterilised, and the walls sprayed and rubbed down. A thorough domestic cleansing would then be all that is required to free such a room from infection. All clothing and bedding in contact with such a patient should be thoroughly washed at the

Local Authority Wash-houses, and the feeding utensils should be cleaned with boiling water and soap at home.

The Tuberculosis Nursing Staff attached to the Public Health Department visit the homes of those suffering from tubercular disease, and encourage cleanliness in the home. After a few visits from the nurses, such homes generally show a higher degree of cleanliness than those inhabited by a similar class of tenant, even in spite of the fact that the housekeeper is handicapped by the presence of a tubercular patient in the house.

(B) 1.—The types of infection in the two diseases taken under this group are essentially different.

When Chickenpox develops in a ward full of children, it proves most infectious, and practically all susceptibles develop the disease within twenty-one days. Thus infection is started before there is any sign of crusting of the lesions. The crusts themselves would appear to be infectious, but lose their infectivity rapidly when separated from the patient. The infectivity of a patient would appear to be greatest at the onset of the eruption, and gradually declines, until at the period when the last crusts have separated he is free from infection. When proper cleanliness is observed, it would appear that other disinfection would not be necessary in this disease, except in times of Small-pox prevalence, when all precautions must be taken to avoid the spread of Small-pox; and as a considerable proportion of Small-pox cases are diagnosed as Chickenpox, it is essential that, under these circumstances, thorough disinfection should be carried out in this disease.

With our present limited knowledge of the cause of Scarlet Fever, and how it is carried, it is essential that some form of disinfection be carried out to ensure that the house be thoroughly cleansed. Steam disinfection of bed covers and hangings and spraying of walls are all that is required, provided that the householder washes the house thoroughly. The more mess the disinfector can make in the performance of his duty, the more efficient will be the after cleaning.

(B) 2.—*Diphtheria, Typhoid Group and Dysentery.*—Where these cases are nursed at home, current disinfection, as before described, must be carried out. If this is thorough, and cleanliness is observed throughout the disease, terminal disinfection will not be necessary. Where diagnosis has been made and patient has been removed to hospital, disinfection as for Scarlet Fever is considered to be sufficient.

(C).—*Other Infectious Diseases — Measles,*

Whooping-cough, Pneumonia, Erysipelas, Cerebro-spinal Meningitis, Poliomyelitis, Encephalitis, and Venereal Infections.—Domestic cleanliness, fresh air, and sunlight would appear to be the great factors in controlling this group. A more thorough disinfection in certain cases of Measles may be necessary, especially those cases showing broncho-pneumonia, with much discharge and soiling of clothing. The use of common water-closets should not be overlooked in dealing with Venereal Diseases; and the seats of such of these as come to the notice of the Public Health Department are sprayed and cleansed by the Inspectors. The need for the immediate burning of the fomites in cases of Gonorrhœal Ophthalmia should be emphasised.

(D).—The most effective method of dealing with lice is, undoubtedly, steam disinfection of all clothing and bedding, while the infected person is undergoing de-lousing at a Reception-house. Simple domestic washing has no effect on the louse or on the nit.

Fleas may be killed by sulphur fumigation, or by spraying, either with formalin or one of the coal-tar disinfectants.

The bed bug cannot be satisfactorily dealt with by any of these methods, as its eggs are usually in inaccessible places, and to obtain its effective removal it is necessary to repair broken plaster, remove woodwork around beds, and wash these parts with strong disinfectant fluid. This has proved in many cases to be the only satisfactory way to remove these pests. The blow-lamp is effective but dangerous, and cannot be used on account of the danger in many cases.

Regarding the procedure in infections caused by *Sarcoptes Scabiei* (Scabies), here again treatment and disinfection of clothing should be carried on at the same time. Steam disinfection of the clothes is essential, and a most suitable apparatus would be the Sack Disinfector, in so far that the clothes, on completion of disinfection, are returned in a dry condition, and so fit for wearing.

Such disinfection could be carried out by the Education Authority at their treatment centres, and by the Public Health Department at the Reception-houses for members of the infected family who are not of school age.

In consideration of these groups, it would appear that—

- (1) Thorough disinfection is required in Small-pox, Typhus Fever, and after the removal of certain forms of Tuberculosis;
- (2) Modified disinfection should be carried out in Scarlet Fever, Diphtheria, Typhoid Group Infections, the Dysenteries, and

Chickenpox (in relation to times of Small-pox prevalence), not so much for the effect of the disinfecting solution used, but in order to encourage the domestic cleaning of the house; and

- (3) For the other notifiable diseases, domestic cleanliness is all that is desirable and necessary.

Leaving out of consideration steam disinfection and fumigation of bedding, pillows, and clothing, it was found that, during the month of January, 1922, roughly 1,850 washings for infectious disease were carried out in the City Sanitary Wash-houses. The proportion of articles washed brings to light some curious anomalies from the point of view of our modern knowledge of the infecting power of articles which have been in contact with persons suffering from notifiable diseases. The following summary shows (a) the average number of articles washed per case notified; (b) the maximum and minimum number of articles washed for each group; and (c) total number of washings done in each group:—

	1. Typhoid.	2. Tuberculosis.	3. Puerperal Fever.	4. Scarlet Fever.	5. Diphtheria.	6. Chickenpox.	7. Measles.	8. Whooping- cough.	9. Pneumonia.	10. Influenza.	11. Pneumonia.	12. Erysipelas.
A.	55	41	24	34	31	29	37	30	34	37	22	
B.	91	127	49	127	85	66	113	59	89	150	41	
	26	2	8	4	6	2	3	9	7	12	7	
Individual Washings.												
C.	9	321	10	257	165	45	519	12	190	40	25	

Group (2).—In the above table Tuberculosis includes all forms of that disease, and the washings from patients with discharging sores tend to lower the average. From such cases the articles washed seldom comprise more than one dozen at a time. These washings from notified cases of Tuberculosis are confined to those patients with active discharging sores, those who are harbouring the tubercle bacilli in their sputa, and, to a certain extent, compassionate cases. It has been laid down that a "Tuberculosis Washing" should not exceed 50 articles at a time, but it would appear that, at present, such a procedure is not being observed.

(1) With reference to Typhoid Fever, it is obvious that a certain amount of washing is

necessary, as frequently there is a considerable interval during which the patient remains at home, causing infection of clothing, etc., before the diagnosis is made of Typhoid Fever. Again, it is known that Eberth's bacillus, and those of the paratyphoid group, are capable of living in soiled garments for a considerable time, and thus are capable of spreading infection to susceptible persons. It is essential then that such suspected garments should be washed under sanitary supervision, but it is scarcely conceivable that 91 articles might be infected. A washing of 30 articles per case should doubtless prove sufficient.

(2) Dysentery in its various forms—amœbic and bacillary—should be treated for washing purposes in the same way as the Typhoid Group.

(3) The discharges from Puerperal Fever are usually offensive and infective. As a safeguard to midwives and medical men, disinfection should be carried out. These Puerperal Fever cases are now mainly treated in the City Isolation Hospitals, and a washing is passed by the Sanitary Visitor on removal of a case. The average number of articles washed is 24, and as a considerable proportion of "compassionate washings" are done in such cases, the present figures would not appear to be excessive.

(4) and (5) These two groups may be taken together as far as washings are concerned. Neither isolation nor washing appears to have affected the case rate of diphtheria, and in Scarlet Fever the same observation holds good, though the type appears to be generally less severe than was the case thirty years ago. It is difficult to know what value washing by the local authority has in these cases. Domestic washing would serve the same purpose. Take the maximum and minimum figures for Scarlet Fever. The maximum figure—127—conveys to me only the impression that the householder there is a popular person in the tenement, and has had the washing of the tenement performed by the local authority to her entire satisfaction. The minimum figure—4—would appear to comply with the legal requirements, which have now been in force without revision for many years.

The same remarks apply to Diphtheria.

Lay opinion, however, would not at present permit of the cessation of washings in these two popular diseases, but the number of articles sent should be limited to those worn by the patient, together with the bed clothes.

(6) With reference to Chickenpox, there would appear to be no case for continuation of washing by the local authority. The bulk of such cases are nursed at home, and disinfection and washing

are carried out at the termination of the disease. This disease is highly infectious before crusting of the lesions occurs, and appears to be capable of being spread to some extent by those in contact with the patient, for example, in a hospital ward. It is assumed that the skin lesions are infective, though no inoculation experiments have proved successful with material from these lesions. When separated from the patient, the dried crusts appear to lose all their infectivity very rapidly, and it may be taken that, when all the crusts have separated, the patient is non-infectious. Airborne infection in this disease would appear to be not proven, as is the case in Small-pox.

A careful domestic washing is thought to be all that is necessary in such cases, with the added provision that, if Chickenpox is made notifiable as in times of Small-pox prevalence, the local authority should be responsible for the washings at these times, not on account of any danger from Chickenpox, but as an additional security against the risk of mild cases of Small-pox being mistaken for Chickenpox.

With regard to the other diseases in the list—Measles, Whooping-cough, Pneumonia, Influenza-Pneumonia, and Erysipelas, to which fall to be added Cerebro-spinal Fever, Encephalitis Lethargica, Poliomyelitis—a thorough domestic washing would appear to be sufficient to free any garment from the extremely delicate contagia associated with these diseases. For example, Measles has in the bulk of cases caused all the mischief it is likely to cause by spread of infection by direct contact before it is diagnosed to be Measles. The causative organism would appear to be of low vitality in vitro, and easily destroyed by soap and water. There can be absolutely no risk in such a washing being carried out in a public wash-house.

To Whooping-cough—a disease in which the causative organism is known—the same remarks are applicable, as is also the case in the other infectious diseases classified in this paragraph.

A considerable amount of washing is done in infections by *Sarcoptes Scabiei*, but with efficient disinfection by steam, as described under general disinfection, such washings would be obviated; and the same remarks are applicable to the washings of verminous clothing, though it would appear that garments so sterilised still cause considerable irritation.

Compassionate washings for the very poor, where the mother is unfit for work by reason of infectious disease, or where her time is fully occupied nursing sickness in her home, would continue to be carried out by the local authority, as is the

custom at present. Numerous washings are done after death from Carcinoma; these are classified as compassionate washings.

It will be observed that the washings in Column "C," under the headings Measles and Pneumonia, comprise more than one-third of the total washings covered in the period under review. This is due to the fact that there was a considerable epidemic of these two diseases during that period. Had the figures been taken out last autumn, a similar preponderance would have been manifest under the heading of Whooping-cough.

In the dangerous infectious diseases—Small-pox and Typhus Fever—where the contacts are removed to the reception-houses of the city, an interesting table of washings is tabulated below:—

Clothes washed.	Clothes fumigated.	Steamed and fumigated.
308	10	6 pillows and 2 beds.

Such is the procedure when a suspected typhus case has been removed from a two-apartment house to hospital, and it is apparent that every article in the house capable of being washed or fumigated has been treated. The same methods are applied in Small-pox cases.

To summarise the above remarks, washing should be carried out by the local authority in the following diseases:—

- (1) Small-pox ... All articles to be washed.
- (2) Typhus Fever... " " "
- (3) Tuberculosis ... Not more than 50 articles per washing.
- (4) Typhoid ... 30 articles.
- (5) Puerperal Fever (Compassionate washing).
- (6) and (7) Scarlet Fever and Diphtheria ... Limited to 30 articles.
- (8) Chickenpox ... Limited to times of Small-pox prevalence.
- (9) Other Common Infections ... Limited to compassionate cases.

A plea for the continuation of the practice of indiscriminate washings for infectious diseases would be that, in a great many cases, the only time certain members of the community have a clean change of underclothing is when infectious disease is present in the house, and the washing is done by the local authority. There is no evidence, however, that the luxury of clean clothing is appreciated by the class referred to, or that subsequently effective washings are carried out in their homes. The practice would thus appear to have no educative value, whereas action under Section 9 of the Glasgow Corporation (Police)

Order Confirmation Act, 1904, where a penalty is attached for failing to cleanse clothing in a filthy condition, has been found to have a certain educative value.

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1. Public Health Administration in Glasgow.—J. B. Russell.
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- (3) Memorandum on Disinfection by a Committee of the Royal Sanitary Institute of Scotland.
- (4) International Journal of Public Health; July-September, 1920.—Richard Strong.
- (5) A Practical Textbook on Infectious Diseases.—C. B. Ker.

SOME NOTES FROM THE OLD MINUTE BOOKS OF THE MIDLAND BRANCH.*

BY

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THE FOUNDERS.

From the minutes of the first meeting is taken the following:—

"A meeting of Medical Officers of Health was held on the afternoon of the 18th of October, 1875, at the Public Offices, Moor Street, Birmingham, upon the invitation of Alfred Hill, M.D., M.O.H., for the Borough of Birmingham.

Present:

Alfred Hill, M.D., M.O.H., Birmingham.
J. H. Love, M.O.H., Wolverhampton.
J. Darwen, M.O.H., Balsall Heath.
J. Hickinbotham, M.D., M.O.H., Aston Rural, S.A.
J. B. Welch, M.D., M.O.H., Handsworth.
Henry May, M.O.H., Aston Urban, S.A.
Also Jas. May, Deputy for Dr. Hickinbotham.

Dr. Hill stated that he had called the meeting to decide whether an Association of Medical Officers of Health could not be formed for this neighbourhood, and, if so, what form it should take, and over what area it should extend. He read letters from the following M.O.H.'s apologising for not being present and favourable to joining such an Association:—

Joseph Bailey, M.O.H., Leamington.
R. W. Smith, M.O.H., Harborne.
J. C. Cooper Garman, M.O.H., Wednesbury.
George Wilson, M.D., M.O.H., Warwick.

* Read at a meeting of the Midland Branch, November 10th, 1921.

It was proposed by Mr. Darwen and seconded by Mr. Love "That an Association of Medical Officers of Health be formed, to be called 'the Birmingham and Midland Association of Medical Officers of Health,' and carried unanimously."

Those present then formed themselves into a Committee to consider the rules of similar associations and draw up suitable regulations for the government of the Association.

Thus was formed the present Branch. It was in its inception a separate Association for Birmingham and neighbourhood.

So far as I am aware only one of these original founders is still alive and a member of our Society, viz., the first President, Dr. Alfred Hill, who was for 30 years the M.O.H. of Birmingham.† Dr. George Wilson, the second President, the M.O.H. for over 30 years for Mid-Warwickshire Combined District, died at the age of 83 in September last.

The Committee got to work, draft rules were framed, a meeting was called for January 6th, 1876, to which were invited the M.O.H.'s in Staffordshire, Worcestershire and Warwickshire, 76 in all. The subscription was fixed at 10s.

It was recommended to hold quarterly meetings and this was the recognised custom until 1890.

(A Metropolitan Society of M.O.H.'s was already in existence.)

THE FIRST PRESIDENT.

The first meeting (called the annual meeting) was duly held. Twelve attended.

Dr. Alfred Hill was elected to the chair and appointed first President, and Mr. Hy. May was appointed Hon. Secretary, and 23 original members were declared to constitute the Association.

It may be noted that in those days the minutes strictly adhered to the academic distinction between a "Dr." and a "Mr."

Dr. Alfred Hill delivered the first Presidential address on "The past, present and future of Public Health."

The Association at that date commenced its indebtedness to the Corporation of Birmingham for providing a room for its meetings at the Public Offices, then situated at Moor Street.

The meeting obtained a full report in a Birmingham paper and a short leader; both of these were duly pasted in the minute book by Mr. Hy. May with that meticulousness which characterised all his doings.

† Dr. Alfred Hill died three months after the reading of this paper at the age 95.

Dr. Hill's address dealt with the history of epidemics and methods of prevention, the importance of fresh air and ventilation and pure water supplies.

It may be of interest to detail the fact that he stated that in a sanitary census made in Birmingham the previous year out of 70,000 houses, 20,000 were found with windows that would not open at the top.

A curious method adopted in the Agenda in those days was to insert all the papers promised for the session as down for reading and discussion. In practice generally only one was dealt with.

THE EARLIER MEETINGS.

At the next (April) meeting, Dr. Mark Fenton—my predecessor at Coventry—and the first M.O.H. for that City, read a paper on the application of the water closet system at Coventry. He said that at that date for 10,500 inhabited houses, 5,000 water closets had already been provided. His contentions were in favour of the system. The discussion was adjourned to the next meeting and taken after a paper of Mr. Morrell, Civil Engineer, of Preston, advocating the Cinder Sifting Ash Closet System. Opinion was divided on the relative merits of the two systems. Dr. Swete, of Droitwich, preferred the water carriage system when practicable. Mr. Hy. May said the water closet system was impracticable in an inland town like Birmingham, and was in favour of a dry earth system. Mr. J. H. Love, of Wolverhampton, said the water system was the best, but it would be impossible to carry it out in a town like Wolverhampton or Birmingham. Dr. Alfred Hill thought they must be guided by the nature of the district. The midden system and the water carriage system had been tried in Birmingham and neither of them answered. They now had the Rochdale system, which was the most simple, easy and least offensive (i.e., pail closets).

At one of these earliest meetings Mr. Love, of Wolverhampton, read a paper on diseased meat, and it is notable that he described various diseases which were more or less contagious in their character and transmissible to mankind. Among these he placed Tuberculosis, and he suggested that all milch cows should be placed under systematic supervision. He also advocated the erection of public slaughter-houses in the place of private ones.

In July of that year a communication was received from the Metropolitan Society of M.O.H.'s advocating legislation enabling the

framing of bye-laws for Metropolitan and Urban Cowsheds and Dairies, and forwarding draft bye-laws. This was referred to a Committee who reported in favour. The report having been received, it was resolved to circulate it to all members of the Association to bring before their authorities to elicit their opinions.

At the October meeting Mr. Page, of Red-ditch, exhibited "an ingenious application of sulphur for disinfecting by SO₂." This consisted of "sulphur cast into a circular pan holding $\frac{1}{2}$ -lb., with a handful of shavings placed on the top before cool with which to fire the cakes."

At the January meeting in 1877 Dr. A. Bostock Hill, Public Analyst for the County of Warwick, was elected an "associated" member of the Association.

THE SECOND YEAR.

At this, the second annual meeting, there were 32 members, and Dr. George Wilson was elected President.

Dr. Wilson's address dealt with "the relations of general practice to preventive medicine." He sketched the studies of the medical student, pointing out how many of the subjects dealt with failed to be of use to him in his practice. He belittled the value of the "bottle of medicine" as compared with the healing power of nature. He pictured the advance made in dealing with small pox; whereas the mortality from this disease in the latter portion of the 18th century had been appalling, no less than one death in twelve being attributed to it, representing a total mortality in England and Wales of 45,000, this had been reduced by vaccination to 3,000. He emphasized his incredulity in the germ theory of disease, an incredulity to which he clung to the day of his death. He deplored the lack of teaching of preventive medicine and feared that the interests of curative medicine would be so far injured by it that he foresaw great difficulties with the practising profession. He thought that this could not be remedied while medical men relied on disease for their fees; and suggested an annual stipend for the medical practitioner.

At the meeting of the Association on April 5th, 1877, Mr. Lawson Tait was elected as an associated member; he was present at the meeting, and took part in a discussion as to whether the carcase of a parturient animal was fit for food, on which considerable difference of opinion existed. He attended several subsequent meetings, and in the minutes of a committee meeting of April, 1880, is the following:—"Several letters were read from Mr. Lawson Tait complaining that he had been applied to for arrears

of three years' subscriptions by the collector employed by the Association. The Treasurer explained that these arrears were due before he came into office, and that the applications complained of were made to Mr. Tait in the same manner as to other members in arrear, and under the authorisation of the committee. It was resolved that the Committee do not see any cause of complaint on the part of Mr. Tait, and that the Secretary send him a copy of this resolution with a request for payment of the arrears due from him to the Association." The only subsequent reference to Mr. Tait is that in 1887 he resigned on the Association being amalgamated with kindred societies.

In July, 1877, Dr. Fosbrooke, then M.O.H. to Stratford-on-Avon Combined District, was elected a member.

The Committee of the Society recommended that in the then uncertainty of the law as to the powers to make bye-laws regulating cowsheds and dairies it was desirable that these powers should be extended.

Dr. Alfred Hill demonstrated various methods of testing water for contamination.

At the October meeting a resolution was carried calling the attention of His Majesty's Committee of Council on Education to the desirability of making some pecuniary allowance in the case of schools closed on account of infectious disease, and for the exclusion of particular scholars.

A copy of this resolution was sent, among others, to the State Medicine Committee of the B.M.A.; that body has, therefore, had a Committee dealing with Public Health matters for quite a long time.

At this meeting Mr. Hy. May read a paper on "The Registration of Disease." He pointed out that at that time a local authority had no information concerning the occurrence of infectious disease until a death occurred, and he advocated a system of reporting such cases immediately on their occurrence; and a resolution was carried to this effect.

A similar resolution was about the same time passed by the Metropolitan Society of M.O.H.'s

After two years existence the members numbered 40 and the associated members 6.

THE THIRD YEAR.

Dr. Francis Bond, of Gloucester, who indelibly recorded his name in the public health world, was the next President. His address dealt humorously with the difficulties of health work in rural areas; a combined district had perhaps a dozen authorities, whose personal idiosyncracies he was obliged to study, and from one to the

other he was made to flit with a celerity which would drive an industrious bee to despair. Having no official headquarters, he was not much troubled with complaints. If he desired to do laboratory work he would probably have to do it in his attic or his cellar. He dealt generally with the perplexing difficulties of sanitary work and improvements in rural areas.

At the March meeting in 1878, Mr. May, the Secretary, submitted plans of a model privy and midden required in Aston Manor.

A paper by Dr. W. N. Thursfield, of Shrewsbury, on Diphtheria, shows how in those days they were groping in the dark, not knowing how the infection spread.

Dr. Alfred Hill read a paper on "House Drainage in Birmingham"; he thought that an imperfect drainage system lay at the root of the greater part of preventible disease.

THE FOURTH YEAR.

At the fourth Annual Meeting in January, 1879, Dr. Thursfield was appointed President and Dr. Bostock Hill, "Analyst to the County of Warwick," Treasurer (a position which he continued to hold until 1919—a period of 40 years).

Dr. Thursfield, in his presidential address, dealt with "The attainable aims of Sanitary Science." Three of his observations are worth noting:—

"State medicine and personal hygiene must go together, and whether the object was the limitation of infectious disease or the decrease of sickness, the one was powerless without the other." With regard to avoidable mortality in childhood, he adopted the criterion of estimating the number who survived to the age of 15; his standard to be aimed at was "of every 1,000 infants born, there should be alive at the end of one year, 900; at the end of the fifth year, 860, and at the end of the fifteenth year, 830.

He expressed the opinion (curious at this date) that with proper precautions potable water could be obtained in populous as well as in rural places.

In April, 1879, it was resolved that the subscription should be reduced to 4s. and that the Treasurer be empowered to employ a collector to get in arrears of subscriptions.

At the same meeting Dr. Bostock Hill read a paper on Domestic Filters; after describing the various media in use he recommended that the water should be first boiled for 10 minutes, and then filtered in the domestic filter, advice which correctly summarised the value of the domestic filters then in use.

At the June meeting of 1879, Dr. Balthazar

Foster—afterwards Sir Walter Foster, M.P., and Lord Ilkeston—was elected an associate member.

A paper read by Dr. Alfred Hill on Scarlet Fever in Birmingham stated that "there was considerable hospital accommodation in Birmingham, they had 130 beds and they were nearly all occupied."

THE FIFTH YEAR.

At the fifth Annual Meeting—January, 1880—Dr. Fenton, M.O.H. of Coventry, was elected President; he dealt in his address with Infantile Mortality. A resolution was carried in favour of the notification of infectious disease.

In April, 1880, the Society met for the first time in the Council House and has continued to meet there since; this was secured through the agency of Councillor Cook, the Chairman of the Health Committee.

In July, 1880, the innovation was introduced of having a meeting away from Birmingham, viz., at Worcester.

LATER PROCEEDINGS.

At the sixth Annual Meeting, Dr. Fosbroke was appointed President. He spoke on Diphtheria and expressed regret that a Minister of Health had not been appointed.

In April and July, 1881, no meetings were held, there being no business; only one ordinary meeting was held that year, and at the seventh Annual Meeting the rule against the President being only eligible for one year was suspended, Dr. Fosbroke being re-elected for a second year.

For some time the Association continued its agitation in favour of an improvement in the Regulation of Dairies, Cowsheds, and Milkshops; and in favour of the notification of infectious disease, and circularised all members of Parliament in favour of Mr. Hastings' Bill then before Parliament; the Bill was lost on second reading by a "count out."

At the eighth Annual Meeting in 1883, Dr. W. Strange, of Worcester, that year President of the B.M.A., was elected President of the Association; this was probably a unique distinction for any Branch; he gave an address on "Personal Hygiene," and at the next annual meeting was re-elected for a second year.

At the tenth Annual Meeting in 1885, Mr. Chas. Perks, M.O.H., Burton-on-Trent, was elected President.

About this time evidence appears in our Minutes of the existence of the North-Western Association of M.O.H.'s; they suggested a joint meeting and also joint action in regard to tenure

of office with the existing Associations, including the Yorkshire Association and the Metropolitan Association. A Joint Committee was formed and met in July, 1885, a memorial being sent to the Local Government Board and offering to send a deputation, but the President of the Board declined to receive a deputation.

AMALGAMATIONS.

Dr. Page, of Redditch, was the next President. His address dealt with "Our Sanitary System and Its Re-organisation." He severely criticised the then existing chaos of local administration, and suggested remedies. (To-day, 35 years afterwards, the chaos still exists and the remedies are expected to be applied by the Ministry of Health).

He also suggested that the various associations of M.O.H.'s scattered throughout the kingdom should be confederated on some such plan as the B.M.A.

In 1887, Dr. A. Hill was President of the London Society of M.O.H.'s, and a move was successfully made to amalgamate this with the three existing provincial societies. This was finally accomplished at the thirteenth Annual Meeting in 1888. At that meeting Dr. Bostock Hill was elected President, and Mr. Hy. May, after 13 years, relinquished the office of Hon. Secretary. The Association then in 1888 became the Birmingham and Midland Branch, subsequently abbreviated to "Midland Branch," of the Society of M.O.H.'s.

The Hon. Secretaries of the whole Society then were Dr. Shirley Murphy, and Dr. Edward Seaton, and Dr. Page became the second local secretary.

SOME SMALL APPOINTMENTS.

In May, 1888, a Special Meeting was held to consider a Local Government Bill then before Parliament, the essential proposal of which was to place all districts outside certain large towns under the authority of district Councils. It was expected that an effect of this would be the amalgamation of some of the smaller districts. It appears, from the discussion, that there were a large number of areas where the M.O.H. was receiving a salary of £5 and even £3 a year. It was pointed out that the salary in itself was an ultimatum to the official that the less sanitary work he did the better. The Branch thought the Bill gave an opportunity of introducing an amendment in the law by causing the appointment of M.O.H. to be made by the newly-constituted

County Council, and passed a resolution accordingly. It was thought that greater security of tenure would result.

An example of the existing insecurity was the cause of a Special Meeting in November "to consider the case of Dr. Lloyd Roberts, of Ruthin (Denbighshire)." It appears that Dr. Roberts had been M.O.H. for Ruthin for 12 years; and that his salary was then £25. The Town Council, in order to put the appointment on a footing which would enable them to have half his salary paid by the Government, induced him to tender his resignation and to apply for re-appointment. To make the new appointment valid it was necessary to advertise it in the local papers, it being understood that this was pro forma; however, a resident practitioner applied, and in spite of the Mayor's protest that such action would be a breach of faith with Dr. Roberts, the Council appointed the fresh applicant by 11 votes to 2; the latter had no D.P.H., while Dr. Roberts had.

A resolution was passed calling the attention of the L.G.B. to the matter, and expressing a hope that that Board might in the near future give security of tenure to M.O.H.'s; the resolution also condemned the action of the local applicant; and was sent to the medical press and Denbighshire and Birmingham local papers.

At the fourteenth Annual Meeting in 1889, the Treasurer's report showed that no Branch subscriptions had been required during the year; the expenditure had been 17s. 6d. and the balance in hand was £14 15s. 6½d.

"PUBLIC HEALTH."

The first issue of the monthly journal "Public Health" appeared in May of that year.

Mr. Hollinshead, of Selly Oak, was appointed President, and in his address on "the present sanitary condition of dwellings in relation to public health," he said he was a great believer in the water carriage system, but he should like to see water closets inside dwelling-houses entirely prohibited, for he considered that many of the zymotic diseases that developed themselves in our midst might be mainly attributed to this.

A paper by Dr. Bostock Hill on Diphtheria at this time led to an interesting discussion which showed that the preponderance of opinion was to the effect that the disease was caused by a bacillus.

The Branch approved the principle of the Bill before Parliament in 1889 for the compulsory notification of infectious disease.

At the fifteenth Annual Meeting in 1890, Mr. Hy. May, of Aston, was elected President. His

address dealt with Hospitals for infectious disease.

It may be noted that subsequently to the meeting the retiring President (Mr. Hollinshead) entertained the members to dinner at the Conservative Club; apparently nine members attended. This desirable innovation has not been perpetuated.

In 1890, Drs. Herbert Manley, Ridley Bailey, and Geo. Reid were elected members; the first-named was one of the most active members the Branch has had, and for some years acted as one of the Honorary Secretaries of the Society. The latter two continue with us.

This year the Branch invited the Society to hold its Annual Provincial Meeting in Birmingham.

The programme consisted of a morning drive to the Refuse Destructor, and then to the Saltley Sewage Farm.

At the afternoon meeting Dr. Alfred Hill read a paper on the Treatment of Sewage and Refuse in Birmingham; as a conservancy system had been compulsorily effected, there were at that time about 40,000 pans in Birmingham, and it was not easy to suggest a speedy change.

In addition to the local members, there were present Drs. Orme Dudfield, Sykes, Newsholme, Wynter Blythe, and others.

A "cold collation" (with an attendance of 20), was served at the Midland Hotel at 5 p.m. The meeting was well noticed in the local papers and obtained a leading article in the "Post."

At the sixteenth Annual Meeting in 1890, Dr. A. S. Underhill, of Tipton, was elected President.

Until this time the local reporters had been invited to the meetings, and short accounts found their way into the local press; now an innovation was introduced, a special shorthand reporter was engaged at a guinea a meeting to write a report (to the extent of about a column of newspaper). It was also customary on the part of the Honorary Secretary to paste the local accounts in the minute book.

SALARIES.

At this time the Branch sent a Deputation to the Worcestershire County Council to protest against the action of that Council in offering the services of their County Medical Officer to districts at a less remuneration than that of the existing District M.O.'s.

Herbert Manley became the third Secretary, and monthly meetings in the winter were started but, not proving a success, were discontinued in April, 1892.

At a meeting dealing with sewage disposal

there was a general condemnation of all conservancy methods of sewage disposal, but a blessing was bestowed on waste water closets (a blessing which was also given by Dr. Parsons, of the L.G.B. in a well-known official report, a report which has probably been much regretted since).

Commenting on this meeting, a local paper said "M.O.H.'s are like engineers and surveyors in one respect, they don't a bit mind expense when the public has to bear it."

About this time much discussion occurred as to whether reporters should be admitted to the meetings; it was generally felt that the procedure crippled discussion.

In 1892 the Society became "incorporated."

In this year it was decided regularly to hold meetings away from Birmingham, at least two being in Birmingham, with a view to extending the operations of the Branch.

In 1892, Dr. Alfred Hill was elected President for the second time; in his Presidential Address he dealt with "Cholera," which then existed in Russia, Germany, France, and other European countries. He recalled the epidemic of this disease which visited Bilston in 1832, when during seven weeks there were 3,568 cases and 742 deaths in a population of 14,500.

In January, 1893, the Quarterly Meeting was held at Derby. And in July at Nottingham, where on a visit to the Bagthorpe Hospital, the Branch was entertained to lunch by the Corporation (18 being present). Dr. Meredith Richards read a paper on Isolation Hospitals and Dr. Boobyer one on Cholera Precautions. The members then dined together at the George Hotel.

At the Annual Meeting in 1893, Dr. Boobyer was elected President; his address was on "Public Health and Public Ignorance." This was full of very trenchant criticisms and obtained the notice of a leading article in the Birmingham paper.

The Branch then numbered 60 members and was the largest Branch of the Society. After the meeting the members dined together at the Grand Hotel.

In April, 1894, the Branch met in Leicester.

At this time discussion was arising as to the relations of the Society to the Branches and their representation on the Council.

In July, 1894, the Branch again met in Nottingham.

SECURITY OF TENURE.

At the Annual Meeting in October, 1894, Dr. Herbert Manley was appointed President and Dr. Ridley Bailey, Secretary.

Dr. Manley's address dealt with the difficulties and complex relationships of M.O.H.'s.

Further cases having occurred illustrating the need for security of tenure the Branch passed a resolution calling for the same security as that enjoyed by Metropolitan M.O.H.'s and Poor Law Medical Officers. And then the members dined together at the Grand Hotel.

In January, 1895, the Branch passed a resolution (on the motion of Dr. Reid) reverting to the practice of inviting reporters to the meetings.

In July the Branch met at Cheltenham; after the meeting and visits to various sanitary works, they dined together at the Queen's Hotel.

These Notes cover the first 20 years of the existence of the Branch.

Though it may be presumed that reporters continued to be invited to attend the meetings, the custom of inserting their reports in the minute book ceased. Instead, copies appear of the official reports that appeared in "Public Health."

The further chronicles of the Branch may therefore be found recorded in the published Archives of the Society.

NASAL AND AURAL INFECTIONS IN INFANCY—THEIR PREVENTION AND TREATMENT.

BY

GEORGE WAUGH, Esq., F.R.C.S., Senior Surgeon to Great Ormond Street Children's Hospital.*

Mr. Waugh began by saying that the "treatment" of nasal and aural infections and their serious sequelæ in children, has already been exploited to the utmost. He holds the opinion very strongly that all responsible for the care of sick children must in future look to the workers in preventive medicine for assistance in diminishing the incidence of these infections and their serious sequelæ, such as mastoid abscess, etc. The preliminary and essential step in the prevention and treatment of these infections, that must be undertaken by all workers in child welfare centres, is to ascertain the condition of the children's teeth and tonsils and to remedy that condition if necessary.

(1) *As regards the teeth.* A carious tooth in a child's mouth can be rendered sterile and harmless by stopping, or it can be removed. This is a comparatively simple matter.

*Being notes of an address delivered by him to the Maternity and Child Welfare Sub-Group for London and Home Counties on October 10th.

(2) *As regards the tonsils and adenoids.* This is not nearly such a simple matter to deal with as is that of the teeth. Mr. Waugh then reminded his hearers that the tonsil is a lymphatic gland in its structure and functions, just as much as any other gland in the body. But it differs from the rest of them, in that it is the *only* member of the lymphatic system which is situated in a septic environment from birth, i.e., the mouth. The tonsil must be considered as a gland, full of *crypts*, which form lurking places for the different bacteria which are crowded together in the human mouth. Not only do these bacteria affect the tonsil directly but also any carious tooth in the mouth may form a focus of infection, the bacteria from which get carried to the tonsil and hence to the cervical lymphatic glands.

How often is it found that the enlargement of a tonsil and the corresponding cervical glands subside when a carious tooth on the same side of the jaw is removed! If only the infection of the tonsils was confined to the upper air passages, it would not be such a serious matter. But unfortunately there are two directions in which the tonsil can disperse its infection.

- (1) By the route of the lymphatics to the cervical glands and the general system of the body.
- (2) By the route of the pharynx to the middle ear and the alimentary canal.

Middle ear disease and its sequelæ.

Mr. Waugh proceeded to consider first the infection of the middle ear arising from an unhealthy tonsil. He considers that probably as many as 95 per cent. of all cases of "running ears" are due to enlarged and neglected tonsils and adenoids, or to carious and neglected teeth. In addition, the middle ear may be attacked directly in the course of specific fevers, such as scarlet fever or measles. But it is an interesting fact that when scarlet fever attacks several members of a family in turn, the disease often does not take on nearly such a severe type in the case of those members who have had their enlarged tonsils and adenoids already removed, as it does in the case of those members who have not had treatment for their enlarged tonsils, etc., supposing such to have been needed. He then reminded his hearers of the great danger of such a condition as "running ears," because the infection spreads so readily to the *mastoid antrum*, the *lateral sinus*, the *meninges*, the *cerebrum* and the *cerebellum*. He drew

their attention to the interesting fact that such severe cases as mastoid abscess, lateral sinus infection and cerebeller abscess, etc., are not seen nearly so frequently now at the Children's Hospital, Great Ormond Street, as they used to be in days gone by. He attributes this fact, *most unhesitatingly*, to all the preventive treatment in the care of the teeth, tonsils and adenoids that is now being undertaken at Hospitals and Child Welfare Centres and School Clinics. He drew his hearers' attention especially in this connection, to the year 1906, when two very important events took place, which have in their turn greatly diminished the incidence of these serious diseases.

(a) In 1906 routine enucleation of the tonsil was regularly instituted at the Children's Hospital, Great Ormond Street, as being the suitable operation for enlarged tonsils.

(b) In 1906, School Clinics began first to be effectively established and the School Medical Officers began to carry out their task of treating enlarged tonsils and adenoids and carious teeth amongst the elementary school-children.

Mr. Waugh remarked in this connection that the work of the School Medical Officers has splendidly diminished the incidence of chronic and acute otorrhœa and its various and serious sequelæ. He then gave some figures to illustrate this point. He contrasted the years 1903, 1904 and 1905 as three years immediately previous to the important year 1906, when very little preventive work was being done, with the three corresponding years a decade later, viz., 1914, 1915 and 1916, when so much preventive treatment was being carried out at Hospitals and School Clinics, and showed the difference in the number of mastoid operations and of operations for enlarged glands of the neck, that took place at the Children's Hospital, Great Ormond Street.

Years.	Total number of operations at Children's Hospital.	Number of mastoid operations.	Number of operations for enlarged glands of neck.
1903	7,100	...	350
1904			
1905			
1914	11,000	...	150
1915			
1916			

Thus there was a relative and absolute decrease of 50 to 60 per cent. in these conditions

in spite of an enormous increase of the total number of surgical cases needing operation admitted to the hospital. Further, that there was now a tendency for such cases as were operated upon to be sent to hospital already suffering from mastoid disease, together with uncared-for teeth and tonsils, whilst at the same time there was a steady diminution of admissions from their own special aural department of cases of "running ears" that could not be cured without an operation on the mastoid.

Cerebeller abscess.

Other serious sequelæ of chronic otorrhœa such as cerebeller abscess, etc., are seldom seen now since preventive treatment began to be instituted in 1906. For example, before the year 1906, cases of cerebeller abscess used to be frequently admitted to the Children's Hospital for operation. Between the years 1910-1918 no case of cerebeller abscess has had to be admitted for operation. Mr. Waugh then reminded his hearers that 99 per cent. of these cases of cerebeller abscess are due to otitis media, and also that the death rate of these cases is 100 per cent.

Lateral sinus disease.

Then as regards lateral sinus disease. Before preventive treatment of chronic otorrhœa was so thoroughly instituted, it was one of the commonest diseases to be dealt with by the surgeons at the Children's Hospital. Now, he practically never saw a case of it there. On the rare occasions in recent years when he has come across a case of cerebeller abscess or lateral sinus trouble, he invariably finds disgustingly neglected teeth in the little patient, and also enlarged tonsils and adenoids. Mr. Waugh then drew attention to some other sequelæ of enlarged tonsils and adenoids.

Acute carditis in children.

He said that Drs. Poynton, Paterson and Spence had recently published an interesting paper upon 114 cases of acute carditis admitted to the wards at the Children's Hospital during the year June, 1919, to June, 1920. They showed that 22 died, 31 were total invalids, and 12 more had lost ground from broken compensation during that one year of observation. They also showed that in 50 per cent. of these cases there was a history of an acute attack of tonsillitis having preceded the onset of the illness.

Intractable dyspepsias in children.

There is a large group of these cases where remedial measures such as dieting, convalescent homes and medicine have failed to relieve the

conditions. A complete enucleation of the tonsils is then performed, and the dyspepsia clears up entirely in many cases. Mr. Waugh referred to some work that he had carried out in the years 1906-1910, in conjunction with Dr. Robert Hutchison, on a series of 126 cases of intractable dyspepsias in children. Various forms of dieting and of medicinal treatment were tried, and convalescent home treatment was resorted to, but without avail in all cases. Enucleation of the tonsils was then carried out in all these cases, and the dyspepsia ceased entirely in 114 out of the 126 little patients.

Recurrent attacks of pneumonia in the winter months.

In a large proportion of these cases the attacks do not occur any more when the children's tonsils and adenoids are completely removed.

Enlarged mediastinal glands.

The whole question of enlarged mediastinal glands is rather sub judice at present. Some workers on the subject are inclined to believe that the X-ray appearances are fallacious and that the enlargement of the glands manifested in the skiagrams is rather apparent than real. They consider that too many symptoms and physical signs have been attributed to these glands. Other workers in their turn admit the enlargement of these glands, but question whether the condition is a tubercular one or not. Mr. Waugh said, however, that his experience had been that a large proportion of these cases of so-called enlarged mediastinal glands clear up entirely as regards symptoms when the children's tonsils and adenoids are removed.

Acute infections of bones, such as Osteomyelitis.

There is no question that a certain proportion of these acute cases are caused by an infection arising from enlarged tonsils. It is an interesting fact that operations on such acute inflammation of bone as osteomyelitis, etc., are becoming much rarer at the Children's Hospital than they used to be since widespread and effective measures have been generally undertaken for the elimination of all forms of oral and nasal sepsis.

Complete removal of tonsils.

Mr. Waugh then went on to speak of the operation for the enucleation of the tonsil. He considers that 100 per cent. of the patients suffering from enlarged unhealthy tonsils are entitled to have this operation for complete removal undertaken. It can be performed now

with perfect safety, and it is as possible to do it as to remove the appendix.

The preliminary difficulty when first beginning to do this operation, was to get an immobile field for it under chloroform anæsthesia. It was wonderful that in these early days no fatalities occurred. But by the time 1915 was reached and so much improvement had been gained in the administration of anæsthetics, a start was made with ether anæsthesia in this operation and excellent results have been obtained. The complete dissection of the tonsil can be carried out easily under ether and any subsequent hæmorrhage that might arise owing to the action of the ether in raising the blood pressure, is prevented by drawing together the anterior and posterior pillars of the fauces with two catgut stitches.

The patient must be put deeply under with ordinary open ether and the administration of the anæsthetic is then carried on by means of ether given through a Junker inhaler.

Diagnosis of unhealthy tonsils and adenoids.

Mr. Waugh then said that people often asked him the question, "How can one tell whether any given tonsil is unhealthy, or not, supposing that not much enlargement is present?" He would reply that of course it is quite easy to say when a tonsil is very enlarged that it is grossly diseased. But it is not such a simple matter when not much enlargement, if any, is manifest. He then impressed upon his hearers that in these *latter* cases, the infection is lurking in the centre of the tonsil, and in some cases a small abscess may be present. The only way to ascertain the condition of the tonsil in these dubious cases is to examine the carotid triangles for enlarged glands. If the teeth are sound and the glands in the carotid triangles are enlarged, then the tonsils are certainly diseased.

In 30,000 operations for enucleation of the tonsil performed by himself more than 200 cases have occurred in which an entirely unanticipated abscess cavity was found to be present in the centre of the enucleated tonsil and which contained half a dram to a dram of pus. The history of these patients previous to the operations showed no enlargement of the tonsils and a normal temperature chart, but some debility was present in these cases and also slight enlargement of the glands in the carotid triangles. Mr. Waugh said that he considered that if a general practitioner is called in to attend a patient suffering with an acute attack of tonsillitis, he is taking a serious responsibility upon

himself if he allows that patient to have a second attack, for until the offending tonsil is removed in these cases there is always the danger of various crippling diseases (such as have been mentioned already) following on as sequelæ to the first attack. We do not allow a patient suffering from appendicitis to have a second attack but operate on him or her. Why therefore allow a patient suffering with acute tonsillitis to have a second attack?

Mr. Waugh told a significant story in this connection, of a girl who was brought to see him by her parents after she had had an attack of acute tonsillitis. He advised immediate operation, but his advice, however, was unfortunately not followed in every particular and the parents took the girl to the sea first for a change to build up her health a bit, meaning to have the operation done later. But on her way home in the train after the sea visit the girl was seized with a second attack of acute tonsillitis. The sequelæ of that attack were double otorrhœa within five days, septic meningitis within eight days, and death on the eighteenth day after the journey in the train. In another case a subsequent attack of tonsillitis, the risk of which was accepted contrary to advice, was followed by otorrhœa on the third day, rigors on the fifth day, and death on the thirteenth day from cavernous sinus thrombosis.

A discussion then followed.

Dr. Marion Cockerell asked if Mr. Waugh considered that rheumatic fever in children was a sequel of nasal and aural infection. Mr. Waugh in reply said that Dr. Poynton believed that fifty per cent. of cases of rheumatic fever in children originated from enlarged tonsils and adenoids, but that it could occur in cases from whom the tonsils had been enucleated previously.

Dr. Flora Shepperd asked if one should consider all cases of partial nasal obstruction in infants (excepting those due to congenital syphilis) to have been caused by the presence of adenoids?

Mr. Waugh replied that one must always examine the inside of the nose as a preliminary because a split septum might be present and be the cause of the obstruction. Excluding these cases, however, and also these cases of nasal obstruction due to simple catarrh, we were left with a large number of cases due to adenoids. He then went on to describe a very useful curette designed by the late Mackay MacDonald

that he uses at Great Ormond Street, when he wishes to ascertain whether adenoids are present in an infant or not. This curette can be slipped up very easily behind the soft palate into the naso-pharynx, and if adenoids are felt by its aid they are at the same time removed by it. Thus the diagnosis and treatment of the condition can be completed at one sitting.

Dr. Scurfield then asked if adenoids are commonly present in the first few weeks of life.

Mr. Waugh said that it was difficult to give exact statistics, but in the out-patients' department of the Children's Hospital he usually sees every week two or three cases of adenoids in infants which need removal. In addition Hett has shown that adenoids are pre-natal structures.

As regards cases of nasal obstructions due to simple catarrh, these clear up very quickly if treated by simple irrigation of the nose, followed by the introduction of Ung. Iodoformi into the nostrils.

Dr. Vaughan Nash hoped that this useful address of Mr. Waugh's would be published in "Public Health." He said that he would like some information about these cases of acute suppurative otitis media occurring in children of a few weeks old. At the post mortem one finds that pus is present in the middle ear and a streptococcal infection, and also that adenoids are present in the naso-pharynx. The tonsils, however, are not enlarged. What exactly has determined the fulminating event?

Mr. Waugh said probably the presence of adenoids in bulk is quite sufficient to account for this condition. If adenoids are present in any case of otitis media there is hardly any likelihood of a permanent cure of the otitis until the adenoids have been removed.

In reply to a speaker who asked if it is absolutely necessary to insert stitches through the anterior and posterior pillars of the fauces to prevent hæmorrhage, Mr. Waugh said that statistics showed that hæmorrhage is much more likely to occur after the operation for enucleation of the tonsils if the stitches are not applied to draw together the anterior and posterior pillars of the fauces.

Another speaker asked if it would be justifiable to remove enlarged tonsils and adenoids present in children who are admitted to a fever hospital, suffering from scarlet fever, so as to prevent the complications of the disease. Mr. Waugh in reply said that the operation had been performed in a case of acute tonsillitis

with much toxæmia present, and when the onset of septicæmia was feared. The operation had been entirely successful in this case. He then referred to a series of cases of albuminuria following scarlet fever, which had become chronic. These all cleared up entirely after the tonsils had been removed in each case.

He then referred to a series of cases collected by a German surgeon where acute nephritis with suppression of urine had occurred in the course of an attack of scarlet fever. The surgeon performed enucleation of the tonsil in 30 of these cases, and the serious condition cleared up entirely in all of them and the mortality of the operations was nil.

Mr. Waugh therefore considered that enucleation of enlarged tonsils *might* be carried out in the course of a case of scarlet fever, and that the operations would be of the greatest value not only in preventing sequelæ of scarlet fever but also in preventing return cases after the patient is discharged from the hospital apparently free from infection. He also added that he considered that a diphtheria carrier can be completely cured by enucleating his tonsils.

THE SCHICK TEST.

At a recent meeting of the Metropolitan Branch, Dr. O'Brien described the Schick test and the four types of reaction encountered. The results of some three thousand tests were shown; these resembled generally the results obtained by other workers, children from a "higher" social stratum showing a lower immunity rate, i.e., a lower percentage of negative reactions, than a population from the poorer districts. The carefully guarded children in the homes of the well-to-do are not exposed to the repeated infection from diphtheria carriers to which children living in crowded tenements are exposed, and therefore the child of the wealthy has not so large a chance of becoming immune.

Active immunisation with toxin-antitoxin mixture was described and the results of some few hundred inoculations discussed. Many of the positive reactors who are immunised become rapidly negative reactors; in one group over 50 per cent. were immune within a week of the last immunising dose. Severe reactions do not occur amongst children—amongst adults they may occur, especially amongst those giving a pseudo reaction, who should never receive the full dose of 1 c.c. at the first injection.

Dealing with the diagnosis of diphtheria in

children who had given a negative reaction to the Schick test, the speaker discussed the present position of diagnosis of diphtheria. He pointed out that where the experienced clinician diagnosed the case as one of indubitable diphtheria, the laboratory would in practically every case find virulent bacilli present in large numbers. This also holds for patients convalescing from a recent attack of diphtheria.

Swabs from contacts or carriers may contain any of the various diphtheroids or Klebs Loeffler Bacilli. Many of the former are diagnosed as "diphtheria" under the present system, are notified as diphtheria, and are removed to isolation hospitals, most of them quite unnecessarily.

Nearly all of the children who had given a negative reaction to the test and had later been diagnosed as suffering from diphtheria were certainly not suffering from true clinical diphtheria. Most of them yielded merely diphtheroid bacilli or a virulent diphtheria bacilli on bacteriological examination. In only one or two instances were virulent bacilli found, and those patients, if they suffered from true diphtheria, were not seriously ill, and threw off the disease within a day or two, thereafter becoming perfectly well.

An interesting discussion followed the paper. In response to questions, Dr. O'Brien pointed out that "carriers," if they carried virulent bacilli, were probably invariably immune, and therefore gave a negative reaction to the Schick test, while carriers of avirulent bacilli might yield positive or negative reactions. People who recovered from an attack of diphtheria might show a positive reaction for a time and some indefinitely, but many become negative to the Schick test, during the six or twelve months following the disease.

With regard to diagnosis, the speaker thought the present position did not reflect credit upon our Public Health System. A laboratory diagnosis of swabs from carriers or contacts as "positive" in the absence of a test for virulence did not justify a diagnosis of diphtheria in more than a small percentage of cases. He would not go as far as the American writer who gave it as his opinion that the whole system of laboratory diagnosis of swabs should be utterly abolished and the diagnosis made by a clinical expert, but he would go a great part of the way with him. The larger centres of population, and the Health Authorities administering important areas should have available as full facilities for the virulence test as they now do for special swab diagnosis. Such an alteration would probably save its cost many times over.

Questioned concerning the course of action to be taken when a swab diagnosis is given, the speaker said that both the quantitative factor should be considered and the virulence.

So far as carriers were concerned, if a virulence test could not be done at once, he would not isolate a carrier if the bacilli in the smear from an overnight culture were very scanty. If the bacilli present proved to be virulent, the problem of the persistent carrier was a difficult one. He presumably was a considerable danger to the community. The naso-oral surgeon should remedy any pathological condition in the nose, and thereafter if the bacilli were found to be present in swabs obtained by deep pressure on the tonsils, tonsillectomy was the only resource. This measure did seem to cure a high percentage of cases. So far as swabs from patients actually ill were concerned, if the virulence test were available, Dr. O'Brien suggested that the patient should not be isolated unless a clinician with experience of diphtheria diagnosed the case clinically as one of diphtheria. When the community was threatened with what it considered danger, it could provide experts available for diagnosis in the homes of the patients. Consulting experts were rapidly mobilised for such things as smallpox, plague, encephalitis, and it would be easy to have similar visiting consulting experts available for diphtheria, who might during their visit give an initial dose of antitoxin, and would decide whether it was justifiable on the clinical evidence alone to remove the patient. If not, they would arrange for the observation of the patient until a virulence test could be made. In this way, he was sure that money would be saved.

Dr. O'Brien thought that any large infectious disease authority might easily arrange that every case admitted should be classed as either "clinical diphtheria" or "probably not diphtheria." The former class would go to the diphtheria ward and receive the proper antitoxin treatment, while the other cases would go to a separate block, receive antitoxin as a protectional measure if the receiving medical officer thought it advisable, but would be retained only for the period of three to ten days that a virulence test would take; if the bacilli present were avirulent, the patient should be discharged at once. Such a procedure would save a very large sum of money now spent by the M.A.B. and other similar authorities in the needless isolation and maintenance of patients who are not suffering from diphtheria, and, it is reasonable to say, in the light of the evidence available, are devoid of danger to the com-

munity. In reply to an objection that the Schick testing of a large school and the immunisation were very arduous and time-consuming processes, Dr. O'Brien said that the ideal condition was that every child should be immunised at an early age. He was distinctly hopeful that careful observation and experiment would soon teach us how to improve the efficiency of our toxin and antitoxin mixtures, so that one injection in infancy would give a satisfactory protection. The laboratory workers had gone far with the help of animal experiments, but without the help of clinicians and Public Health Authorities, future improvement and progress would be slow.

PUBLIC HEALTH AND BIRTH CONTROL.

At a meeting of the Home Counties Branch of the Society of Medical Officers of Health, held on Thursday, December 7th, 1922, Dr. Vercoe read a very interesting paper on "Public Health and Birth Control."

He first briefly classified the different forms of Birth Control and then compared the attitude of the modern legal code which differentiated markedly between contraception, abortion and infanticide, with the attitude of the old Jewish code, which was much more severe on contraception. The special significance of Birth Control in Public Health was then emphasised, as producing loss of population comparable to antenatal abnormalities and suggesting that the effects of Birth Control should be studied as forming the natural continuation of Child Welfare activities.

The past results of Birth Control were then considered, firstly in its qualitative aspect, showing the much smaller survival rates, firstly of the better classes as compared with others in the poorer classes; secondly, of some races as compared with others; thirdly, of certain groups as compared with others protected by anti-contraceptive traditions.

Next the qualitative results of Birth Control were estimated by comparing the case of France and Germany, which shows a loss of over twenty millions of population in France during the past 30 years, with no compensating advantage to either individual or nation.

A full description of all methods of birth control was then given, and the possible physical effects on the health of the man and woman described. The description of methods then suggested the uselessness of voluntary birth control for restricting the multiplication of the

unfit, and the danger of its misuse as shown above by the results.

The arguments for and against birth control were then considered, taking first the extreme Malthusian view, which was anxious to reduce the population and careless in its selection. The Malthusian theories of pressure of population on means of subsistence were then outlined, for Great Britain, the world and the British Empire, and the evidence quoted which relegated this hypothesis to limbo. Various other Malthusian hypotheses were similarly dealt with. Quotations by the Malthusian President were adduced, showing that he did not regret the dysgenic results of birth control, and again that he did not believe sanitation or medicine had as yet saved a life at all.

The opposite extreme view was then considered, which totally prohibited contraception under any circumstances. Some of the weaknesses of this attitude were then pointed out, but if there was no other alternative then it was to be regarded as much more reasonable and preferable than the Malthusian attitude.

Finally, the view was considered that birth control should be guided into eugenic channels, that the multiplication of the better types should be encouraged and that birth restriction should be reserved for exceptional cases and under special safeguard. The effect of taxation was estimated, and various considerations of medical interest were introduced for general discussion, such as the effect, if any, of spacing out births, the effect of the position in the family and the health of the child, and so on.

The general conclusion seemed to be that given average health and freedom from laborious toil, there seemed no reason to believe that limitation was desirable in the interest of the mother. On the other hand, if the mother's health was in any way prejudiced by disease, then the risk to herself and offspring became very material.

Dr. Kirkhope opened discussion by commenting on the influence of the various religious conventions in the population generally. He seemed to favour the view that the Roman Catholic attitude made the nearest approach to the ideal.

Dr. Porter dwelt on the fact that the prophesy made by the Malthusians had not been borne out. As an actual fact the amount of food consumed per head of the population has increased in proportion to their numbers. He commented on the difference in the social grades of society, laying emphasis on the fact that food supply and

comfort were invariably correlated with the birth rate.

Dr. Ewart, in continuing the discussion, enlarged on the theme suggested by Dr. Porter. He expressed his opinion that the increase in the food supply had something to do with the fall in fertility. He suggested that there was considerable doubt as to the reliability of the methods recommended and that the total amount of "contra-ceptives" sold was not sufficient to account for the fall in the birth rate during the last 50 years. He quoted certain statistical work done amongst the Girton graduates, which seemed to suggest that the family was largest where the use of these methods was admitted. The falling off in fertility certainly seemed to occur in the later marriage ages and that total inhibition was much more common during those years. It seemed to him that the change occurring in the population was inevitable and was dependent on intrinsic causes, and that the only apparent method to raise the birth rate was to subject the population to hardships. He held that there was a creative element in the germ plasm itself, which was of such practical importance as to be able to produce from a slum population the intelligence necessary for organised life.

NOTES FROM BRANCHES.

WEST OF ENGLAND.

PANEL DISPENSING.

A year or so ago the Standing Joint Committee of the South-Western Group of Panel and Local Medical Committees issued a "Formulary" of stock mixtures and prescriptions for use in their area. A small series of 20 informal samples from 18 chemists in one district was sent for analysis recently. The results were rather interesting. Of four potassium iodide mixtures, two were below standard, though the deficiency was less than 5 per cent. Four potassium bromide mixtures which should have contained 10 grains to the half-ounce actually showed 7.3, 10.4, 7.88, and 12.4 grains. The last of these was a subsequent purchase from the same shop as that from which the first had been obtained. Of fourteen estimations of bismuth carbonate and sodium bicarbonate, none showed less than the 10 grains ordered, but several contained excessive amounts—as much as 13.3 and 15.4 of the former and 13.8 and 16.0 of the latter.

It is evident that two of the bromide samples might be considered to be seriously defective, while the excess in the alkaline mixtures seems evidence of carelessness in dispensing which it is impossible to justify. It was reasonable to criticise adversely at least eight out of the twenty samples.

NOTIFICATION OF VENEREAL DISEASE.

The following resolution was approved by the Bath City Council of 6th February. It was proposed by the Chairman of the Health Committee and seconded by Dr. Preston King, the Chairman of the Hospital Sub-Committee—

"That in the opinion of this Committee the time has arrived when the diseases of syphilis and gonorrhœa should be notifiable diseases, and that the Town Clerk be instructed to enquire of the Ministry of Health if they would be prepared to approve an order applying the Infectious Disease (Notification) Act, 1889, in the City of Bath to the diseases of syphilis and gonorrhœa."

It was stated by the seconder in the course of the discussion that the Act referred to was the only one under which any action seemed possible at present. The object in view, however, was really "conditional" or "modified" notification which should concern itself only with patients who neglected to complete the course of treatment they were undergoing. This is in accordance with the recently published recommendation of the committee appointed by the New Zealand Board of Health, and also with the opinion of the Bristol Division of the British Medical Association as expressed at a meeting held last December.

SCOTTISH NOTES.

SALARIES SCALE.

A conjoint meeting of the Scottish Committee of the British Medical Association, the Scottish Branch of the Society of Medical Officers of Health, and the Scottish Association of School Medical Officers was held in the Caledonian Station Hotel, Edinburgh, under the chairmanship of Dr. John Stevens, Edinburgh, on February 1st, to consider the scale of minimum salaries for Public Health Medical Officers.

(1) With regard to Resident Medical Officers' salaries, it was brought before the meeting that certain appointments in the large General Hospitals are of great educative value, and that in the large provincial centres in Scotland these are unpaid appointments. The junior posts, however,

in Sanatoria and Fever Hospitals are generally filled by Medical Officers who have served as Resident House Surgeons in General Hospitals, and it is to these medical appointments that the salary and emoluments apply.

(2) In connection with Medical Officers employed in Departments, the question arose whether the three years' training should be special, i.e., in Tuberculosis, Schools, or Child Welfare or general, and the present juniors in these departments should not be classed as clinical clerks.

The schedule was generally approved, but the present parsimonious attitude of the Scottish Board of Health will be an undoubted stumbling block in the way of the general raising of salaries of those engaged in Public Health work in Scotland.

SLUM AREAS.

Schemes for the clearance of slum areas from various districts of Scotland are at present before the Board of Health. The sum of £30,000 has been allocated to Scotland. It is supposed that this will be a yearly grant. Over 13,000 houses in Glasgow alone have been reported on as unfit for human habitation. As a preliminary step, 2,027 houses have been scheduled for the present clearance scheme, which will entail an annual charge of $\frac{1}{2}$ d. in the pound on the city rates. It will be at least three years before suitable alternative accommodation can be built for dispossessed tenants at the present rate of construction. Again, a large number of houses in the city have had closing orders made, against which there are appeals. The appeals in these cases have been lying dormant for various periods, as it is impossible to find alternative accommodation at present for tenants who may be dispossessed. Neither repairs nor reconstruction can be carried out in these houses and they gradually become derelict. The present scheme in Glasgow includes the worst areas in the city and consequently includes a large number of these houses, but it is obvious that in a slum clearance area all such houses are not included, as there are many isolated examples of this class of house surrounded by well built, wholesome houses. Such houses would require a weeding out scheme rather than a slum clearance scheme.

DR. ARTHUR MEEK has been appointed by the public health committee of Dundee town council to the post of resident medical officer for Ashludie Sanatorium.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.

COUNCIL MEETING.

A meeting of the Council was held at the house of the Society on Friday, Feb. 16th, the president (Dr. T. Eustace Hill) in the chair. There were present Drs. Porter, Ewart, Shadick Higgins, McMaster, Wheatley, Howarth, Kerr, Veitch Clark, Lyster, Frederic Thomson, Clements, Stirk, Peyton, Garstang, Jolly, Pearce, Snell, Gibbons Ward, Rees-Jones, Stocks, Cates, G. F. Buchan and Lt.-Col. Herbert Jones.

The minutes of the last meeting having been approved and signed, letters of apology were received from Dr. G. W. N. Joseph, Dr. J. T. C. Nash and Dr. T. W. Naylor Barlow.

Correspondence.—(1) From Dr. Charles Porter drawing attention to the offer of various Laboratories to undertake Bacteriological Tests of Graded Milk at fees which could not permit of the fair remuneration of bacteriologists engaged in this work. It was agreed that the matter should be brought to the notice of the British Medical Association with an intimation that the Society regarded the fees as quite inadequate and as offering no inducement to bacteriologists to undertake work of this character, which might thus pass into the hands of ill-qualified persons. (2) From a medical officer of health enclosing a report of a speech to the General Medical Council, in which it was suggested that publicity methods of an improper kind by medical men engaged in the public service should be the subject of enquiry, and asking to be informed what the speaker had in his mind. It was agreed that no action should be taken in this matter. (3) From the British Medical Association nominating Dr. C. E. S. Fleming and Dr. J. W. Bone for election to the Society's Special Committee on the Working of the Central Midwives Board.

Central Midwives Board.—Dr. R. A. Lyster, who has represented the society on this Board since February, 1921, submitted the following report:

"Your representative during the past year has attended all the meetings of the Board and its Committees and has also served as a member of a small sub-committee which deals with approvals of lecturers and teachers.

"The subjects specially reported upon last year continue to occupy the most prominent position. In connection with the administration

of drugs the B.M.A. and other medical bodies, and also numerous local supervising authorities, have taken strong exception to the administration of such drugs as opium or pituitrin by midwives except under the direction of a medical man. The Board has up to the present declined to take any action on this representation. It is understood that the B.M.A. has subsequently decided not to press any further its objection to the use of opium by midwives, but the matter is still being vigorously pressed by Local Supervising Authorities. Recently the following resolution was sent to the Board from the Surrey County Council:

"That the Central Midwives Board be urged to consider the desirability of making a rule prohibiting the application or administration by a midwife of any drug (e.g., pituitrin or ergot) other than a simple aperient, before the birth of the child except under the direction in each case of a registered medical practitioner."

"This resolution has been adopted and forwarded to the Board by the County Councils of Durham, Leicester, Salop, Hampshire, Yorkshire—East Riding, and the County Boroughs of Manchester, Great Yarmouth, Carlisle, Southend-on-Sea, Plymouth, Blackpool, Bury, Rochdale.

"To each of these authorities the Board sends a reply to the effect that "The Central Midwives Board has always declined to schedule drugs except in so far as stated in Rule E 19, and sees no reason to depart from its practice in this respect."

"Recent cases brought before the Board reveal the disturbing fact that the administration of drugs, including the administration of chloroform, and also the carrying out of minor operations such as the use of forceps and the stitching of the perineum, etc., without medical supervision, is a far more common incident than is generally supposed. It is an encouraging fact that in connection with the administration of chloroform and the use of forceps, a recent decision of the Board seems to indicate that the Board is not prepared to countenance such practices in the future. Many of the administrative difficulties in some areas are due to the fact that the Board have up to the present declined to insist upon the observance of the rules by midwives when acting as monthly nurses. As the result of this position, in any charge of breach of the rules on the part of the midwife,

it is considered to be a valid defence if the midwife produces proof that she was acting as a monthly nurse in the case in question. If a doctor has been booked for the case the midwife is free of practically all the rules. This leads to serious and undesirable practices on the part of many midwives, and helps evasion of the rules in general. Doctors are said to be "booked" for a case, but frequently do not attend during the confinement, and in some instances never attend at all. In such cases the midwife is not bound by the majority of the rules of the Central Midwives Board, and is not even expected to put the cases in her register. In this connection the C.M.B. has resolved that in the opinion of the Board the Midwives Acts confer no jurisdiction upon either the C.M.B. or the Local Supervising Authorities to investigate charges of malpractice, negligence or professional misconduct preferred against the midwife when acting as monthly nurse, unless her conduct constitutes a violation of Rule E 6.

"The freedom of midwives from the observance of the rules when a doctor is booked for a case constitutes, when combined with the comparatively common practice of midwives of employing unqualified assistants, a very serious danger to the medical profession. A case recently brought before the Board showed the following position. A midwife books a number of cases where a doctor also is said to have been booked. She therefore knows that she is free of the C.M.B. rules for these cases and abuses this freedom by sending in her place her unqualified assistant. The doctor who has booked these cases knows that a registered midwife has also been booked and does not attend unless he is sent for by the midwife. The unqualified assistant gets into some difficulty and sends for the doctor, thereby rendering him liable to a charge of "covering."

"Fortunately, in connection with this extremely difficult subject, your representative is able to report more hopefully with regard to the present position. At the last meeting of the Board a special sub-committee was appointed to consider this difficulty and to report upon the extent to which midwives acting as monthly nurses should be expected to comply with the rules of the Board. Your representative has been appointed upon this sub-committee and a meeting has been fixed for an early date.

"Another matter for considerable satisfaction

is the recent appointment by the Council of the Soc. M.O.H. of a sub-committee to draft a report upon the working of the Midwives Acts. This committee has met and has issued an inquiry to all the branches upon this subject, and it is hoped that a report will be before this council before long. The position of your representative upon the Central Midwives Board will be made much more satisfactory if and when an authoritative report upon the subject is issued by this Council."

Having been thanked for his report, Dr. Lyster was re-elected to represent the society on the Board for the year ending March 31st, 1924.

The Duties of Medical Officers of Health.—The Council considered a draft of a memorandum on the duties of medical officers of health in preparation by the Ministry of Health. Certain amendments were adopted for recommendation to the Ministry.

The Journal Committee.—A report was submitted by the Journal Committee and received without discussion.

Disciplinary.—In accordance with Article II of the Society's Articles of Association, the resignation was accepted of a member of the society, who recently applied for an appointment which was not approved by the B.M.A. and the society. Another member who applied for the same post attended at the invitation of the Council and gave assurances that he would accept the decisions of the society in future in regard to terms of appointment. The president pointed out that in such matters it was essential that individual members should loyally support those responsible for carrying out the policy of the whole society.

The Council then adjourned.

ORDINARY MEETING.

An ordinary meeting was held at the house of the Society on Friday, February 16th, the President (Dr. T. Eustace Hill) in the chair.

The minutes of the last meeting having been approved and signed, the following candidates, having been duly nominated, were elected to the Society:—

As Members:

Adams, Martha, M.B., Ch.B., Glasg., D.P.H.; Brookman, Hubert, M.R.C.S., L.R.C.P.; Craig, Theodore, M.B., Ch.B., Edin.; Drysdale, John Carstairs, M.B., Ch.B., Edin., D.P.H.; Duncan, Robert Reid, M.B., Ch.B., Aberd., D.P.H.; Emslie, Margaret, M.B., Ch.B., Aberd.; Fonseca, Frank, F.R.C.S., I., L.A.H., D.P.H.; Fraser, Wm. Mowll, M.B., Ch.B., M.Sc., Liv., D.P.H.; Gill, David Marmaduke, M.B., C.M., Aberd.; Gordon, Jas.

Edward, O.B.E., M.R.C.S., L.R.C.P.; Hawthorne, Ernest Sydney, F.R.C.S., L.R.C.P., I., D.P.H.; Herington, Cecil Edward Eede, M.B., B.S., Lond., M.R.C.S., L.R.C.P., D.P.H.; MacMahon, Aloysius Dominic, M.B., B.Ch., N.V.I., D.P.H.; Martin, Jas. Sackville, M.D., C.M., Edin., M.R.C.S., L.R.C.P.; Orkney, Jean Murray, M.B., Ch.B., St. And.; Richards, Maude Margaret, M.B., B.S., Lond.; Riddell, William Alex., M.B., Ch.B., Glasg.; Shaw, Geo. Hedley, M.B., Ch.B., Vict.; Simpson, John Watson, M.B., Ch.B., Ed., D.P.H.

As Associate:

Tattersfield, William Henry, L.D.S.

A number of candidates were nominated for election at the next meeting.

Dr. Major Greenwood read a paper with lantern illustrations on "The Medical Officer of Health as a Prophet." A discussion followed, which with the paper will appear in an early issue of "Public Health."

The proceedings closed with a cordial vote of thanks to Dr. Greenwood.

PROCEEDINGS.

YORKSHIRE BRANCH.

A meeting of the Branch was held in the Education Offices, Leeds, on Friday, January 26th, at 2.30 p.m.

Present: Dr. J. Buck (President) and 20 members.

The minutes of the last meeting were read and confirmed.

The Secretary read the circular letter received from the Executive Secretary with reference to the Salary Scale, and containing the request that the Branch would at once institute a campaign with the local branches of the B.M.A. to procure the support of their scale at the Representative Meeting of the B.M.A. to be held in Portsmouth in July.

The following gentlemen were then appointed by the meeting to approach the Secretaries of the branches of the B.M.A. in their own areas:—Drs. Buchan (Bradford), Banks (Halifax), Jarvis (Leeds), Gibson (Wakefield), Francis (Barnsley), Wynne (Sheffield), Linton (Scarborough), Holden (Dewsbury), Mair (Harrogate), Moore (Huddersfield), McNaught (York), Wright Mason (Hull), and Newsholme (North Riding).

The Honorary Secretary was also instructed to write to the Secretary of each division of the Yorks Branch of the B.M.A., sending him the name of the Society representatives and requesting that a conference may be held and the matter of the Salary Scale laid before the division.

Dr. Gibson, of Wakefield, then read a paper on the New Dairies and Milk (A) Act, 1922, which was listened to with keen attention by the members.

A brisk discussion followed, in which many members took part. Dr. Moore then moved, and Dr. Smith seconded, the following resolution:—"That this Branch of the Society of Medical Officers of Health, having given detailed consideration to the Milk and Dairies Amendment Act, 1922, is satisfied that the said Act is of little utility in securing a satisfactory milk supply for the people. This was carried unanimously.

HOME COUNTIES BRANCH.

At a meeting of the Home Counties Branch of the Society of Medical Officers of Health, held at the house of the Society on Friday, February 2nd, the following debate took place, the President (Dr. A. B. McMaster) in the chair:—

Dr. McMaster (President), having welcomed the members, expressed the hope that these joint meetings would tend to cement the Society as a whole.

He then called upon Dr. R. J. Ewart to open a debate upon the resolution proposed, viz., "That the current explanation of the fall in infant mortality constitutes an unjustifiable slur on Victorian motherhood."

In opening discussion, quotations from the annual reports of the Chief Medical Officer of the Ministry of Health were read. The sentence to which exception was made was as follows:—"The principle operating influence is the ignorance of the mother, and the remedy is the education of the mother." He pointed out that if this were true, it necessarily implied that the Victorian mother killed every tenth child in the first year of its life, through ignorance and sloppiness.

In the course of his argument he laid stress on the fundamental factors underlying infant mortality, which he stated as follows:—

(1) Birth Rate; (2) Health of Mother; (3) Bacterial Content of Food; (4) Bacterial Content of Air; (5) Clothing, Feeding and other items included in maternal care. He showed that owing to the fall in the birth-rate, an infant mortality of 90 would not necessitate comment, and also that a decline was to be expected on account of the improvement in the mother's health. The main factor, however, was the bacterial content of the child's food, and he gave examples, where the most insanitary conditions existed, with infant mortalities of 40-50 per 1,000. He applied these facts to the history of the country as a whole,

and suggested that the rise from 1881 to 1899 and the fall in 1899 in England and Ireland was dependent upon the changes in the milk used as food for infants, the rise being due to the deterioration of the supply due to the increase in distance of transit, and the fall being dependent upon the replacement of this contaminated supply by the milk products.

He stated that a mothercraft based on tradition under most insanitary conditions gave a mortality of 50, provided the bacterial content was under control, and the establishment in towns of similar conditions by use of milk products produced a similar result. The adoption of this policy on a much wider scale by our Infant Welfare Centres was the main factor responsible for the present state of affairs. He also showed that the change in the method of feeding was in the first instance due to the mothers themselves.

He concluded his vigorous address by stating that the means whereby the deleterious effects of urbanisation on infant life could be overcome was discovered by the Victorian mother, and all credit was due to her. It was absurd to suggest that she was ignorant of mothercraft.

Dr. Wyllie seconded the motion, and in doing so referred to the "what she considered were rather misleading statistics" published in the Maternity and Child Welfare Section of the Chief Medical Officer's report for 1920. She emphasized the fact that much of what is called ignorance is of the invincible type and cannot be effected by tuition. She certainly felt that the claims made were much overstated, and in her opinion the main factor of infant mortality was the bacterial content of food.

Dr. Scurfield, in continuing the debate against the resolution, felt that he was in a difficult position, as much that had been previously stated must be accepted. He disagreed, however, with the opening statement. In his opinion child welfare work had influence some years previous to the passing of the Notification of Births Act, 1907. He outlined certain welfare schemes in Sheffield, etc., and traced their work, and expressed his opinion that even if the Victorian mother was ignorant, the slur could not be held to be an insult. Each generation had its information and acted accordingly to the best of its knowledge. He suggested that the medical profession was to blame in former years for so neglecting the science of child study.

Dr. Seekings Friel, in supporting Dr. Scurfield, dwelt on instances of ignorance which was not of an invincible type.

An animated discussion followed, in which Lady Briscoe, Drs. McIntosh, Kidd, and McMasters took part.

Dr. Ewart then replied, and the President put the resolution to the vote, from which it appeared that there was a small majority in favour of the rejection of the resolution.

MIDLAND BRANCH.

Meeting held in the Council House, Birmingham, Thursday, February 1st, 1923.

Present: Dr. H. Gibbons Ward (President) and 13 members.

Minutes of the previous meeting were read, confirmed, and signed. The Council recommended that Dr. Ridley Bailey be nominated by the Branch for the Presidency of the Society for 1923-24. This was carried unanimously.

Special Report on London Government.—The Council intimated that this report had been carefully considered by them, as a result of which they recommended the following resolution to the Branch:—

It was thereupon resolved:—

"That this Branch has carefully considered the report of the Special Committee on London Government, and are of the opinion that the recommendations are too vague for any positive approval to be expressed. The Branch, however, views with apprehension the suggestion contained in recommendation (6), which appears to foreshadow the formation of a new governing body, viz., a Provincial Council. The Branch considers that so far as the provinces are concerned efforts should be concentrated towards the diminution in the number of local authorities and bodies and the avoidance of the present overlapping."

Salaries Campaign.—Dr. Snell explained the present position with regard to the above, and two letters from the Executive Secretary were also read. In furtherance of this campaign the Hon. Secretary was instructed to send out a special notice to all members asking them to attend the forthcoming meetings of their divisions of the B.M.A. Nominations were made for members who might be willing to put the Society's case before the various B.M.A. divisions in the Midland area when the Scale of Salaries came up for discussion. Instructions were given for these members to be communicated with. The Hon. Secretary was also requested to endeavour to ascertain by circular letter, or otherwise, the number of members of the Midland Branch who also belong to the B.M.A.

A letter was read from the Executive Secretary expressing the hope of the Council that Medical Officers of Health will do everything possible to enable their colleagues to attend meetings of the Society. No action was taken.

A further letter was read asking that the Committee appointed by the Council of the Society to report on the working of the Midwives Act and the rules of the C.M.B. might be favoured with any observations that the Branch desired to submit. It was resolved that this matter be placed on the agenda for the next meeting.

Dr. Cyriax then read his paper on "Venereal Disease Legislation in Sweden," in which he gave a clear detailed account of the various legal enactments in force in that country dealing with this disease. The paper was illustrated wherever possible by copies of the pamphlets and forms used for the notification of the disease, the treatment of defaulters, etc. A discussion ensued, in which the President, Drs. Wilkins, Hamilton Wood, Rose Molloy, and others took part, after which the speaker briefly replied.

A hearty vote of thanks was accorded to Dr. Cyriax for his interesting paper.

Dr. Clendinnen moved a resolution, of which he had previously given notice. After a certain slight amendment had been made and accepted by the mover, the following resolution was carried unanimously:—

Resolved: "That this Branch request the Council of the Society to urge the Ministry of Health to introduce the legislation necessary to carry out the recommendations of the Departmental Committee on Meat Inspection."

ROYAL INSTITUTE OF PUBLIC HEALTH CONGRESS IN SCARBOROUGH.

In response to a cordial invitation from the mayor and the municipality, the Royal Institute of Public Health have arranged to hold their annual congress in Scarborough from Wednesday, May 16th, to Monday, May 21st, 1923. The Congress is divided into five sections which will meet to consider respectively:

- (1) State Medicine and Municipal Hygiene.
- (2) Naval, Military, Air and Tropical Diseases.
- (3) Bacteriology and Bio-Chemistry.
- (4) Women and Public Health.
- (5) Industrial Hygiene.

CORRESPONDENCE.

The Editor does not accept responsibility for the opinions of correspondents.

THE SPREAD OF CHOLERA.

From Dr. J. MITCHELL WILSON.

SIR,—The very interesting paper in your last number by Dr. Hamer on the "London Epidemics of Cholera" will no doubt receive well-deserved consideration from those who are better acquainted with the many districts and numerous streets in London mentioned in that paper, than the great majority of the readers of our journal are.

But the question of the cause of cholera in London has a great concern for other communities, and any arguments or suggestions that the water origin of that disease in one part of Great Britain cannot be maintained, must then compel medical officers of health everywhere to reconsider their beliefs and convictions on this subject.

If, at the outset it would be admitted, that shell-fish or ordinary fish are considered merely as the vehicles which conveyed the infection which was present in the water, the whole inquiry would be simplified and the works for prevention would then be on the same lines, but extended to meet both the chief and secondary causes of the disease.

There have been numerous outbreaks of enteric fever, which were in no way related to eating shellfish, but wholly caused by polluted drinking water: so there have been outbreaks of cholera, investigated by clear-headed observers, which were believed on good evidence, to be caused by drinking water infected with the specific organism of cholera. The best possible proof of the correctness of their decisions, was that the entire removal of the suspected source of the infection was followed by a discontinuance of the disease; or, if the removal was only partial then there was a marked lessening in the number of cases. Similarly, if no attempt was made to remove the suspected cause, a recurrence of the disease followed whenever specific infection again reached the water supply.

There are two well-authenticated cases which illustrate these views: first, that of Glasgow, as given in the admirable volume by Dr. Chalmers on the "Public Health Administration" of that city, as it records the great work carried out

there by his eminent predecessor, Dr. J. B. Russell.

The briefest way of giving Dr. Russell's views, is by quoting a short table on page 357 of the book above referred to.

MORTALITY FROM CHOLERA IN GLASGOW.

	Polluted Water Period		Pure Water Period
	Wholly	Partially.	
Year of Cholera Epidemic ...	1832 ... 1849 ...	1854 ... 1866	
Total Mortality in Glasgow ...	2842 ... 3772 ...	3886 ...	88
Mortality per 10,000 of population ...	140 ... 106 ...	119 ...	1.6

Whatever contributory conditions of an insanitary kind existed to spread the infection, they were existing in 1832, in 1849, and in 1866, so that the main influence for good was the improving conditions of the water supply.

Second: In the Registrar General's report on the epidemic of cholera in 1849, he gives figures of the deaths from that disease in the outbreaks of 1832 and 1849, in nineteen of the chief towns in England. In one series the deaths were less in the later as compared with the former. Exeter is a specially favourable case. In 1832 there were 341 deaths there: in 1849 there were forty-four. Among those where there were a greater number of deaths was Hull. The population in the twenty years 1831-51 had not quite doubled. The deaths from cholera in 1832 were three hundred; in 1849 they were 1,178. The explanation given is: "Hull in 1832 was scantily supplied with water from springs at Anlaby, three miles distant. About seven years since waterworks were established on the river Hull, two miles and three-quarters above its confluence with the Humber, and afford the town a plentiful supply. But half the sewage of the town is delivered into the waters of the river Hull, and half into the Humber; the tide flows up the river many miles past the waterworks and carries with it the contaminated waters of the sewers." (Page 77, R.G. Report.)

Hull soon after obtained a pure supply from deep wells in the chalk.

In the three cases quoted there is the strongest presumptive evidence that the change which had occurred to influence the spread of the cholera was the water supply. Hull, as a great seaport, had often to run the risk of fresh importa-

tions of infection, but the great increase of the cases must have been due to a widely distributing agent, viz., the water supply.

Yours truly,

J. MITCHELL WILSON.

Beverley.

THE G.P.'s POINT OF VIEW.

From Dr. V. P. NORMAN.

Sir,—Although a mere "G.P.," but nevertheless one who has had some experience of matters relating to Public Health, having been "part-time" Medical Officer of Health for a rural district, besides spending some time as School Medical Officer and resident at a fever hospital, I would like to, with your kind permission, offer a few criticisms on how Medical Officers of Health and their activities appear to a general practitioner like myself. I would like to say at the outset that some of my very particular friends are Medical Officers of Health, and while admiring them for their zeal and sincerity in their "job," they are, to me, something separate and distinct from the medical men of general practice, they have a mentality peculiar to themselves, and while, in the main, harmless, I have sometimes been deeply concerned for them. Far be it for me to suggest that some of these gentlemen (excellent fellows in themselves) are fit subjects for the alienist, they may return the compliment, and, who knows, they may be right. Still, Sir, if you will bear with me I shall unfold my argument in all humbleness of spirit.

To begin with, let us take the subject of *tuberculosis*, that vast field where statistics grow with the virility of weeds, choking the delicate flowers of fact, and adding a terror to the compilation of "returns" so dear to the official heart.

I once knew a tuberculosis officer who wrote long reports—but that is another story! When I have had a patient with signs indicative of early pulmonary "T.B." I have sent him with a note to the local tuberculosis officer; result, a week later, a letter, voluminous in size, spacious in argument, with the concluding intimation that the writer thereof agrees with my diagnosis. I am very pleased and metaphorically slap myself on the back, feeling I have done well by my patient, who is in good hands. Alas, three months later, I receive a form to fill up regarding XY's state of health, condition of lungs, exact

localisation of the "creps," environment, and half-a-dozen other more or less relevant questions. Three months later I am probably issuing a death certificate for XY!

Until we discover a "cure" for tuberculosis I submit that the present method of "treatment"—which consists in making entries in a book for purposes of "returns"—is a waste of time and money and unworthy of a serious profession.

Infant Welfare.—I have been myself in charge of such a "centre," and have been dismayed to find of what little use such places are to the general public. The mothers who bring their babies to the infant "clinic" are, for the most part, those who already take an interest in their children and do their best for them, and for these, when in doubt, the family doctor is always available. But that very large proportion of mothers, living in back streets, who let their children get on as best they can and whose carelessness helps swell the infant mortality returns, they are never seen at a baby "centre," and, what is more, no attempt is made to get at them. In fact, one M.O.H. I know maintains that these are not the mothers the "baby clinic" wants. What are wanted are the mothers who belong to the "beautiful perambulator brigade" who enter for the "Baby Week" competitions and are fondled and made unhappy by maiden ladies anxious "to do good"!

Infant welfare, Sir, from my point of view, is, to put it mildly, a "washout" and not worth the time and money spent on it, that is, infant welfare, as at present carried out by most local authorities. Suppose, for argument's sake, we did manage to coax the back streets mothers to bring their babies to a "centre." What then? After much learned advice, weighing, and suggestions, the babies are taken back to homes that would nauseate a decently-bred polecat! I have in mind several cases where the home conditions were so grossly insanitary and where no steps whatever were taken by the Sanitary Department when their attention had been drawn to it, that it made one wonder whether one's duty lay in accepting the situation as unalterable or to "raise Cain" in the local press. The bedrock of prevention of infant mortality is housing, proper sanitation in the homes of the poor, and attention to elementary sanitary details, and no amount of baby clinics will help to solve the problem. I contend that much public money is wasted on matters that matter not and are nothing but eyewash, providing the pabulum for the

building up of "returns" and wearisome reports, while the essentials of true public health remain unnoticed.

Infectious Disease Notification, very useful as to most infectious diseases, but why is measles made notifiable? I have never known an M.O.H. to take any action calculated to control an outbreak of measles after a certificate supplied by me or any other "G.P." for that matter. Still it, no doubt, provides something to put in the weekly "return" to the Council.

Notification of Births, as demanded of the general practitioner, a more fatuous form of forcible feeding it would be hard to find, and as to being productive of any public good, I have still to see this proved.

I believe I am right in expressing the opinion that 90 per cent. of general medical practitioners would welcome the abolition of the present-day activities of the Public Health Service and see a re-modelling of the Service on more practical, and therefore useful, lines.

With apologies for the length of this letter, I am, Sir,

Your obedient servant,

VINCENT P. NORMAN,
F.R.C.S. (Edin.), D.P.H. (Lond.).

OBITUARY.

DR. ALFRED EDWIN HARRIS, formerly Medical Officer of Health for Islington.

We regret to have to record the death of Dr. Alfred Edwin Harris, formerly Medical Officer of Health for Islington. Dr. Harris was a well-known member of the Society of Medical Officers of Health, and occupied the position of Medical Officer of Health and Administrative Tuberculosis Officer to the Metropolitan Borough of Islington from 1892 to 1921. Previously, from 1881 to 1892 he was Medical Officer of Health and Public Analyst to the County Borough of Sunderland, and Port Medical Officer to the Port Sanitary Authority there. The "Islington Gazette" of January 29th, 1923, contains the following notice:

The funeral took place on Saturday at Islington Cemetery, East Finchley, of Dr. A. E. Harris, who was medical officer of Islington from 1892 to 1921. Previous to that he was medical officer of health for Sunderland from 1881.

Dr. Harris, whose long record of work in the betterment of the public health of Islington is held in high appreciative remembrance throughout the borough, passed away on the 24th inst., at the age of seventy-two.

An outstanding feature was his endeavour on behalf of infant welfare, and it was a gratifying fact that his untiring efforts in this direction were followed by the establishment of a school for mothers and infant welfare centre in each of the four divisions of Islington. The combating of tuberculosis was another matter which Dr. Harris applied himself to with unflagging zeal, and in the end he had the satisfaction of seeing two tuberculosis dispensaries opened in the borough.

Many members of the town hall staff attended the funeral. Among the floral tributes was one from the Public Health Department, with the letters "P.H.D." arranged in violets.

PROF. JOSEPH RADCLIFFE.

Many members of the Public Health Service will feel a personal loss in the death of Professor Joseph Radcliffe, head of the Sanitary Engineering Section of the Manchester College of Technology. He was born at Rochdale sixty-six years ago, and after attending science classes in the town he won a scholarship to Owens College. He began municipal work in the Waterworks Department of the Rochdale Town Council, and was subsequently appointed Engineer to the Todmorton Waterworks Company. In 1898 he started to practise as a Sanitary Engineer, and in 1903 he joined the staff of the School of Technology.

Ten years ago the writer acted, for the first time, as an examiner for the Royal Sanitary Institute. His colleague on that occasion was a kindly, unassuming, quietly spoken, well dressed man of medium height and sturdy build. As the viva voce examination went on, one was impressed by the painstaking thoroughness with which Professor Radcliffe probed the foundations of each candidate's training in elementary science. The questions were searching, but the examiner was scrupulously fair; always careful not to embarrass, ever ready to encourage with a timely word.

The war period tried him sorely, and he would at times refer to the long hours at the College and the tedious journeys late at night back to Southport, where he was then living.

The professional attainments of his sons, of whom he was justly proud, were a great satisfaction to him, and in recent years he began to see again their childhood in the upbringing of a motherless grandson.

The life of Joseph Radcliffe is an outstanding example of ambition achieved by resolute determination. Having himself climbed the ladder to success, he was quick to offer to others a helping hand. He has been spared the cold and cheerless stage of decay, the dull and dreary waiting to depart.

THE COLLEGE OF NURSING.

PUBLIC HEALTH SECTION.

A Public Health Section is being formed of members of the College who are engaged in public health work.

There are over 22,000 trained nurses, members of the College, many of whom hold appointments under one or other of the public health services, and the section is being formed at the request of many of these members, with the sympathy and support of many medical officers of health.

The objects of the section are: "To deal with all questions relating to the training, salary, status and general welfare of nurses engaged in public health work, and to afford mutual help and inspiration."

Trained nurses engaged in public health work are invited to send for particulars and application forms to: The Secretary, Public Health Section, College of Nursing, 7 Henrietta Street, Cavendish Square, London, W.1.

DR. NORMAN MACFADYEN has resigned his appointment as medical officer of health for the Letchworth urban district.

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Editorial.

MIDWIVES ACTING AS MATERNITY NURSES.

Certified midwives may be divided into two classes, viz., those who practise, and those who do not. The former class may be sub-divided into three sub-classes—(1) those who practise as midwives either on their own account or in the employment of medical practitioners or institutions, (2) those who practise as maternity or monthly nurses only under the direction of medical practitioners or institutions, and (3) those who do a little of both, i.e., act in the capacity both of midwife and of monthly nurse. It is to the two latter sub-classes that these remarks chiefly apply.

The practise of certified midwives acting as monthly nurses is one which has grown very considerably in recent years. They may either "follow certain doctors"—to use a phrase common in the midwives' parlance—or they may be employed by a doctor or firm of doctors at a stated salary. The *modus operandi* seems to be that cases are booked by the medical man or by the firm as the case may be, and immediately the confinement is over are handed over to the maternity nurse who looks after them until the end of the puerperium. In this way the doctor is saved the necessity of making further visits during the puerperium unless, of course, his presence is needed by reason of sudden illness on the part of the mother or baby. In actual practise what happens is that the number of cases booked is usually so great as to make it perfectly impossible for the doctor personally to conduct all the confinements. The result is that the maternity nurse is left with the whole case, and not only looks after the mother and baby during the puerperium, but also conducts the labour itself, or in other words, acts as a midwife. A registered midwife who professes to be practising only as

maternity nurse does not as a rule notify her intention to practise to the Local Authority of the district in which she resides; she is not obliged to conform to the rules of the Central Midwives Board; and she is at liberty to employ untrained help whenever she pleases. Herein lies the difference between the alleged maternity nurse and the practising midwife, and it is a difference which is of serious import both to the midwifery service and to the public because it means that a large and ever-growing section of midwives is without adequate supervision or control. It may be objected by those who defend the system that the maternity nurse, being under the supervision of medical men, requires no further supervision, and that to introduce the Local Authority would simply mean the institution of dual control which would make for confusion and inefficiency. With such an argument we cannot agree, because the mere fact of a midwife acting under the direction of a medical man should not absolve her from conforming with the standards required of the midwife practising independently. Surely it is quite as necessary for a maternity nurse who is left with practically the entire responsibility for mother and baby during the ten days after confinement to be compelled to observe the rules with regard to "cleanliness," "the regular taking and recording of temperature and pulse," and "the keeping of a proper register of her cases," as it is for the practising midwife. The fact that the midwife acting as maternity nurse is not required to notify her intention to practise nor to observe the rules of the Central Midwives Board places her in a favoured position compared with her practising sister. This fact is to be observed time and again when cases come before the Penal Cases Committee of the Central Midwives Board. If the midwife can prove that at the time of her offence she was acting as a maternity nurse under the direction of a medical man she is absolved from all responsibility. This defence is one which is very difficult to get behind. One has no means of disproving the woman's statement because it is practically impossible, for obvious reasons, to obtain evidence which would incriminate her. One may have the strongest suspicions that a woman employed as a maternity nurse is acting irregularly as a midwife, but the moment one begins to make investigations one is met all along the line with the plea—that she was acting under medical supervision. There is only one way to counter this, and that is to make it compulsory for a midwife acting as a maternity nurse to notify her intention to practise as such to the Local Authority

of the district in which she intends to practise and to conform with the rules of the Central Midwives Board in everything she does in connection with the maternity work. It is claimed that such an innovation would be revolutionary in its effects on the midwifery service, but we are not among those, however, who think that the proposal would receive the universal condemnation of the medical profession or that it would have the effect of increasing the numbers of handywomen. The medical man is just as alive to his interests as is the midwife, and once he realises, as we are sure he would very quickly do, that the maternity nurse acting under his direct supervision would, by being at the same time controlled as to her personal habits and conduct by the Local Supervising Authority and the Central Midwives Board, give him and the patient a vastly improved service, he would be all the more ready to employ her. We are not aware that any objection has been raised to the application of Rule E. 6, which deals with the notification of infectious disease occurring in the practise of a midwife or maternity nurse to the Local Supervising Authority, either by doctors or maternity nurses, and having once admitted the principle there seems no reason to believe that there would be any great objection to its extension. On the other hand, the benefits which would accrue from a general extension of the principle would be considerable because the Local Supervising Authority would then be in a position to know in what capacity exactly the various midwives in its area were practising, and would be the better able to exercise control. At the same time greater security would be afforded both to doctor and to patient. After all is said and done, the Central Midwives Board and the Local Supervising Authorities have a duty to perform to the public, particularly to the mothers and babies, namely, to ensure that the services rendered by the midwife or maternity nurse are safe and efficient, and this can only be guaranteed by a service of midwives bound to observe the rules whether they are acting as "midwives" or "monthly nurses."

PHTHISIS IN THE TRANSVAAL.

A Bill will shortly come before Parliament to consolidate and amend the laws relating to miners' phthisis. The Bill will ostensibly be introduced to amend existing legislation respecting compensation payments, but it will also contain new features, the chief of which is to extend the granting of pensions to dependents. Should this be

carried it will involve an increased liability on the mines of more than £2,500,000.

This proposed new law raises again the whole question of the huge burden which rests on industry on account of phthisis. The present outstanding liability of the Transvaal mines for awards granted to date, including pensions, is £8,500,000. This enormous liability becomes due in connection with pensions paid to the widows and children, and other dependents of deceased beneficiaries.

SMALLPOX OUTBREAK.

Smallpox has again become prevalent in the North and Midlands and in other areas.

The following table shows the growth of the outbreak:—

SMALLPOX.				
Week ending.	No. of cases Notified.	Areas (Shires).		
Jan. 6th, 1923	12	Derbyshire	...	4
		Nottinghamshire	...	3
		Staffs	...	1
		York	...	4
Jan. 13th, 1923	48	Derby	...	22
		Durham	...	1
		Lincoln	...	2
		Nottinghamshire	...	7
		Staffs	...	1
Jan. 20th, 1923	46	York	...	15
		Derby	...	13
		Lincoln	...	1
		Nottingham	...	7
		Staffs	...	2
Jan. 27th, 1923	48	York	...	23
		Derby	...	26
		Durham	...	3
		Nottingham	...	2
		Yorks	...	17
Feb. 3rd, 1923	37	Derby	...	13
		Hertford	...	1
		Lancaster	...	2
		Nottingham	...	2
		Soke of Peterborough	...	1
Feb. 10th, 1923	27	York	...	18
		Derby	...	10
		Lancaster	...	1
		Nottingham	...	4
		Yorks	...	12
Feb. 17th, 1923	41	Derby	...	15
		Durham	...	2
		Nottingham	...	9
		Yorks	...	15

The chief centres in these areas are Derby, Heanor and Clowne; Durham, Stockton-on-Tees; Nottingham, Stapleford; Yorks, Middlesbrough and Doncaster.

BIRTH CONTROL.

A recent case has demonstrated the fact that a certain section of the community is anxious to prevent an exact knowledge of scientific truths concerning birth control being acquired by the general public. Such people take an extraordinary stand. Without expressing it in so many words, they in fact say: "These facts are known to us, but they do us no harm because we are of a superior type intellectually and morally, but if these facts got into the hands of the ordinary lower class person the consequences would be terrible." We have no sympathy with such a frame of mind, and we believe implicitly in the doctrine that the spread of exact scientific knowledge will never be a disadvantage to any race.

Writing upon this subject the other day, Dean Inge expressed with his usual straightforwardness the opinions of many when he said:—

"The subject is an unpleasant one. . . . The terrible prevalence of a certain crime in all the large towns is demonstrated by abundant facts and figures, and confirmed by numerous personal confessions. The effect of withholding knowledge is simply to increase crime.

"Apart from this, in a democratic society where every adult is considered capable of helping to govern the country, it is inconsistent to keep the wage-earner in ignorance of things which he wishes to know. We may expect that in many cases he will think it wrong to use his knowledge, as many people in the upper and middle classes think it wrong to do so. Conscience is not a monopoly of the well-to-do. The working man and his wife have a right to judge for themselves, like other people."

Whatever our views may be upon controversial subjects such as birth control, we must all agree that it is time that an end were put to the defamatory method of criticism. In connection with those scientific discoveries which affect moral and social problems it is common for certain people to go to violent extremes in their views, and such people are prone, unfortunately, to slander those who differ from them. It is therefore gratifying to learn that the jury in the recent case found that the words used, though true, were defamatory in character and not fair comment. Fortunately, the number of people allowing their prejudices to go to the extent of personal slander is becoming smaller. It was owing to personal slander that the late Mr. Charles Bradleigh was for years deprived of his seat in the House of Commons, and the change which has come over

the scene since then is best illustrated by the fact that recently the King's physician sent a paper to the Church Congress in which the doctrine of birth control was definitely defended on moral, social, and medical grounds.

It is impossible to stop discussion of questions which intimately concern health, wealth and morals, by law, and it should be made impossible to stop it by slander and defamation. The practice of birth control has the support of many eminent people, and it has now got far beyond the experimental stage. It is a prominent social question which must be thrashed out openly and fairly, and those who attempt to prevent fair and open discussion by slander and inuendo should be ostracized by all decent-minded people. It has recently been pointed out that it would be just as reasonable to defame an astronomer because he said he had discovered a new star as to slander a new group of thinkers because they are propounding a new idea.

ARSENIC IN COCOA.

Two cases, arising under the Sale of Food and Drugs Acts, that came before the Richmond Borough Bench on 18th December, 1922, may be of interest as affording the first recorded instance in which arsenic has obtained access to an article of food through the use of carbonate of potash in the process of manufacture.

The defendants, the Home & Colonial Stores, Ltd., and Rowntree & Co., Ltd., were charged, at the instance of an Inspector of the Surrey County Council, with an offence under the Sale of Food and Drugs Act, 1875, Sec. 6, as principals, and aiders and abettors respectively. Both defendants pleaded guilty. The Home & Colonial Stores were fined 40s., and the maximum penalty of £20 with 50 guineas special costs was imposed in the case of Messrs. Rowntree.

The facts were shortly as follows:—A sample of cocoa purchased by the Inspector at the Richmond branch of the Home & Colonial Stores on the 24th October, 1922, was certified by the County Analyst to contain arsenic (arsenious oxide) to the extent of one-fortieth grain to the pound of cocoa. The sample had been sold in a packet marked "Home & Colonial pure cocoa essence, highest grade quality, guaranteed absolutely pure cocoa," but inquiries elicited the fact that it had not actually been manufactured by the Home & Colonial Stores, but was composed of a blend of seven different makes of cocoa.

Samples of each of the cocoas forming this

blend were accordingly procured and submitted to analysis, and it was found that one of the makes, that of Messrs. Rowntree, contained arsenic amounting to one-tenth grain per pound.

It was stated on behalf of the Home & Colonial Stores that they had purchased Messrs. Rowntree's cocoa with a warranty, and that they had no reason to believe it was not genuine. Directly they heard that this blend contained arsenic they withdrew it from sale.

On behalf of Messrs. Rowntree, it was explained that arsenic had accidentally gained access to their cocoa during the process of manufacture, and that it was due to the use of an impure potash.

They had used small quantities of potash in the manufacture of cocoa with absolute safety for years, and had had no cause to suspect that any danger attended its use. The knowledge that traces of arsenic had been found in some loose cocoa supplied by the firm was communicated to them by a chemist in July, 1922, and was a complete surprise. They immediately took every possible step to prevent the recurrence of such an accident, they sacrificed all the remaining stocks of cocoa in their factory, but they did not warn customers, or attempt to get back cocoa that had been sent out to the trade, as they considered that such a step would be useless and would give rise to an unnecessary scare throughout the country and cause immense damage to the cocoa trade, and were convinced that the amount of arsenic present in the cocoa could injure no one.

DISTEMPER RESEARCH.

The Medical Research Council have undertaken to organize an investigation into dogs' distemper, towards which funds will be provided by the Field Distemper Council. Researches will be conducted by members of the Medical Research Council's staff, partly at the National Institute for Medical Research, Hampstead, but more particularly at their new farm laboratory, for which a site near London has recently been acquired. As opportunities arise and suitable assistance can be secured, inquiries co-ordinated with these will be promoted at other centres of work. These investigations will also be brought into relation with other studies in human and animal pathology.

Zurich Health Department has decided to sell an iodine preparation to the population in order to help in the fight against goitre, which is increasing in the Canton of Zurich.

THE VOLITIONAL REGULATION OF FAMILIES.*

BY

MEREDITH YOUNG, M.D., D.P.H., Barrister-at-Law, County Medical Officer of Health for Cheshire.

It is usually thought that this very vexed question originated with the Rev. Thos. Malthus in 1798 when he published his then epoch-making essay on the "Principles of Population," in which he combated the theory that vice and poverty resulted from unfair social institutions, and were to be remedied only by a species of communism. Malthus, as we all know, argued from his great intellectual level that a high birth-rate led to over-population and that this led on again to poverty, misery, vice, war, and a host of other social evils. He advocated either non-marriage, or late marriage, or the exercise of self-restraint in order to limit that increase in population which, to his mind, was leading to the destruction of the race. Let us make no mistake about Malthus: he was a man of high and worthy ideals, and as Dr. Marie Stopes has well pointed out ("The Early Days of Birth Control"), the slur which has unfortunately and undeservedly come to rest on his name was due to the fact that after the Bradlaugh-Besant trial in 1877 public opinion came to associate any birth-control movement with Atheism, simply because the two defendants in that trial were Atheists at the time. A similar obloquy would probably have attached itself to vaccination had Edward Jenner happened to be an Anti-Monarchist or a Prohibitionist.

However, as Dr. Stopes again points out (*loc. cit.*) the control of conception was dealt with in a book on Sexual Physiology published by Edward Trall, M.D., in 1866, eleven years before the Bradlaugh-Besant trial—a book which, we are told, was couched in popular language, attained a huge circulation both here and in America, and has quite recently been reprinted in its original form.

This question is touched upon in a number of books, good and otherwise, available to the general public at reasonable and even cheap prices. The means and apparatus for controlling conception are flaunted in the faces of young and old in shop-windows in many of the most popular thoroughfares of the metropolis

* Paper read at a Meeting of the N.W. Branch held in Manchester, Feb. 16th, 1923.

and elsewhere. We have had the question before us, therefore, in various forms for not far short of a century, and in its most recent and most human form we now have it presented to us in the Society for Constructive Birth Control and Racial Progress which was formed in August, 1921, and of which Dr. Marie Stopes is the President.

The objects of this Society are, speaking generally, to advise and assist working mothers how to "space out" in a rational manner the bearing of children, and in cases where barren married women desire offspring to advise them how, if possible, to attain this object.

The question is palpably one which we, as Medical Officers of Health, cannot afford to ignore, but which we must either bless or curse with no uncertain voice. We are not concerned directly with the moral aspect of the matter and not so much with any details of method, but chiefly with its racial aspects, including under that macroscopic term its effects or influence on population, on natural fertility, on disease and on social conditions such as poverty and vice. It is for us to elevate the question above that of a creed, for it was Froude who said: "Science rests on reason and experiment and can meet an opponent with calmness: but a creed is always sensitive."

I am not going to waste time by arguing for or against the pronouncements of Malthus: one can get the *pros* and *cons* of his case in any book on Vital Statistics. Moreover, I am no protagonist of Malthus, for I feel on more solid ground when I adopt the principles of the Society for Constructive Birth Control of which I am a member. I propose therefore to give you my reasons for adopting their faith. For many years, like many of you, I have compared the birth-rates in the better-class and poorer districts and wards of the same large town, and later in the two similar classes of district in a fairly large county. The crude fact which emerges from this comparison has always been the same—so much so that it is almost elementary to refer to it, especially as closer and more skilled investigation by Heron, Stevenson, Newsholme and others have demonstrated the same fact beyond any doubt. This outstanding fact is that the population of this country is, and for some considerable time has been, recruited from what one usually terms the inferior grades. No one has attempted to define in what particular respect these classes are lower than their fellow-men, but the probability is

that they are certainly lower from the point of view of mental development (which I distinguish clearly from mental potentiality) and probably also from the point of view of physical development, though I admit this last is a more arguable statement.

There are those who argue that a nation to be successful must accumulate "cannon-fodder"; with those I am in no sort of agreement. Nor do I agree that the so-called "pressure on the soil" is the chief cause of wars. Take the density of population of the principal participants in the Great War. They are as under, according to Whittaker's Almanack for 1923:—

		Persons per sq. mile.		Birth-rate per 1,000.
England	...	701	...	23.1
France	...	187	...	18.7
Belgium	...	658	...	23.7
Germany	...	311	...	29.8
Austria	...	192	...	31.4
Russia	...	22	...	Not given.

England is therefore the most densely populated country in all the civilised world—is she always at war?

The highest birth-rates in the civilised world are:—

Bulgaria	...	40.3
Costa Rica	...	43.8
Czecho Slovakia	...	38.43
Paraguay	...	37.5
Rumania	...	46.2
Salvador	...	41.5

Are they the people who are always set on war in order to liberate their teeming populations from "pressure on the soil?" The question carries its own answer.

And finally our aim is to prevent, as far as possible, breeding from diseased stock with the disastrous racial results which we know so well—I refer to the mentally defective and those afflicted with diseases which are either known to be hereditary or to transmit a predisposition to its reproduction, such as syphilis and tuberculosis.

I submit that these ideals are unassailable by those who really desire "the greatest good for the greatest number." I have not, in fact, seen any of these policies attacked by those who sneeringly refer to us as "birth-controllers." And if they are good so far as the family is concerned, how can it possibly be the case that they are bad for the race? Surely the family is the race unit.

The use of the word "control" has been grossly misunderstood in connection with this

movement: it has almost always been understood in a negative sense, i.e., that birth-controllers have no other object but to *prevent conception* in those cases with which they deal. As a matter of actual practice the positive or constructive intention of the movement is just as prominent and is to disseminate knowledge and advice which will enable married women who desire children to attain that desire so far as is physiologically possible.

The negative object of the movement, as I understand it, is threefold. The first part of the policy is to prevent married women being utilised as mere machines for the manufacture of babies, good, bad, or indifferent. Everyone knows the ultimate effect on any woman (unless she be very exceptional) of perennial child-bearing. The number of "gynaecological cripples" alone furnishes the evidence we need on this point without going into the questions of the probabilities of developing general debility, tuberculosis and the like.

The second part of the policy of this movement is a corollary to the first, viz., that of preventing the manufacture of babies before the home and the world are ready for them. We all know—though this is but a part of the problem—how necessary it is to impress on mothers at our Welfare Centres that the *ex-baby* must not be forgotten when the successor to the baby throne arrives. The meaning of that is, of course, that the newest arrival monopolises most of the mother's care, and the children higher up the scale have to largely "do without." We want the one baby to be well on its way to self-dependence before the next one arrives. In other words, we want a rational "spacing" of babies.

As evidence that a number of babies die every year from what one might fairly call diseases due to inherent constitutional weakness, we have the following deaths under five years of age recorded in England and Wales during 1921:—

Idiocy	...	88
Premature Birth	...	16411
Atelectasis	...	1369
Rickets	...	472
Epilepsy	...	123
Convulsions	...	5132
Tuberculosis (all forms)	...	3896
Cancer	...	99
Syphilis	...	1276
Lack of care	...	277

(Registrar General's Statistical Review of England and Wales for the year 1921.)

You will find the question of breeding from the best stocks discussed in the Dialogues of Plato when Socrates is interviewing Glaucon, a young man practically interested in breeding dogs and birds. Socrates asks Glaucon if he attends to the pairing and breeding of these animals, of which some are better than others, and the conversation proceeds as follows:—

Soc. "And do you breed from them all indifferently or do you take care to breed only from the best?"

Gl. "From the best."

Soc. "And do you take the oldest or youngest, or only those of a ripe age?"

Gl. "I choose only those of ripe age."

Soc. "And if care was not taken in breeding, your dogs and birds would certainly deteriorate?"

Gl. "Certainly."

Soc. "And the same of horses and animals generally?"

Gl. "Undoubtedly."

One argument against the limitation of families to those of two and three children is that adduced by Prof. Karl Pearson, who carried out some investigations at the Crossley Sanatorium in Cheshire, and, as the result of these, announced that first and second born children were more likely than the others in the family to be tuberculous, insane, neurotic, or of criminal tendencies.

I am inclined rather to accept the findings and explanation of Dr. Alfred Ploetz on this matter:—

"Among the children of a number of marriages taken at random, there are a good many children of parents who died early, consequently there is a high proportion of children who represent early members in birth rank, and principally first, second and third-born. Because of the death of one or both parents there could be no later born. First, second and third-born children, therefore, come in a far greater percentage from early deceased, that is, on the average weaker parents, than do the later born, and they will therefore inherit in a higher degree the weaker constitution of their weaker parents."

Dr. Ploetz also, in an investigation of 26,000 births found that the infant mortality of the first four children ranged between 20 and 23 per cent., of the fifth born children it was 26 per cent., and after this it rose steadily until it reached 60 per cent. in the twelfth-born children. He ascribes this to the fact that "in a poor home where the family has become large the economic conditions grow worse, and such children as are born receive less attention and

care than when the family was smaller. Among Royal families, where, presumably, the conditions are the best possible for all the children, there is no noticeable difference in mortality among the first nine." (Eugenics, by Edgar Schuster.)

From "developmental and wasting diseases," 28,021 infants under one year of age died during 1921: this figure does not include any deaths from common infectious diseases, tuberculosis or diarrhoea and enteritis. It includes congenital malformations, congenital debility and sclerema, icterus, atelectasis, premature birth, etc. I am not quite sure how far this argument is a fair one to adduce, but I think it has a proper bearing on the question of the indiscriminate production of children.

One might say that knowledge of this kind, i.e., birth-control, if published indiscriminately, would be used by those who had no right to use it and who would use it wrongfully. The same argument might equally well be used about such drugs as alcohol, opium and cocaine. Probably the two most abused, though most useful drugs when used in their proper places, are alcohol and aspirin. Plenty of deaths have been ascribed to the *misuse* of both of these, but not a great deal has been said of their legitimate uses. The writings on the subject have been more concerned with their possible abuses than with their real uses—a distortion of view which is all too common with arguments of this description.

The means to be adopted to effect birth control.

(In the following paragraphs I have followed my friend, Dr. C. K. Millard, very closely—see his pamphlet on "Responsible Parenthood and Birth Control.")

These may be classified as under:—

1. Avoidance or late postponement of marriage. There is an optimum period for marriage, and that is an early one. Postponement tends to lead to promiscuity of sexual relations, and that is usually attended with many social evils. Undoubtedly one of the causes of late marriage has been the fear of a large family.

2. Marriage with interruption or cessation of intercourse as soon as the family limit has been reached. Continence, if strictly practised, imposes a very hard strain on any normal healthy couples, especially if, as with the poor, they occupy the same room and bed. It is clearly against nature and also tends to alienate husband and wife.

3. The use of contraceptive measures. This means either one or other of the following:—

(a) *Coitus interruptus*. This implies a great deal of self-control, and is possibly not without physiological injury to both husband and wife. It is also "unnatural" and has actually been stigmatised as "legalised masturbation."

(b) Restriction of intercourse to the mid-menstrual period. Coarsely put this means that instead of sexual union being the spontaneous culmination of love it must be arranged to a time-table. It is uncertain and "unnatural."

(c) Douching. This is again uncertain in its effects and is not unattended with danger.

(d) The use of such things as quinine pessaries, a small sponge saturated with soap powder, injections of olive oil, etc.; though probably effective these require forethought and care and, in the eyes of the strict moralists, amount to definite "sin."

(e) The use of a sheath or condom by the male. This is not always effective and is similar in its moral aspects to the last-mentioned preventive.

(f) The wearing of a "cap" or pessary by the female, perhaps coupled with the use of quinine pessaries and the like. This is usually effective, but it is on the same level as (d) and (e) morally.

The argument that the use of contraceptive methods is adopted to enable the couple to indulge their sexual appetites is not a fair one and is one that can only be used by those who hold the view that sexual intercourse is permissible *only* for the purposes of procreation. No one denies that sexual excess is accompanied by its own penalties. On the other hand, the reason why some people do *not* use contraceptive methods is that they have become so wanting in self-control that they do not wait to consider possible consequences and are guilty of want of forethought and self-control or self-denial: the selfish accomplishment of a desire is all that matters for the moment and the consequences are left to themselves. Is this moral or immoral?

We all know from our daily work that where one meets with insanitary management of the home, coupled with poverty and general squalor there you will, in the majority of cases, also find the largest families. It surely is axiomatic that in the inferior grades of the population

the greater the number of children in the family the less care and nurture each will receive.

For parents to have more children than they can properly support and maintain is now regarded as a real social evil. It has led to the proposition that the State should be called on to take over the maintenance of all poorly born children. This would be a serious catastrophe in my opinion, for it would lead to a greater propagation of the classes of inferior grade, besides undermining parental responsibility, to say nothing of the burden on the rates.

The remedy suggested for the correction of this high birth rate amongst the inferior grades, viz., that the superior grades should be urged to multiply their kind, is one which I do not think will ever materialise. The superior grades know too much of the advantages of small families ever to revert to the large family.

It was an obscure writer (Martin) who said "Reforms are generally most unpopular where most needed." My hope is that this reform will be received and discussed in a calm, logical and rational fashion from every possible point of view, though I cannot but feel—to quote the Rt. Hon. J. R. Clynes—that "taxes or no taxes, unless we strive for national strength in terms of *quality* rather than *quantity* our other social reforms will be merely a waste of time."

NOTES ON THE WORKING OF THE MIDWIVES ACTS AND RULES.

BY

T. EUSTACE HILL, M.D., County Medical Officer for Durham.

When introducing discussion on the above at a meeting of the County Medical Officers of Health Association held on 9th March, 1923, Dr. Eustace Hill said that, however good they may be, no Acts or Rules can be effective unless those practising midwifery are capable and experienced. At present many medical men when they enter into general practice are not sufficiently trained or experienced in obstetrics, and the same applies to many midwives on obtaining their C.M.B. Certificate. The large number of deaths among women at childbirth and the particularly heavy mortality from puerperal sepsis is a reflection on the practice of midwifery in this country. There is very little doubt that much of the puerperal sepsis is the result of the use of instruments and manipulative interference at birth.

In the Administrative County of Durham statistics indicate that there is a higher maternal mor-

talidity at childbirth where a doctor or certified midwife is in attendance than in cases where no doctor or midwife was in attendance at the birth. This is, of course, largely due to the fact that the majority of the births attended by uncertified women are at normal confinements, and that where an uncertified woman is in attendance and is in difficulties she calls in a doctor or midwife, who then takes over the case, but it is quite certain that a very large proportion of the high maternal mortality, and especially that from sepsis, is preventable.

Another point is that the midwifery service of this country is inadequate in many districts, as is also the accommodation in Maternity Homes and Hospitals. The absence of these Homes and Hospitals increases the difficulty of providing practical training in midwifery for medical students. In Durham Administrative County over 2,500 births were unattended by doctors or midwives during the year 1922, and only 30 per cent. of the total births were attended by midwives. Unfortunately in some areas medical practitioners do not look with favour on midwives who start practice in their districts, and it is not uncommon to find medical practitioners lending countenance to the practice of midwifery by uncertified women.

SUGGESTED AMENDMENTS TO MIDWIVES ACTS AND RULES.

MIDWIVES ACT, 1902.

Omit words "habitually and for gain" in Section 1 (2). Alter words "Under direction of qualified medical practitioner" to "Under personal direction and in the presence of a qualified medical practitioner."

Extend Section by making it compulsory for an uncertified woman when called in in an emergency to immediately summon a qualified medical practitioner or midwife.

Section 6 (2).

MIDWIVES ACT, 1918.

Amend Section by making compensation compulsory where midwife has been financially damaged owing to her being suspended from practice, on a charge which is not proved.

Section 14.

It is a matter for consideration whether the fees laid down to be paid to medical practitioners called in by midwives under the Rules of the Central Midwives Board should not be modified. There is an extraordinary difference in the amount of fees paid to medical practitioners in the same areas with similar practices. In one district during a single year, out of five doctors in general practice, one practitioner received over £190 in one year,

another received £49, another received £1, and two received nothing, and a similar disparity is noticeable in other areas. Moreover, some midwives send for medical help in a much larger proportion of their cases than do others, and there is reason to believe that some midwives call in a particular medical practitioner, whether the practitioner is the usual medical attendant of the patient or not. In considering the adequacy of the fees paid to medical practitioners under this Section it must be remembered that the medical practitioner has the advantage of the midwife's assistance; his length of stay at the confinement is usually less than if he attended the case from the beginning, and the payment of the fee is a certainty. The fee of two guineas is undoubtedly ample.

It is also a question for consideration whether the fee for a visit to mother and child under Item (5) of the Scale should only be payable in connection with the first visit, payment for subsequent visits being made by the patient or those responsible for her. In some districts, particularly in the North of England, the doctor has entered into a contract to attend the members of the family, and certainly in such cases, only for the first visit should a fee be payable. Prior to the year 1919 in the Administrative County of Durham the annual number of instances where medical help was sought by midwives averaged 372. During 1919, the first year during which Section 14 of the Midwives Act, 1918, operated, the cases for which medical help was sought by midwives numbered in successive quarters, 110, 164, 239, 327. During 1922 the calls numbered 1,498, and the fees paid by the County Council to medical practitioners in respect of these calls amounted to £2,230. In Durham there were at the end of 1922, 197 midwives in practice. Comparing these figures for Durham, it is interesting to note that Lancashire County Council with 662 midwives only paid £621 in fees to medical practitioners, Staffordshire with 309 midwives paid £512; Yorkshire West Riding with 550 midwives paid £302, Derbyshire with 370 midwives paid £268, and Glamorgan with 558 midwives paid £111.

In connection with the payment of fees to doctors, it should be laid down as a condition of payment that the doctor should render his account within one month of the date of attendance and also state in connection with each case in which a fee is payable particulars of the services rendered by him.

THE RULES OF THE CENTRAL MIDWIVES BOARD.

Rule E. 19, relating to the administration of

drugs by midwives, should be amended to read somewhat as follows:—

"No midwife should administer any drug, other than castor oil, and after completion of the third stage of labour, ergot, except under the supervision or on the written advice of a qualified medical practitioner."

The use of such drugs as opium and pituitrin by midwives should be forbidden.

There are objections to the constant use of certain aperients by midwives.

The practice of certain midwives to administer an aperient to infants soon after birth is objectionable and should be forbidden.

It should be laid definitely down in the Rules that no midwife should use forceps or other instrument, other than a vaginal douche; and the use of an anæsthetic by a midwife except at the request of, or under the personal supervision of a qualified general practitioner, should be prohibited.

Rule E. 21, Section 3.

Should be amended by deletion of the word "serious" before cases of ruptured perineum. In all cases of ruptured perineum, however slight, the midwife should be required to send for medical help. It should be laid down definitely in the Rules that when a midwife requires medical help, unless the patient requests otherwise, the doctor called in should be the usual medical attendant of the patient.

It is desirable that the Rules as to the prevention of Ophthalmia should be strengthened. It is desirable that all Local Supervising Authorities should supply a suitable silver preparation free of charge to the midwives in their area for use as a preventive against ophthalmia, suitable instruction being given to the midwives as to its use.

A recommendation in this direction by the Minister of Health or Central Midwives Board appears to be desirable.

The midwife should be required by the Rules to send for medical help in all cases of premature birth, and not only in cases where there is a dangerous feebleness of the infant. Premature births continue to swell the infant mortality rate, and there has been very little reduction during the past twenty years in this particular mortality.

Other Amendments to the Rules which appear to be desirable.

That the midwife should be required (1) to visit her patient within twelve hours of delivery.

(2) To visit her patient daily during the first week after labour, or if prevented from doing so to enter the reason in her register.

(3) To be personally responsible for the necessary attention to the infant, including daily washing, attendance to umbilicus, etc., during the lying-in period. It is also very desirable that the midwife should be made responsible during the whole lying-in period for all cases where they were personally responsible for the confinement. In some areas where midwives are employed by medical practitioners, it is not uncommon to find midwives attending confinements and then during the lying-in period handing over the patient to the doctor employing them. This is distinctly objectionable, especially in busy industrial districts, as a trained midwife is more likely to give the necessary supervision to the mother and infant and the detailed instruction required as to the care and management of the infant, than is a busy practitioner. At present the decisions of the Central Midwives Board as to the responsibilities of midwives during the lying-in period where a midwife is employed by a medical practitioner appear to be somewhat contradictory.

MATTERS FOR DISCUSSION ARE:—

1. The use of District Nurses as midwives.
2. The relation of the Health Visitor to the midwife in connection with the administration of the Notification of Births Acts.
3. Should the Superintendent of a County Nursing Association, who is herself a trained midwife, supervise on behalf of the Local Supervising Authority the midwives appointed by District Nursing Associations?
4. The question of the improvement of the arrangements for the examination of midwives for the C.M.B. Certificate with the object of reducing the period between the written and oral examinations, and also the question of revising the penal procedure under the Midwives Acts and Rules, which is at present not only somewhat cumbrous, but liable to cause hardship, are matters worthy of consideration.
5. The question of the transfer of the powers and duties of the Central Midwives Board to the Minister of Health is one for which a great deal could be said.

DR. E. A. FIDDIAN has been appointed medical officer for Letchworth in succession to Dr. Norman Macfadyen, who has retired.

LIEUT.-COLONEL A. E. HAMERTON, C.M.G., D.S.O., R.A.M.C., has been appointed assistant director of pathology at the War Office in succession to Colonel D. Harvey, C.M.G., C.B.E.

BONA-FIDE MIDWIVES AND THE DUTIES OF LOCAL SUPERVISING AUTHORITIES.

BY

DR. T. ROBINSON, County Medical Officer,
Leicestershire.

Quite recently my Committee decided to report a midwife to the Central Midwives Board for failure to send for medical help to a case of Ophthalmia Neonatorum. The case was heard by the Board on December 20th last. Before giving their decision the Board made adverse comments on the failure of the Local Supervising Authority to take stronger action with the midwives who could not take and record pulse and temperature, but it was not made clear whether stronger action ought to have been taken in the direction (a) of reporting to the Central Midwives Board all midwives who are unable to take pulse and temperature, or (b) of educating these midwives so as to enable them to overcome these inabilities.

From the comments on this case before the Board's decision was given I understood that the failure to take the pulse and temperature was considered a greater offence than the failure to send for medical help; and although the charge of failure to send for medical help for the Ophthalmia was proved, there would be apparently no sentence if the midwife during the next three or six months learns how to take and record pulse and temperature.

I pointed out to the Board that the Local Supervising Authority had recently taken special steps to warn each certified midwife that any failure to send for medical help for inflammation of the eyes, however slight, would be severely dealt with. This was a bad case of Ophthalmia, and in all probability had it not been for the facilities available at Loughborough for obtaining skilled medical attendance from the house surgeon at the Infirmary twice a day, the child might never properly have recovered its sight.

With regard to the rule that a midwife shall take and record pulse and temperature, this was first introduced in 1911. Under the first rules formed under the Midwives Act, 1902, a midwife was not required to take and record pulse and temperature, and the bona-fide midwife was allowed to practise without this special knowledge or ability. The first examination regulations issued after the Act came into operation required a candidate for the C.M.B. examination to have been trained in the use of the clinical thermometer. The rules issued in 1911 require the taking and recording of pulse and temperature and records of the same to be kept by all midwives.

The midwife who was admitted to the original register on previous bona-fide practice was so admitted by the Board without any reference whatever to the Local Supervising Authority. We still have more than 20 of these original bona-fide midwives on the register who cannot take and record pulse and temperature but who, nevertheless, do passable work, and in some cases are quite good. Excepting 2, none of these women have been reported to the Central Midwives Board or have committed any offence calling for warning or censure by the Local Supervising Authority, and considering the class of people they chiefly work amongst this must be considered creditable.

It is quite impossible to teach many (if not all) of these women to take and record pulse and temperature—efforts to do this have been made in the past.

The Leicestershire County Council have done everything possible to improve the condition of the Certified Midwives practising, and also in the direction of providing new midwives. No expense has been spared, and it is only lack of candidates which has prevented a greater supply than there is now.

The two points I especially wish to be considered are given above, viz. (1) is the Local Supervising Authority required to report to the Central Midwives Board all the midwives who are unable to take and record pulse and temperature, and (2) is it the duty (legal or moral) of the Local Supervising Authority to educate the midwives?

Reporting Midwives Unable to Take Pulse and Temperature.

Is the Local Supervising Authority required to report all midwives who are unable to take pulse and temperature?

I can only say that if these midwives are so reported and they are struck off the Roll the conditions in this county will be deplorable and especially in the poorest districts. On the other hand, in a few years from now practically all the midwives unable to carry out these particular duties will have, for reason of age or other infirmity, ceased to be Certified Midwives, and also during that time the County Council will have still further opportunities of providing more trained midwives to replace them.

It seems rather hard on the bona-fide midwife, who has been allowed to practise, and has so practised without blame, for the past ten years, that she should have new conditions imposed with which she cannot comply; and further, that in spite of this failure to carry out the new conditions having continued to practise successfully

without other fault for a further ten years, she should eventually be deprived of her certificate and much of her living on account of her failure to comply with the new conditions.

Duty of Local Supervising Authority to Educate.

I think it would be advantageous if the Local Supervising Authority knew exactly how they stand in this matter. It cannot be questioned, I think, that the Local Supervising Authority must see that every Certified Midwife has a copy of the rules, understands the purport of those rules, and is advised where necessary as to how the rule should be complied with. On the other hand is it the duty of the Local Supervising Authority to train or in any way educate any midwife in the science and art of midwifery or in any branch of the work in which she is supposed to have been instructed had she been admitted to the Roll by examination?

Without prejudice in any way the Leicester-shire Inspectors have in the past endeavoured to teach the old bona-fide midwife the ordinary simple matters relating to a confinement, and more especially with reference to cleanliness, taking temperatures, etc. There does not, however, seem to be any obligation on the Local Supervising Authority under the Midwives Acts to educate the Certified Midwives giving notice of practise.

Sentence on Midwife.

With reference to the decision of the Board in this matter, is anyone responsible besides the woman herself for endeavouring to obtain the necessary education in the direction of taking and recording pulse and temperature? Is it the duty of the Local Supervising Authority, or is it the woman's own responsibility?

If the Local Supervising Authority endeavour to carry this out and fail, with the consequence that the midwife is struck off the Roll, might it not be said that the woman was ultimately struck off the Roll because the Authority had failed to train her properly. It appears to me that in this case and in any other which may arise where a Certified Midwife is required to learn how to take pulse and temperature that she herself should be made responsible and required to attend at some maternity hospital, other hospital, or nursing home, or other institution—for some fixed period in order to make herself proficient in this work. The Local Supervising Authority, or perhaps the Maternity and Child Welfare Committee, might be empowered to assist her financially.

DIET AS A FACTOR IN PREVENTIVE MEDICINE.

At the meeting of the Society held on Friday, the 19th January, 1923, Prof. E. Mellanby read a paper on "Some Reasons Why Diet is an Important Factor in Preventive Medicine," the President in the Chair.

To any man of ordinary intelligence, said Prof. Mellanby, the splendid results which have followed the work of the medical officers of health of this country were obvious, but nevertheless it was doubtful if their tremendous importance was realised for the reason that anything in the way of preventive medicine was never appreciated. When it was considered that this Society, or those who would normally be members of it, were more responsible than anybody else for the elimination from this country of cholera, typhoid fever and other diseases, the work that was done was stupendous. It was impossible to realise completely the greatness because the sanitary conditions of this country in times before our own could not be visualised. While the public health service could take credit for the excellence of the work he was convinced that it would be apparent that there were many problems still to be faced. When one considered the type of person that walked about the streets particularly of the large industrial centres, one could not but realise the dreadful state we were in: those artisans with their miserable, pinched faces, the bent limbs, the rotten teeth—the dégeneration which was so obvious that it was easy to recognise that there was still a great deal to be done. Some problems were at once evident, for instance, that epidemiology itself presented many problems about which little or nothing was known. The problem now before the meeting—that of food and diet—was probably the most important in public health. There had been a great fall in the infantile mortality and general death rates in the country. That was not due in any measure to improved conditions of housing or sanitation, but there had been a very great deal of interest in the question of food. From his standpoint the majority of the people were in a condition of semi-starvation: the working man's diet, for instance, was dreadful. A man knew what was going to happen if he drank or smoked to excess or had insufficient sleep, but the effects of a deficiency of diet were so slow and insidious that he had to be told. The people were being wrongly fed from the modern point of view which holds that beside protein and calorific value in diet there must be a

series of essential substances, including a due proportion of vitamins. There must be a quality and balance of diet. Though only at the beginning of the work on this subject, the question of diet was becoming so important because of the unnatural conditions under which we lived. Diet was dictated by the existing social conditions, and the people did not really know what the good things were. It was often asserted that what a man liked to eat was good. There was a great deal in that, but it was not altogether true: there were some instances where it was absolutely wrong. There was only one way to guide knowledge and that was by experiment: it did not come by revelation. A large part of our diet consisted of cereals, and we were becoming more and more reduced to a diet of bread, oatmeal, meats and other articles which were easily produced, easily stored, and were cheap. We ate an increasing amount of meat—beef, mutton and pork, more and more beef and mutton being imported; a lot of pulses—peas, beans, etc.; margarine; and drank tea, coffee and cocoa. There was now only to be included milk, cheese, eggs, and green vegetables, but on the whole it was the first list that the people lived on. The amount of milk taken was absurdly small. What was wrong with the diet? In the first place it contained practically no sodium or chlorine, but that was not the principal objection. The other things that were absent were calcium and the two vitamins, the fat soluble, and the antiscorbutic. Scurvy, in his view, was not a problem in this country, and was rare. There were, however, very marked defects due directly to the absence of calcium and the fat soluble vitamin. Experiments on rats in America had shown the beneficial results of a system of feeding which embodied these two elements. The effect of this pre-natally had also been shown by experiments with a pointer bitch which had had three litters and had been fed on a diet in which the amount of calcium and the fat soluble vitamin had been varied. Though most of the experiments had been carried out on animals there was some evidence that the results could be applied to children. It was found that a due proportion of calcium and fat soluble in a child's diet produced energy and activity; absence of these elements resulted in lethargy. A woman had a great power of sacrificing herself to the developing foetus, and all these women should be properly fed and have a good diet not only for themselves but for the children which, if produced under bad conditions, were weakly, and died on the slightest

adverse influence. As to rickets, a disease due to wrong feeding, in many rural districts where sanitary conditions were appalling, rickets was seldom met with because the diet of the children consisted of fish, milk and eggs—articles rich in the essential substances. There was no reason from the preventive medicine point of view why rickets should persist, and proper feeding ought to eliminate the condition. Cod-liver oil could be advocated as a cure for rickets. Mrs. Mellanby's work on diet and the teeth gave support to the view that proper feeding ought to eliminate bad teeth. Badly-formed teeth were exceedingly liable to caries. Out of 302 children's teeth taken out, ground down and examined microscopically 84.5 per cent. were badly formed and 83.8 per cent. were carious, and of 226 molar teeth of children examined, only one was found to be properly formed and free from caries. It seemed to be very strong evidence for striving to get teeth properly formed by right feeding from the beginning. Well-formed teeth could resist a great many conditions which badly-formed teeth could not. In the Leeds schools the difference between Jewish and other children had been noticed, and the conclusion was come to that the better development and stature of the former were due to the fact that their mothers were feeding them in a different and better way. The Jewish children were reared on a diet of milk and fat in many forms, and the Christians largely on bread, cereals and the like. The question of infantile mortality was chiefly an affair of diet. In London where child welfare work was more vigorous than in most places it was, he believed, almost impossible to get a real florid case of rickets. It would seem therefore that already this dietetic aspect was being vigorously enforced, and there was an even greater future for it. Far more children should be taking cod-liver oil; its action was wonderful, and it was cheaper than margarine. Most diets contained a sufficient amount of phosphorus but very little calcium, and he would like to see butter have calcium added to it. As a concluding point, the health of adults would be tremendously improved if they could only get back to the teachings as applied to the children. Asked for his views on the question of sunlight in relation to diet, Prof. Mellanby stated that the matter had only come into prominence very recently. It was found by the Viennese Research authorities that children had developed rickets in the winter but had not done so in the summer, though on the same diet, and experiments had proved that direct sunshine (which

had been described as "bottled cod-liver oil") made active the vitamins in the body. If the vitamins were used up, however, the sunshine was practically of no use. The sunshine had to strike the skin without passing through glass which cut out the valuable ultra violet rays, and acting on the skin had a wonderful effect in the calcination of bones.

Prof. Mellanby illustrated his points by a number of lantern slides, and at the close of his remarks invited questions.

The President congratulated Prof. Mellanby on his admirable address and was sure everybody would benefit greatly by it. It was for the public health service to take advantage of all-important researches such as Prof. Mellanby had been engaged in and was still pursuing. An address had been given by Prof. Mellanby at an annual conference in the county of Durham, from which they had profited enormously. It was interesting to note that the infantile mortality rate in the county for the past year was well below a hundred. There was a large amount of rickets in some industrial areas, for while the early feeding had improved, after the child had been weaned it had not received the kind of food which Prof. Mellanby had pointed out was so essential for its well being.

Dr. James Wheatley (Shropshire) remarked that the public health service had done a great deal of protective work, but Prof. Mellanby had shown the way by which people could be assisted to help themselves if it could only be brought to their knowledge. It was going to be a way of improving the health of the people far easier for medical officers of health than any other method, and the Government ought to be pressed in every way to forward a scheme of propaganda on those lines. Research must precede teaching, but teaching would be found the more difficult. In Shropshire very great attention had been paid to the administration of cod-liver oil, and the children had improved enormously by this really extraordinary substance. Milk, he believed, was the only material in which calcium in any amount could be obtained. There must be other foods containing calcium and it would be interesting to have Prof. Mellanby's view on that point.

Dr. E. H. T. Nash (Wimbledon) inquired with regard to the price of cod-liver oil quoted by Prof. Mellanby, and desired to know if it was, in fact, cod-liver oil. It was a common practice at the Northern ports for the oil to be derived from the livers of other fish, including a considerable pro-

portion of herrings' livers. It might prove an interesting point for experiment.

Dr. W. J. Howarth (City of London) asked how far tuberculosis was considered a deficiency disease. For ages past cod-liver oil had been regarded as a specific for consumption. As to diet during the pre-natal condition, he referred to an experiment of his own with pigs, which had been given limited doses of cod-liver oil with dried milk, yeast, and lemons from which the citric acid had been abstracted. The results were extremely satisfactory; each sow had given birth to good litters, and the young had been fed in a similar way with equal success. Referring to the effect of vitamins, he would like to hear Prof. Mellanby's view on the extraordinary mortality in the last great epidemic of influenza when a proper supply of fat could not be obtained. Speaking on the practical aspect, there was the question as to whether it should be a requirement that margarine should be declared as free from animal fat or its sale prohibited unless it contained some animal fat. Was there anything in the argument that as it goes through the refining process cod-liver oil deteriorated, and could the livers of hake or of the ling be substituted?

Dr. R. D. Pedley (Consulting Dental Surgeon, Evelina Hospital and Dr. Barnardo's Homes) had spent many years in attending the teeth of the poor children, and had been struck with the absolute truth of Mrs. Mellanby's scientific work. The problem would be very much lightened as to the treatment of children's teeth in this country, and he thought that in the future it would be possible to reduce dental expenditure by at least a million pounds a year. At last it was on the Statute Book that not only should medical treatment be given by the authorities but dental work also.

Dr. C. W. Hutt (Holborn) remarked that many of the members were concerned in the dental treatment of expectant mothers, and inquired what could be said in leaflets on a diet for expectant mothers.

Dr. T. Evans (Swansea) inquired whether it was possible to increase the amount of lime in natural food by agricultural methods such as liming the land. This practice which at one time took place extensively had practically disappeared. He would like to know also the amount of cod-liver oil Prof. Mellanby considered people ought to be urged to give in malnutrition cases.

Dr. W. W. Jameson (Finchely) referring to school medical inspections, said he was astounded at the number of breast-fed children who turned out badly afterwards, and asked whether it might

be that most of the mothers that had to be dealt with had got something definitely deficient in their milk as regards vitamins, and whether it would be better to supplement breast-feeding by a little cod-liver oil.

Replying to questions, Prof. Mellanby said that it was probably an advantage for a district to give a definite opinion: it was not a vital factor but one worth considering. As to obtaining increased amounts of calcium in a diet, milk, eggs, cheese, green vegetables, and things of that kind all contained calcium. With regard to the price of cod-liver oil, crude oil could be obtained at 3s. 10d. per gallon. He could see no reason why dog-fish, skate and other fish should not be used for producing oil, and so far as he knew any fish would do. The query as to tuberculosis being a deficiency disease provided an opportunity for a bacteriologist to prove this by experiment. He was of opinion that the way tuberculosis was to be cleared out of the country was by diet. Other factors came into the problem, of course, but resistance was so dependent on diet. Particularly in conjunction with the sunlight cure the fat soluble vitamin was an important factor in bringing the patient back to health. The results on pigs were extremely interesting, and he hoped the experiments would be continued. Little could be said with regard to the influenza outbreak which affected not only this country but distant parts of the earth also. As far as he knew, no detrimental change took place in the refining process of cod-liver oil, one to two drachms of which was sufficient for an ordinary dose. As to the liming of land he did not think this would make any difference in the supply of calcium to food. The reason our forefathers had better health and better teeth was probably because they had more of the natural food-stuffs, and that there were more breast-fed children. He could not offer a definite opinion on the point raised as to breast-fed children turning out badly, but probably the amount of vitamins taken by the mother was a determining factor.

The President conveyed to Prof. Mellanby the grateful thanks of the Society for his excellent address.

THE Right Hon. T. R. Ferens, P.C., J.P., high steward of Hull, has consented to accept the office of President of the thirty-fourth Congress of The Royal Sanitary Institute, to be held at Hull from 30th July to 4th August, 1923.

MEDICAL OFFICERS (M. & C.W.).

At a meeting held at the Society's House, 1, Upper Montague Street, Russell Square, on Thursday, 18th January, 1923, at 5.30 p.m., Dr. Harold Scurfield in the chair.

DISCUSSION ON "THE DUTIES OF MEDICAL OFFICERS OF MATERNITY AND CHILD WELFARE CENTRES, AND HOW THEY CAN BEST BE CARRIED OUT."

In opening the discussion, Dr. A. B. McMaster (Dover) stated that the question had been referred to the Group by the National Association for the Prevention of Infant Mortality in order that some scheme of duties for medical officers of welfare centres might be formulated, and it was thought that the matter might be dealt with by the Group as a whole. Statistics had shown the need for child welfare work, as when recent figures were contrasted with old figures the advantage was at once apparent. The duties, however, were now more complex than they were at the beginning, but medical officers should fall in line with the recommendations laid down by the British Medical Association some years ago, which included educational, preventive and advisory elements. The term "clinic" should be entirely restricted to centres where treatment was carried out. The correct term for welfare consultations, as used by the Local Government Board in their communications, was "centre." The duties of medical officers of infant welfare centres might be divided roughly into two classes—clinical and administrative, and it seemed that a reasonable division of the duties and the methods of working might be on the following lines:—

CLINICAL DUTIES.

A. Pre-Natal Clinic:

1. Medical Consultations for all expectant mothers who desire same:—
 - (2) *Normal Cases*: To be advised on hygiene of pregnancy, and instructed in care of infants.
 - (2) *Abnormal Cases*:
 - (a) Those who are found to require out-patient treatment to be referred to either:
 - (1) Own family doctor, or
 - (2) Special hospital if they so desire, or
 - (3) Treatment section of the Clinic.
 - (b) Those who require in-patient treatment to be referred to either:
 - (1) Own family doctor, or
 - (2) Hospital if they so desire, or
 - (3) Maternity Hospital, if complicated obstetrical cases.

II. Patients requiring milk under "assisted scheme" to be appropriately advised.

B. *Post-Natal Clinic*:

I. Medical consultations for those who desire same up to six weeks after confinement. Patients to be classified into groups shown in "A," and dealt with on same lines.

II. If numbers not great enough for a separate session; this clinic may be combined with Pre-Natal Work.

III. After six weeks, these consultations to be merged with Infant Consultations.

C. *Infant Consultations*:

I. *New-born Infants*: All babies brought to the Centre for the first time should be examined by the Medical Officer;

(a) Healthy, normal infants: Mothers to be advised on infant care and management:

(b) Abnormal infants: to be referred for treatment on same broad lines as defined under the Pre-Natal Clinic.

II. Other infants: To be examined by Medical Officer and classified as above.

III. Older children up to school age:—

(a) Abnormal children found under I. and II., above, to be re-examined from time to time.

(b) Normal children to be re-inspected at intervals, say, yearly.

NOTE.—1. The primary duties of Clinical Officers at Welfare Centres have to do with the prevention of defects and the education of the parents in the early detection of same by means of medical consultations.

2. Treatment at Welfare Clinics should only be given to those patients who cannot obtain it otherwise.

3. When pathological conditions are found, affecting either the nursing mother or the infant, which appear to be due to mismanagement or neglect by the obstetrician, the defaulter should be notified of the defects discovered, and the Local Supervising Authority informed.

ADMINISTRATIVE DUTIES.

A. *Procedure to carry out*:

1. Notification of Births Acts.
2. Ophthalmia Neonatorum Regulations.
3. Control of Puerperal Fever.

B. *Organisation of*:

1. Health Visiting,
2. Supervision of midwives.

C. *Co-ordination between*:

General Public Health work, Maternity and Child Welfare, School Medical Service.

Dr. Mary Kidd (Hampstead and Holborn), referring to normal cases and the giving of advice on the hygiene of pregnancy, stated that from her own experience at the Hampstead ante-natal clinic the great difficulty was to say how long a case would be normal, and the following up of normal cases by means of a register to ensure their coming up every month for testing of urine, etc., was essential. A system of following up by the health visitors was necessary, and possibly the services of the district nurses could be utilised too. Under the heading "treatment," the following condition to the foregoing schedule was suggested:—"Treatment of minor ailments should be given at the clinic where they cannot be obtained in any other way." The majority of the women could not afford a private doctor or were uninsured, or possibly no hospital was near. In these cases the personal element went a long way. Medicine had to be given in some instances, and the huge amount of suggestion that went with the bottle could not be lost sight of. Occasionally, as a last resort, minor treatment had to be given. With regard to the treatment of children, the services of hospitals and medical practitioners should be utilised wherever possible, but at times one had to fall back on simple things—an aperient, cod-liver oil and malt, etc. The case should be taken right through by the medical officer of the centre if the trouble was only of a minor nature, but all really serious cases should be sent to their own doctor or to hospital.

Dr. Rose Molloy (Birmingham) insisted that the medical officer of a Maternity and Child Welfare Centre should have had some experience. The personal element was so inseparable from the work, and social work came into the scheme to such an extent that the posts should not be filled by girls just qualified with no experience of life. Experience could be obtained in a dispensary post or as assistant to a doctor practising in a poor district. Successful work at the centre depended largely upon the doctor, who should have the general supervision of all its activities, and to whom the superintendent should be directly responsible for everything that happens at the centre. One of the duties of the centre, whether the general administrative work was carried out centrally or otherwise, should be the training of the individual staff. The centre should be made homelike, and the mothers made to feel that they are one of themselves. The influence of the health visitor's work was very great indeed, and played an important part in Child Welfare work. The question of treatment was the crux of the

whole thing, though the British Medical Association had stated at their last enquiry that this was to be allowed. It was necessary, however, for the Group to draw up a memorandum of things that could be included under the heading "minor ailments." Admittedly, it was a difficult thing to do, but, broadly, some idea could be come to. The centre must not be turned into an out-patients' hospital. One of the greatest arguments against a treatment centre on any scale was the question of infectious cases which might do harm to the other babies. If the centres were called "treatment centres" it was quite a different matter. The medical officer's relations with the general practitioners, Poor Law doctors, and the local authorities, was an important matter. They in turn would reciprocate by referring cases suitable for treatment at the centres. The scheme would not be complete until midwives came in; they should be able to come to the centres not for criticism but for advice. In Birmingham the midwives sent up special cases to the ante-natal clinic: indeed, they would not attend a primipara case until the woman had been to the ante-natal clinic. The treatment of venereal diseases should be taken on at ante-natal clinics, and arrangements made, if possible, for the carrying out of blood tests for the Wassermann reaction. Much good work in this direction could be done as the mothers would often confide in the centre medical officer where they might be reticent on the matter elsewhere. The women would be sent on to hospital for treatment where this was considered necessary.

Dr. E. H. T. Nash (Heston) suggested that the whole matter be referred to a small sub-committee of, say, six members to draw up a complete scheme to be submitted later to the Group. If the report on this matter went forth as an authoritative effort, what the Group said would be pressed by the body to whom it was being sent. It would be referred to as the sum of wisdom of the medical officers, who should know something about the matter, and it was necessary, therefore, that words and evidence should be weighed carefully. It was surprising that nothing had been said about premises for infant welfare centres. The provision of a suitable building was an enormous factor in the success of a scheme, and an item might be included that there should be a certain space per patient of so many feet. The subsidiary parts of the scheme—lectures, sewing classes, etc.—should also not be overlooked. The question of treatment was a thorny subject, and it would be well if something could be done to define its

extent. He expressed agreement with Dr. Molloy that the medical officer of a centre should have had adequate experience. The ordinary training of a medical officer was the worst he could possibly have for the duties of a medical officer of a clinic. A wide experience of dealing with children as a private practitioner or otherwise was necessary. He agreed also that ante-natal cases should come up to the centre once a month.

The Hon. Secretary (Dr. R. Woolsey Stocks, West Bromwich) stated that the matter was first brought before the Executive Committee of the Group who had had the draft prepared by Dr. McMaster before them. The present meeting had been called to allow the Executive Committee to have the views of the members who were not on that Committee. There was to be a meeting of the Executive Committee in February with the definite object of embodying the views of this meeting in the report.

The Chairman (Dr. Harold Scurfield) moved, Dr. Stocks seconded, and it was unanimously resolved that Dr. Nash be co-opted on the Executive Committee of the Group in connection with the matter under discussion.

The Chairman remarked that it seemed to him that ante-natal work was more or less new work, and that medical practitioners had not been in the habit of having women coming up to them for advice before confinement. It had not been considered necessary and, moreover, some women objected to being examined beforehand. Roughly, 95 per cent. of the women would be going through a normal pregnancy, and if Dr. Kidd's suggestion were adopted it would necessitate the whole 100 coming up in order that the remaining 5 per cent. might be identified. It was a good idea, but what it would mean would be that all the obstetrical work would be done before the confinement. Referring to the small attendance of women at the venereal disease centres in Manchester, the Chairman agreed with Dr. Molloy in regard to the treatment of venereal diseases at the clinics.

Dr. James Wheatley (Shropshire) emphasised the importance of training the staff. It should be the duty of the medical officer of the centre to visit some of the cases in the homes with the health visitors, as the teaching of mothers in their homes was of infinitely greater importance than at the centres. With regard to venereal diseases, he did not know of one centre at which these conditions were treated.

Dr. S. Seekings Friel (St. Marylebone and Uxbridge) urged the keeping of proper records, and also stated that at some centres children

were not undressed on being seen by the medical officer. It was essential that they should be undressed when examined at the centre.

Another speaker said that an important point was as to how to obtain co-operation with the medical practitioner and the midwife.

DISCUSSION ON "THE HOURS AND HOLIDAYS OF HEALTH VISITORS."

Dr. Middleton Hewat (Fulham) opened the discussion on this subject, and said that either health visitors must be treated as other municipal officials, *e.g.*, rate collectors and sanitary inspectors, or must be looked upon as a privileged class. He was unable to see why they should be regarded as a privileged class, and in his opinion they should work the ordinary municipal eight-hour day—from 9 a.m. to 5 p.m. Out of that at least an hour would be taken for lunch; there was at least an hour's clerical work in the morning and a certain amount in the afternoon; thus leaving a six-hour day, three hours of which would probably be occupied in the forenoon for visiting, and the remaining two or three hours at the centre. This applied to town people. With country health visitors the case was somewhat different. In the country a health visitor had more ground to cover and whilst travelling got a certain amount of mental rest. In some areas the health visitor was also school nurse or tuberculosis nurse, which meant a certain amount of variety to the work and relieved the monotony. As to holidays, his own health visitors got a total of 29 working days in the year (three weeks in the summer). It had been suggested that they ought to have at least four weeks in the summer and at last two weeks at Easter. The argument again was the monotony of the work and the fear of getting stale. Such a plea could be put forward for a good many other municipal workers, and in this connection the conditions under which elementary school teachers worked might be borne in mind. One exception ought possibly to be made where a health visitor gave any considerable portion of her time to tuberculosis visiting. In that case she should have longer holidays.

The Hon. Secretary (Dr. R. Woolsey Stocks, West Bromwich) read a letter from Dr. G. E. Oates (Bethnal Green) stating that it was the custom in that borough for the health visitors to have Saturdays off duty, except that one remained on to deal with urgent matters. This time was made up by doing two spells of evening duty when it was possible to see some of the mothers at home who might be out at other times. The office closed in the ordinary way at

twelve o'clock on Saturdays, and it was found that the morning was not of much use.

Dr. W. G. Willoughby (Eastbourne) reported that in his district health visitors have to work the ordinary municipal hours. As they claimed on account of their sex that they should have equal pay with men they should also have equal holidays. School teachers could not be compared with health visitors: the former did 25 hours a week and had 13 weeks a year off.

Dr. Rose Molloy (Birmingham) said that health visiting could not be compared with mechanical work, and that if health visitors were put on the same footing as people who did such work there was danger of doing harm to the public health work. Sympathetic workers were essential, as health visiting must be done by people who could put their whole heart and soul into the work.

Dr. E. H. T. Nash (Heston) stated that with a tendency to force salaries down could be seen a steady deterioration of the work. During the war road-sweepers were paid almost as much as health-visitors. The rate of pay should be taken up, as low wages meant getting people of little experience whom the medical officer of health had to train. He agreed with the Bethnal Green policy of Saturday closing, because from the working point of view the Saturday morning was practically useless. The question of holidays was a very vital one. To compare teaching en masse with individual teaching showed a lamentable lack of knowledge of the conditions. As to hours, the point had been raised that it was no use visiting in the dinner hour. He disagreed with that, as the more one could get into the family life of the people the greater the success of the work. It was a decided advantage to call when the whole family were at home, as there was often an opportunity of breaking down the hostility of the father, which was a very valuable thing. Standard rates of pay and hours of duty for health visitors should be drawn up.

Dr. A. B. McMaster (Dover) said that the pivot of the public health service was the maternity and child welfare scheme, and the pivot of the maternity and child welfare scheme was the broad-minded, well-trained health visitor; consequently the better one treated one's staff the better work the district got. The minimum annual holiday should be four weeks, and office holidays and Bank holidays additional. Only by doing that and making their work as easy as possible would one get the results expected from a well-qualified staff.

The Chairman (Dr. Harold Scurfield) expressed the view that the work done by health visitors was quite different from that done by male sanitary inspectors. Breakdowns of health were much commoner among the women than among the men. Visiting in the slums was very trying, though when the work was divided between visiting and attendance at centres the strain was somewhat lessened, and no work done by corporation servants was to be compared with it. In Sheffield health visitors did not receive enough pay or holidays. With regard to holidays, three weeks at one time and one at another was a good arrangement, and the Chairman suggested that the Group report should not lay down any standard rate of pay but press for an adequate salary for health visitors.

Dr. McMaster asked if the Executive Committee could be empowered to reply to the points raised by this discussion.

Dr. Willoughby suggested that the health visitors' own society should go into the matter, but that the Group might back them up.

Dr. Nash moved that the Executive Committee do draw up a full report on this question, and then refer the matter back to the Group, a copy of such report to be sent out to the members before the Group meeting took place, asking their views thereon. This motion was seconded by Dr. Molloy and carried unanimously.

NOTES FROM BRANCHES.

MIDLAND BRANCH.

MILK.

A successful Sessional Meeting of the Royal Sanitary Institute was held in Birmingham on February 2nd and 3rd, with Professor H. R. Kenwood (Vice-Chairman of the Council) presiding. Dr. John Robertson opened a discussion on "Town and Country Milk Supplies: What is Needed for their Improvement." His proposals for improving the milk supply laid down that first of all farmers must be educated in the methods of producing a much cleaner milk, a better cooled milk, and a milk of richer quality. When the milk arrived in the city he believed that all of it should be pasteurised properly, and then cooled down to 40 degrees F., a temperature much lower than that to what it is cooled at the present time. It should then be bottled and sold only in bottles. If these bottles were kept cool before delivery to the customer such milk would be rich

in quality, clean, cool and free from the chance of spreading disease, and it ought to be pleasant-tasted. All the evidence went to show that milk so treated need not be more expensive than the milk which was more or less defectively treated at the present time.

Dr. Orr, Medical Officer of Health for Ealing, and Mr. Ben Davis, of London, supported the proposals, and several members of the local dairying trade and the public took part in the discussion.

On the second day of the meeting two of the largest milk distributing firms in the City were visited. In one the pasteurising process was demonstrated, where attention was directed to the preliminary heating with a water jacket and not a steam one. The milk was then turned into a tank fitted with a stirring apparatus the sides of which were heated with warm water. Attention was directed to the necessity for an electric recording thermometer, which in addition to recording the temperature records also the time of holding. By means of a cooler in the lower portion of which brine was made to circulate the milk could readily be cooled to 38 degrees F.

In the other attention was directed to a bonus scheme payable monthly, where bacterial counts of farmers' milk were made in order to encourage the production of clean milk, the first dozen receiving one penny per gallon bonus on all milk supplied during the month, the second and third receiving $\frac{1}{2}$ d. per gallon.

Table Showing the Best and Worst Six Farms: First.—

	May.	August.	December.
1 ...	9,000 ...	3,400 ...	6,650
2 ...	12,000 ...	9,900 ...	7,500
3 ...	14,000 ...	12,000 ...	8,500
4 ...	18,000 ...	12,750 ...	10,900
5 ...	22,200 ...	14,250 ...	12,900
6 ...	32,000 ...	16,000 ...	13,500
Last.—			
1 ...	10,744,666 ...	8,070,000 ...	648,800
2 ...	12,000,000 ...	10,488,500 ...	750,000
3 ...	16,042,000 ...	11,640,000 ...	859,500
	in 1/10 dilution		
4	Uncountable ...	12,010,000 ...	1,377,000 over
5 ...	Do. ...	15,035,500 ...	50,000,000

TUBERCULOSIS.

The Annual Conference of the National Association for the Prevention of Tuberculosis will be held in Birmingham during the summer. The provisional date fixed is July 12th and 13th.

THE METROPOLITAN BRANCH.

OBITUARY.

Members will have learned with very deep regret of the death of Dr. Peter Caldwell Smith, C.B.E., Medical Officer of Health of the Metropolitan Borough of Wandsworth since 1901. For many years a member of the Metropolitan Branch, and its President during the session 1906-1907, Dr. Caldwell Smith had until illness prevented him been intimately associated with the work of the branch, and for some time was one of its representatives on the Council of the parent Society. During the War he attained the rank of Lieutenant-Colonel in the Royal Army Medical Corps, and later was made a Commander of the Order of the British Empire for his services. Dr. Caldwell Smith will be greatly missed by the whole Society, and his colleagues of the Metropolitan Branch will feel a keen sense of loss.

FROM THE SCOTTISH BRANCH.

FOREIGN MEDICAL OFFICERS.

Under the auspices of the Society of Medical Officers of Health on behalf of the Health Organization of the League of Nations, the following Foreign Medical Officers are at present being instructed in Glasgow on the organization and practice of public health affairs as carried out in this country. The deputation consists of:—

- Dr. Ferencz Wolf (Hungary), Chief Medical Officer of Health, City of Szeged;
- Dr. Andre Cavaillon (France), Director, Public Health Administration, Department of the Aisne;
- Dr. Stanislas Stypulkowski (Poland), Medical Officer, Public Health Department, City of Warsaw;
- Dr. G. F. Timbal (Belgium), Professor at Louvain Nursing School; and
- Dr. Mario Collina (Italy), Medical Officer of Health, Rome.

The deputation arrived on Sunday, 4th March; and on Monday (the 5th) they were received by the Medical Officer of Health, who described to them—(1) the physical geography of Scotland, with special reference to the industrial zone; (2) the basis of local administration; and (3) the statute laws. Thereafter the deputation was entertained to lunch by the Lord Provost of the City; and in the afternoon visits were paid to the City of Glasgow Fever Hospital, Belvidere, and to the Sanitary Washhouse at Belvidere, where the procedure was described to the deputation.

On the morning of the 6th March, the office organization was described, showing the methods of filing, notification of infectious diseases, and the various other routine work in connection with the local Bye-laws and Acts. In the afternoon visits were made to various parts of the town, to illustrate the work covered in the morning.

On Wednesday, the 7th March, the morning was devoted to the method of recording cases of Pulmonary Tuberculosis and other forms of Tuberculosis; and in the afternoon the deputation adjourned to Ruchill Fever Hospital and Sanatorium, where special attention was given to the application of X-rays for diagnostic purposes.

On the 8th March, the forenoon was spent in visiting the various Tuberculosis Dispensaries in the city; and in the afternoon Robroyston Hospital was visited, where the effects of fixation and open-air treatment of Surgical Tuberculosis were demonstrated by Dr. Taylor, the Surgical Specialist attached to the Hospital.

On Friday, the 9th March, the present position regarding Maternity and Child Welfare was dealt with, especially the recent legislation and the effect of notification on Ophthalmia Neonatorum. In the afternoon, visits were made to the various creches, welfare centres, and kindergartens, where the methods of keeping records were shown to the deputation.

On Saturday, the 10th March, the two Country Homes for Children run by the Corporation were visited.

ENCEPHALITIS LETHARGICA.

An outbreak of Encephalitis Lethargica of small dimensions has occurred in Glasgow, and has been the subject of a Report in "The Lancet" by Dr. A. K. Chalmers and Dr. A. S. M. Macgregor, of the Public Health Department, Glasgow.

The first case was admitted to hospital on the 31st January; and the total number of cases up to date is 37, of whom eight have died.

The striking feature of this epidemic is that in a great many cases lethargy is not a prominent symptom, whereas choreiform movements have been noted in a large number of patients.

FROM THE WEST OF ENGLAND BRANCH.

THE BRANCH AND THE B.M.A.

Members of the West of England Branch met together at lunch at the Royal Hotel, Bristol, on February the 19th. The occasion was made more noteworthy by the presence as guests of several officers of the local Branch and Divisions of the British Medical Association. Opportunity was taken to discuss informally some of those problems

which, though they seem at first sight to concern more particularly our own Society, are, in fact, equally important to the Association. This was of special interest in view of the local difficulties referred to below.

The toast of the Association was proposed by Dr. Herbert Jones, and Dr. Davies replied to that of the Society. Other speakers were Dr. Newman Neild, Dr. Parker, Dr. Lavers, and Mr. Wood. A very friendly tone was obvious in the remarks which were made, and there is no doubt that the gathering will help on that close co-operation between the two bodies concerned which is so necessary for both.

A QUESTION OF SALARY AT BRISTOL.

A regrettable position has arisen at Bristol in consequence of the intention expressed by the City Council to appoint what would be virtually a Deputy to Dr. D. S. Davies at the wholly inadequate salary of £550 per annum. It seems almost inconceivable that the Council of an important city of over 380,000 inhabitants should be content that a post of this kind should be filled by one of the relatively inexperienced men who alone would be likely to be attracted by so small a salary. But such is the fact.

Fortunately the Council are unlikely to have it all their own way, and the challenge has been promptly accepted. The Bristol Division of the B.M.A., at a meeting held on the 23rd of February, expressed the opinion that "no medical practitioner within the area of the Division should apply for or hold the appointment of Assistant M.O.H. for Bristol at a lower rate of remuneration than £800 per annum, exclusive of travelling and other official expenses." The Editors of the medical journals have refused to insert an advertisement offering a salary of £550, and Bristol is on the "black list" of the "British Medical Journal."

THE COUNTY OF GLOUCESTER.

Dr. Middleton Martin's Annual Report for 1921, though late in appearing, is full of interest both for the matter it contains and the attractive way in which this is imparted. A large amount of statistical matter is included, but is so skilfully interwoven with commentary that there is not the usual temptation to skip whole pages here and there.

The Preliminary Note on Population states that in 1085, according to the Domesday Book, about 50,000 of the million and a half people in the country were inhabitants of this county. The present population of the administrative county (i.e., excluding Bristol and Gloucester) is a third

of a million, and is about three times what it was in 1700.

Some interesting remarks are made in connection with Tuberculosis. It is stated, for example, that one person in 200 in the county has recognisable pulmonary disease, and one in 800 some other form of the tuberculosis. The Report suggests that approximately one-third of all notified cases of pulmonary tuberculosis die during the first year after notification, and another third during the next six years. The death-rate among the remaining third is little above that for the general population. Dr. Martin is inclined to agree with the theory that early infection with bovine tuberculosis in the form of glandular or bone lesions is a protection against subsequent development of pulmonary disease.

To the figures given recently in these Notes in connection with Section 14 of the Midwives Act, 1918, may now be added the following in respect to Gloucestershire. Out of every 100 births attended by midwives, medical aid was summoned in 19. Claims for fees were made to the Authority in 36 per cent. of cases where a doctor was called in, and 18 per cent. of the fees actually paid out were recovered from patients.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.

ORDINARY MEETING.

An ordinary meeting was held at the house of the Society on Friday, March 16th, 1923, the President (Dr. T. Eustace Hill) in the chair.

The minutes of the last meeting having been approved and signed, the following candidates were elected to the Society:—

As Members:

Bryan, Hugh Stanford, M.R.C.S., L.R.C.P.; Douglas-Drummond, Marguerite, L.R.C.P., L.R.C.S., Edin., L.R.F.P.S., Glasg.; Harbison, James Austin, M.B., B.Ch., Belf., D.P.H.; Morley, Donald Ewart, M.D., B.S., Lond., M.R.C.S., L.R.C.P., D.P.H.; Williams, Margaret Aileen, M.R.C.S., L.R.C.P.; Wood, Wilfrid Burton, M.A., M.D., B.Ch., Cantab., M.R.C.S., L.R.C.P., D.P.H.

As Associate:

Andrews, Freda Mary, L.D.S., Eng.

A number of candidates were nominated for election at the next meeting.

Dr. R. J. Ewart read a paper on "The Relationship between the Economic Circumstances of the Country as a whole, and the various Rates by means of which Health is measured."

A discussion followed, which with Dr. Ewart's paper will appear in an early issue of "Public Health." The proceedings closed with a cordial vote of thanks to Dr. Ewart.

COUNCIL MEETING.

A meeting of the Council was held at the house of the Society on Friday, March 16th, 1923, the President (Dr. T. Eustace Hill) in the chair. There were also present Drs. Porter, Cates, Peyton, Pearce, Jolly, Snell, Rees-Jones, Garstang, Wheatley, Frederic Thomson, Shadick Higgins, Evans, McMaster, Clements, Stocks, Lyster, Howarth, Gibbons Ward, Nash, Naylor Barlow, Buck, Stirk, Denison Pedley, and Lt.-Col. Herbert Jones.

The minutes of the last meeting having been approved and signed, apologies for absence were received from Professors Kenwood and Kerr and Dr. G. W. N. Joseph.

Correspondence.—(1) From the British Medical Association inviting a conference with representatives of the Society regarding the advisability of early submission of the Scale of Salaries for the Public Health Service to the County Councils' Association, the Association of Municipal Corporations, and other bodies representative of Local Authorities. It was agreed to meet the B.M.A. in conference on the subject, but the opinion was strongly expressed that the Scale should not be submitted to bodies representing Local Authorities until it had been considered by the A.R.M. of the British Medical Association. (2) The Educational Health and Food Campaign inviting the Society to be represented on a deputation to the Minister of Health to urge the importance of publishing plain practical information about diet, in leaflet form. It was agreed to express sympathy with the object of the deputation, but not to take any part in a movement to secure attention for only one item in the large subject of public health propaganda. (3) From Dr. W. J. Howarth asking to be allowed to resign his membership of the Insurance Acts and Parliamentary Committees of the B.M.A., owing to pressure of other work. Dr. Howarth's resignation was received with regret and he was cordially thanked for his past services. It was decided to nominate Dr. G. F. Buchan to fill the vacancies caused by Dr. Howarth's resignation. (4) From the North-Western Branch forwarding the following resolution: "That it be a recommendation to the Council that a communication be addressed to the Ministry of Health urging that in the interests alike of manufacturers, retailers, consumers and Local Authorities, steps should be taken without delay to appoint a Committee to enquire into the use of preservatives and colouring matters in foods, and that the recommendations of such

Committee should be given effect by law." The resolution was referred to the Special Committee on Foods to consider and report. (5) From the Midland Branch, forwarding the following resolution: "That this Branch request the Council of the Society to urge the Ministry of Health to introduce the legislation necessary to carry out the recommendations of the Departmental Committee on Meat Inspection." (6) From the British Medical Association, forwarding the following resolution by their Council: "That, with a view to the prevention and adequate treatment of ophthalmia neonatorum occurring in lying-in hospitals, such hospitals should have available the services of an ophthalmic surgeon." The terms of this resolution were unanimously approved. (7) From the National Association of the Prevention of Tuberculosis inviting the Society to nominate representatives to attend the ninth annual conference of the Association at Birmingham in July, 1923. Agreed that Prof. John Robertson, Dr. W. H. Davison, and Dr. F. N. Kay Menzies be asked to represent the Society. (8) From the Royal Sanitary Institute inviting the Society to nominate representatives to attend the 34th Congress of the Institute to be held at Hull from July 30th to August 6th, 1923. Agreed that the President, Prof. H. Kerr, and Dr. J. Cates be asked to represent the Society.

The Journal Committee.—Arising out of a resolution forwarded by the Journal Committee it was agreed that the Committee should act only in an advisory capacity to the Editor.

Articles of Association.—The Special Committee appointed to advise on the revision of the Society's Articles of Association submitted a proof of the Articles revised in accordance with suggestions received from the Council, Branches and Groups. It was decided to circulate the draft with the April, 1923, issue of "Public Health," with a request to Branches and Groups to give notice of their approval and objections to the Executive Secretary not later than May 2nd, 1923.

Dental Caries Leaflet.—Acting on a representation of the Dental Group, the Council on February 17th, 1922, appointed a Special Committee to draw up a propaganda leaflet in reference to the Prevention of Dental Caries. The Committee was constituted as follows: Mr. W. Fisk, Mr. George Thomson, and Mr. Grantley Smith (Dental Group); Dr. J. Sim Wallace (School Medical Group); Dr. Flora Shepherd, Dr. Harold Scurfield, and Dr. H. K. Waller (M. and C.W. Group); with Drs. Wheatley, McMaster, and Stocks nominated by the Council.

The leaflet as originally drafted was referred back by the Council on September 22nd, 1922, for revision. The Committee, after conference with Mr. Pedley, who reported criticisms which had been expressed by members of the Council, now submitted a revised draft with the following report:—

"In framing the leaflet we have had chiefly in mind the principles by which the growth of well-shaped jaws, the natural cleaning of the teeth by the saliva, and the keeping of the teeth free from fermentable sugar and starch, may be secured. As the influence of vitamins on the growth of the teeth may still be regarded as *sub judice*, and as the importance of a dietary containing vitamins for all persons is now recognised and has been the subject of a recent monograph issued by the Ministry of Health, we have thought it advisable in the leaflet to confine ourselves to the immediate causes of dental decay."

The leaflet submitted reads as follows:—

PREVENTION OF DECAY OF TEETH.

(Leaflet for the use of Parents.)

Decay of teeth is caused by the fermentation of food that sticks on or between the teeth after meals. Acid is formed from the food, and this acid eats a hole into the teeth. It is only the "starchy" and "sugary" foods (see below) that form acid in the mouth.

It is most important that the jaws should be well grown and the teeth regular. This is brought about by breathing through the nose from birth onwards and by chewing and gnawing. If the jaws are small and the teeth overcrowded, mastication (chewing) cannot be properly performed, and the food will be left clinging to the teeth after meals and the teeth will decay.

In order that the jaws and teeth shall grow properly and the teeth keep clean and free from decay you should observe the following rules:—

- (1) As soon as an infant needs food other than milk (8-9 months) give it in a solid form, such as crusty bread, twice baked bread,* or crisp toast, thus compelling mastication. Do not give bread soaked in milk or milk thickened with flour or other starchy foods such as most patent foods. Encourage the child to chew and see that it breathes through its nose. In these ways good habits of mastication will be formed.
- (2) As the child grows up you should still give most of the food in a solid form, compelling mastication. Food, other than milk, should rarely be taken in a liquid form. Vegetables and meat should not be minced and soaked in gravy. Bread should not be eaten new and it should have plenty of good firm crust.
- (3) After the first two or three years of life the child should have three meals a day and no food between.
- (4) It is not advisable to drink at meal times, but plenty of water should be taken between meals. Milk is a food and should only be taken at meal times, and must be followed by a tooth cleansing food.
- (5) All meals should be finished with a cleansing food (see below).
- (6) Sweets, chocolates and biscuits are very harmful to the teeth, if taken the last thing at night. They should only be taken at meal times and should be followed by a cleansing food. The custom of giving

milk and biscuits the last thing at night should not be allowed.

- (7) Correct feeding and chewing are the best means of preventing decay of the teeth, though the intelligent use of the toothbrush will be found helpful.

If decay of the teeth or tenderness of the gums is noticed, the child should be taken to a dentist. Such conditions prevent mastication and bring about further decay. It is important for the sake of the child that the nursing and expectant mother should also go to the dentist if her teeth are in a bad condition.

EXAMPLES OF FOOD REFERRED TO ABOVE.

Starchy Foods.—Potatoes; Rice; Tapioca, Sago; Bread, Biscuits, etc.; Oatmeal Porridge; most Patent Foods.

Sugary Foods.—All foods to which sugar is added; Sweets of all kinds; Honey; Syrup; Jams; Marmalade; Milk.

Tooth Cleansing Foods.—Fresh fruits—apples, oranges, nuts; Raw vegetables—lettuce, watercress, celery, radishes, onions; *Crusts of bread, crisp toast, twice-baked bread; Meat, Fish, Bacon.

In submitting the report and leaflets, Dr. Wheatley urged the importance of immediate propaganda work in connection with dental caries. He pointed out that the leaflet did not commit the Society to any dangerous expression of opinion on controversial matters, and that it could be withdrawn or amended as increased knowledge of the causes of dental decay become available. The report and leaflet were approved, and the President, on behalf of the Council, thanked the Committee for their labours.

Salaries Committee.—Dr. G. F. Buchan reported the action of this Committee in reference to appointments in Scotland, and at St. Helens, West Hartlepool, Worthing, Hartlepool, Lytham, St. Annes, Liverpool, Port of London, Ilford, and Bristol. The report was approved.

The Late Dr. P. Caldwell Smith.—On the proposal of the President, a vote of condolence was passed with the widow and family of the late Dr. P. Caldwell Smith, for many years a valued member of the Council, and the Executive Secretary was directed to forward a copy of the resolution to Mrs. Caldwell Smith.

The Council then adjourned.

PROCEEDINGS.

YORKSHIRE BRANCH.

A meeting was held in Leeds at the City Education Offices on Friday, 23rd February, at 2.30 p.m.

Present.—Dr. Buck (President) and 10 members.

The minutes of the last meeting were read and confirmed.

* The coarse whole-meal flour is best for this purpose.

The Hon. Secretary gave an account of the steps he had taken to get into touch with the Divisions of the B.M.A. in order to elicit the sympathy of the Association on the Salary Scale of the Society M.O.H.

The meeting then proceeded to discuss the Midwives Act and the Rules of the C.M.B., in accordance with the request contained in the letter received from the Executive Secretary.

Dr. Pearce proposed that in those county districts which employed a full time M.O.H., the midwives practising in the district, should be under the control of the local M.O.H. Dr. Williams seconded.

Dr. Buchan proposed as an amendment that the question should be referred to a conference between the Non-County Group and the Association of County M.O.H. Dr. Bertram Hill seconded.

After some discussion the President put the amendment to the meeting, which he declared carried.

Dr. Jervus outlined some of the points in the Act and the rules of the Board, which need consideration and possibly amendment by the Board.

Dr. Gibson proposed that the period of training of untrained nurses be extended from 6 to 9 months, and for trained nurses from 4 to 6 months. This was seconded by Dr. Buchan, and on being put to the meeting was declared carried.

Dr. Buchan then proposed "That the C.M.B. certificate should be withdrawn from those women who have ceased to practice midwifery, and that it be made a consideration of the granting of the certificate that women be expected to practice midwifery for a specified time. This proposition was not carried.

Dr. Moore proposed that "The names of those women who hold the C.M.B. and who do not practice midwifery should be entered on a separate list in the register."

Dr. Gibson proposed "That consideration be given by the C.M.B. to the regulation of the practice of monthly nurses." Seconded by Dr. Banks and carried.

Dr. Moore proposed "That the attention of the Central Council of the Society M.O.H., be directed to the consideration of the voluntary notification of pregnancy. Seconded by Dr. Gibson and carried.

Dr. Gibson proposed "That Rule 19 of the C.M.B. should be extended to read that the midwife must not administer any drug, including anaesthetics, other than a simple aperient and

Ergot." Seconded by Dr. Bertram Hill, and carried.

Time did not permit of a discussion of the draft of the duties of M.O.H., which had been referred to the Branch by the Executive Secretary. Dr. Moore suggested that the Hon. Secretary should write and inquire of the Executive Secretary on what date this draft was received at the Society's office in London.

NORTH-WESTERN BRANCH.

Meeting held in Manchester on Friday, 16th February, 1923.

Present.—Dr. Wilkinson (chair) and 26 members. Minutes of last meeting read and confirmed.

Dr. Meredith Young read a very interesting paper on "Constructive Birth Control" (to be published shortly in the Journal), which led to a good discussion joined in by Drs. Wilkinson, Dearden, Daley, Wood, Sharpe, and Moffatt. A hearty vote of thanks was accorded to Dr. Meredith Young, who replied to the many questions raised.

The members considered various points requiring revision in the Rules of the Central Midwives Board, including suggestions sent in by Drs. Rees Jones, Veitch Clark, Milligan, and Sharpe, and the Hon. Secretary was instructed to embody them in a memorandum for submission to the Committee of the Society dealing with the matter.

NORTHERN BRANCH.

Meeting held in the Medical Institute, Newcastle-upon-Tyne, Friday, 23rd February, 1923.

Present.—Dr. T. Eustace Hill (Vice-President) and 6 members.

The minutes of the last meeting (12th January, 1923) having appeared in "Public Health," were taken as read, and signed by the Chairman.

The Honorary Secretary read a letter from the Executive Secretary asking for a report from the Branch as to the working of the Midwives Acts and the Rules of the Central Midwives Board.

Salaries Scale.—The Hon. Secretary made reference to the article by Dr. G. F. Buchan on the above in the current number of "Public Health," and the Chairman emphasized the necessity for all members to get into close touch with the representatives of their respective B.M.A. Divisions. Dr. Hill also said that he was attending a meeting of the Local Division next week, when this matter was coming up for discussion, for the definite purpose of explaining the proposals.

West Hartlepool Appointment of M.O.H.—The Hon. Secretary referred to the unfortunate outcome to the above, and drew attention to the article which had appeared in the "Medical Officer" for the week ending 17th February, 1923. He also read a letter received from the Medical Secretary of the British Medical Association.

Hartlepool M.O.H.—Proposed 15 per cent. Reduction in Salary.—The Chairman said that he had been informed that it was proposed by the Hartlepool Council to reduce the salary of their Medical Officer of Health (Dr. G. A. Jubb) by 15 per cent., and it was resolved that the Honorary Secretary communicate with the Executive Secretary of the Society of Medical Officers of Health and the Medical Secretary of the British Medical Association.

Whickham U.D.C.—Proposed Reduction of Salary of the M.O.H. and Sanitary Inspector.—It was reported that the Minister of Health had refused to sanction the proposed reductions in salary of the M.O.H. and the Sanitary Inspector of the Whickham U.D.C., and pointing out that the reduction could only be effected by a three months' notice, culminating in November, to terminate the present appointments, that such notice could only be given with the concurrence of the Minister of Health, which the Minister did not propose to accord, and that moreover the Minister did not consider the present payment of either officer excessive.

This evidence of a stiffened attitude on the part of the Minister of Health was received as a most hopeful sign, in view of possible future injustices.

Letter from the Honorary Secretary of the Northern Centre of the Sanitary Inspectors' Association regarding the Local Government and other Officers Superannuation Act, 1922.—The Hon. Secretary read a letter from the Hon. Secretary to the Northern Centre of the Sanitary Inspectors' Association suggesting that the Northern Branch of the Society of Medical Officers of Health appoint two or more representatives to attend a preliminary conference of officers to formulate a scheme with regard to the above.

It was moved and seconded that Dr. J. A. Hislop, Medical Officer of Health, Tynemouth, and Dr. W. Grant, Medical Officer of Health, Easington, be appointed as the Branch Representatives to attend any conference that may be fixed to consider the question.

Discussion on "The Working of the Midwives Act and the Rules of the Central Midwives

Board."—Dr. A. F. G. Spinks, Maternity and Child Welfare Medical Officer, Newcastle-upon-Tyne, opened a keen and prolonged discussion on the above, and the following took part: Drs. T. E. Hill, Mabel Brodie, Andrew Smith, Harold Kerr, and J. MacLachlan.

The following seven Resolutions were put to the meeting and carried:—

Resolution 1.—That Section 2 of the Midwives Act, 1902, be amended so that it will read: "From and after the first day of January, 1924, no woman shall attend women in childbirth otherwise than under the personal direction and in the presence of a qualified medical practitioner unless she be certified under the Midwives Act, 1902. Any woman acting without being so certified shall be liable on summary conviction to a fine not exceeding ten pounds, provided this Section shall not apply to legally qualified medical practitioners or to any one rendering assistance in a case of emergency.

An unqualified person rendering emergency assistance to a woman in childbirth shall as soon as she becomes aware of the emergency, immediately summon the services of a legally qualified medical practitioner or a certified midwife.

Resolution 2.—That Section 14 (2) of the Midwives Act 1918 be altered to read:—

"It shall be a condition of the payment of such fee that the medical practitioner so called in shall submit his claim to the Local Supervising Authority within 48 hours of his receiving the 'Form of sending for Medical Help' from the midwife, and that he shall state in such claim the nature of the emergency."

Resolution 3.—That further consideration be given to the prophylactic measures applied to the eyes of new-born infants by midwives, with the idea of improving such measures, and of still further impressing midwives with the gravity of the results of Ophthalmia Neonatorum.

A severe penalty for not complying with Rule E. 20 of the Central Midwives Board should be imposed, and should be mentioned prominently in the Rules.

Resolution 4.—That the word "serious" be deleted from, and the word "all" added to, the last paragraph in Section 3, Rule 21, of the Central Midwives Board, so that such paragraph would read:—

"In all cases of rupture of the perinaeum or of other injuries of the soft parts."

Resolution 5.—That Rule E. 19 of the Central Midwives Board be deleted and substituted by one worded to the following effect:—

"No midwife shall administer to a patient any drugs other than castor oil, and—after the completion of the third stage of labour—ergot, excepting under the supervision, or by the written advice of, a qualified medical practitioner."

Resolution 6.—That a rule be added forbidding midwives to use forceps under any conditions whatever, and permitting them to administer an anæsthetic only under the personal supervision and in the presence and at the request of a qualified medical practitioner.

Resolution 7.—"That the administration of the Midwives Acts should be under the direct control of the Ministry of Health."

Dr. Spinks was accorded a hearty vote of thanks for his paper.

CORRESPONDENCE.

The Editor does not accept responsibility for the opinions of correspondents.

THE M.O.H.'S POINT OF VIEW.

From Dr. W. J. COX.

Sir,—On reading Dr. Norman's letter on the G.P.'s point of view, I cannot help suspecting that the "healthy" winter which we have just experienced has provided him with little occupation.

Otherwise, how could he find time to write so humorous a version of the work of the Public Health man. From the tone of his letter one is inclined to think that he has in his own mind associated his dearth of employment with the "activities" of the Public Health service, rather than with the eccentricities of our British climate.

Some of his statements are, to say the least, a little wide of the mark, but then perhaps the whole letter is intended to be a stupendous joke. I will, however, pay him the compliment of taking it seriously.

First with regard to tuberculosis. It appears to be a common complaint that the tuberculosis officer cannot "cure" his patient. What then is the remedy? On Dr. Norman's own showing the only result of a course of Mist. Expect. and domiciliary visits is the signing of a death certificate three months later.

Infant Welfare. Dr. Norman is even less convincing in his description of Infant Welfare work than in his account of the Tb. Dispensary. One would like to know the name of the M.O.H. who takes such an exalted view of the work of the Centre.

It is a little unfortunate that the Centre with which Dr. Norman was associated was unsuccessful, and one can imagine his "dismay" on discovering that his services were of so little use to the "general public." This is not the experience of other Infant Welfare Centres.

Judging by the large attendance at such institutions, the general public seem to hold a different view, and one has frequent opportunities of hearing their expressions of appreciation for the work of the Centres. In this connection one cannot do better than quote Budin's dictum—"An infant consultation is worth precisely as much as the presiding physician."

Infant Welfare work need not be as Dr. Norman elegantly expresses it, a "wash out." As to the "mothers in the back streets" who do not attend the Centre, Dr. Norman apparently forgets that they are visited by the Health Visitor. Further, at some Centres I know, these women attend very well.

Housing is not as Dr. Norman states, the "bedrock of prevention of infant mortality." If it were, one would have expected the infant mortality of the last eight years to have stood still or to have gone up, instead of experiencing a phenomenal fall. During the last eight years there has been practically no diminution of slum areas and yet a great drop in the infant mortality. It is true that the State Housing Scheme has been all to the good in its influence on Infant Mortality, but no one would claim that this has caused the fall in the death-rate, and in spite of the evil influence of continued overcrowding the infant death-rate continues to fall.

Bad housing is not the main cause of infant mortality, although it is an important contributory factor. The chief cause is bad mothering, and this can only be removed gradually by educational methods. It is a hopeful sign that the majority of mothers are now anxious to learn to do better for their offspring. Those who are willing to learn will find the Infant Welfare Centre ready to help them.

Many will not care to attend the Centre, and for them the family doctor is always available if they are able to pay for his services. For those who cannot or will not avail themselves either of the family doctor's services nor attend the Centre, there still remain the home visits of the Health Visitor, and there is not the least doubt that these are productive of great good. Hence the importance of notification of births which Dr. Norman does not appreciate.

Dr. Norman is apparently unaware that measles is no longer notifiable. After it was made notifiable M.O.H.'s were the first to point out the futility of notification of this disease.

There are other points in Dr. Norman's letter which might be dealt with, but I feel I have already written a letter of considerable length.

I am, Sir,

Yours faithfully,

WILLIAM J. COX, M.B., D.P.H.

A MEDICAL MINISTER OF HEALTH.

From Dr. F. G. BUSHNELL.

(a) REPORT OF SPECIAL COMMITTEE and Recommendations of Committee on London Government.

(b) The working of the Midwives' Act and the rules of the C.M.B.

The above items were referred to the Branches by the Society and were placed upon the Agenda of the business meeting of the West of England Branch of the Society of Medical Officers of Health, held at Bristol on February 19th. Consideration and discussion were deferred pending proposed legislation on (a), but I think that it would be wiser to seek opinions from the provinces, and for this reason, viz., that the recommendations made do, and must, directly affect all County and County Boroughs.

Hospital Administrative Areas.

Thus recommendations (2) and (6) are that areas which conveniently serve certain institutions and medical units as hospitals, dispensaries, etc., are to be governed by a new body ("Provincial Council"), which is a combination of County and County Borough.

Now all public health workers, especially clinical ones, have long realised the unnecessary inconvenience and hardship inflicted on patients by the fact that the administrative areas, as now constituted, do not coincide with the natural boundaries that should serve a medical unit. This must be altered. The formation of "Provincial Councils" may solve the difficulty, but it means multiplication of authorities and consequent expense and complication.

Take, for example, Plymouth, Exeter and Truro. Plymouth as a Hospital Centre serves South Devon and East Cornwall, Exeter and Truro serve the remainder of the counties respectively. Would Provincial Councils for Plymouth, Devon, Cornwall, and for Exeter and Devon, and for Truro and Cornwall be set up, or what combinations?

Roads, water, milk, etc., services.

Again the services dealt with in recommendations 3 and 7 are relegated to other authorities. Take the milk supply, it is obvious that a County Borough administrative area does not coincide with the area of its milk supply, nor can it deal adequately at present with it. The remedy suggested is that this service should be carried out by "co-operation between the representative authorities within the area by joint agreements, which if necessary may be given permanency by statute. Such joint bodies, however, must be directly responsible to the authorities concerned on behalf of these served or where impossible to the Ministry of Health."

More "bodies" and these responsible to one or more authorities or the Ministry of Health! How can a man serve more than one master?

In my humble opinion, any change in local administration should be surveyed with a view to the future devolution of certain functions of the Central Authority to smaller authorities, viz., England (or even areas of England), Scotland and Wales, as may be done in the present bill.

Of greater value and significance in the progress of the Public Health service than the development of our local administrative organisation (by the multiplication of local authorities) is the need for a more powerful, vigorous and enlightened central authority which, knowing what is wanted, will gather the reins more into its own hands and strengthen and develop the present public health service. Surely this was almost the *raison d'être* of the creation of the Ministry of Health? To use a simile, a dilated heart and undeveloped brain are not usually associated with vigorous limbs, though it is true that a vegetable draws nourishment from its roots!

Less option and more insistence on the carrying out of its own National Health recommendations, more "backing" to those who are endeavouring to carry them out, and more overruling of those who are obstructing or are inactive or reactionary is needed, and this can only be obtained by a *Medical Minister of Health with an organised public health service controlled by a strong central authority acting through local ones.*

Yours faithfully,

F. G. BUSHNELL,

Hon. Secretary—

Tuberculosis Sub-Group West of England Branch.

OZONE IN VENTILATION.

From OZONAIR, Ltd.

DEAR SIR,—My attention has only just been drawn to the January issue of your Journal, in which appears what purports to be a report of a meeting of the Institute of Heating and Ventilating Engineers, held at Birmingham, at which a paper on "Ozone in Ventilation" was read.

The report as given in your Journal is so obviously misleading that I may be pardoned for taking the matter up, because if your report is allowed to rest where it does, those of your readers who are not conversant with the facts may get an entirely erroneous impression.

The statement that there appeared to be a commercial stimulus behind the paper is an extremely unfair and uncalled-for comment and quite unjustifiable under the circumstances.

I have had an opportunity of reading the shorthand report of the discussion and the remarks by the various members, and so far from expressions of dissent, all of them joined in thanking the author for his valuable and interesting contribution.

Naturally most of the speakers asked for further information, which is the usual and expected outcome of a discussion on any subject, and the absence of such a request might fairly be taken as showing lack of interest.

The references to Hill and Flack are not, as in fact, correctly given. Short excerpts from a paper on any subject can be so made as to give an entirely different construction to that intended by the author of that particular paper, and any of your readers, who would study the paper referred to, would be able to confirm.

This Company, during its life of 18 years, has been ultra careful to make no claims for Ozone that could not be fully proven to the hilt, and at an early stage I consulted Dr. Leonard Hill, with the result that he thoroughly investigated the subject from the physiological standpoint, and summed up his report in a letter as follows:—

"Gentlemen,

I have submitted your system of ventilation to searching tests during the past twelve months, using your apparatus and studying the concentration of Ozone used in your system.

Owing to its powerful deodorising property, ozonised air, as generated by your apparatus, is of value in places permeated with foul odours, offensive trade smells, or where ventilation by heated air is used, and the air is

vitiated by the smell of the heating apparatus used. Ozonised air relieves the depressing effect of such air on the nervous system.

I have, at the same time, ascertained that there is nothing harmful to human beings in the use of your system.

Yours faithfully,

(Signed) LEONARD HILL."

The question of the actual deodorising property of Ozone as against the masking of one smell by the other has been set at rest for a long time, and is an undeniable fact, which can be proved in a few minutes by any person who wants to prove it to his own satisfaction.

I have on many occasions been consulted by the officials of municipalities, manufacturers, etc., in regard to nuisances arising out of sewage disposal, offensive trades, etc., with the result that an Ozone plant has been installed.

The immediate effect has been a complete cessation of complaint.

In nearly all these cases the plant has been installed on a guarantee and no payment to be made except on the clients' complete satisfaction.

This matter was thoroughly investigated some years ago by Dr. Franklin, Consulting Chemist to the General Electric Company of Schenectady, New York, and others, and the positive results were published at the time.

This Company has been established 18 years, it has relied for its business mainly on personal recommendation. Some 3,000 plants and apparatus, large and small, have been supplied. The majority of those sold in the early years are still in daily use, functioning to the same degree of efficiency that they did when first set to work. Some thirty thousand pounds have been spent in research work, with the result that the output of Ozone per unit of power has been increased many fold. All the information derived from this large expenditure of money and years of labour has been at all times placed at the service of the Medical and other Scientific Professions without reservation or payment.

On behalf of my Company I very much resent the tone of the remarks, which are incorrect, and exceed the bounds of fair criticism.

Yours truly,

OZONAIR, LIMITED,

EDWARD L. JOSEPH,

Director and General Manager.

Public Health

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Editorial.

FALSE ECONOMY.

As the result, doubtless, of severe financial pressure, and probably against medical advice, on the 3rd November, 1921, a circular was issued by the Ministry of Health on the subject of the treatment of tuberculosis, and in this it was stated, *inter alia*, that "Local Authorities should require a contribution towards the cost of the residential treatment of persons suffering from tuberculosis (other than ex-Service men whose disease has been held to be attributable to, or aggravated by, war service), in cases where the financial circumstances of the patient are such as to justify a charge." There is little doubt that the significance of this and the consequences likely to ensue from it were not at first appreciated, and it is little wonder that when the effects of it began to become apparent, at a public meeting of working people, whose lives are more likely to be affected by the disease, tuberculosis, than the community in general, a speaker stated that this circular means, in effect, the death knell of thousands of people in this country. During the war, tuberculosis was set up in very large numbers of men and women, both as the direct result of war conditions and in consequence of privations thereby entailed, and medical officers of health had to deplore a very serious setback in the campaign against this horribly insidious disease. The war, however, came to an end, and the conditions set up by it have been, or can be, overcome; but, unless a similar fate befalls the suggestion contained in the circular of the Ministry of Health, it is doubtful whether the war was the greatest danger to success in the treatment of tuberculosis.

Tuberculosis schemes all over the country are once more getting into smooth working order after the dislocation and retrogression caused by the war, and the members of the public interested in the matter, and particularly those members of

the working class public which are so vitally concerned, are on the eve of being reassured that public health authorities are really determined to deal with the problem of tubercle. Moreover, the efforts of the past eight or nine years are now bearing fruit in convincing people generally that tuberculosis is a grave danger, not merely to the individual, but to the community, and that Parliament and local authorities regard it so seriously as to be willing to authorise the expenditure of considerable sums of public money in dealing with it. The psychological effect of the reactionary circular is likely to be tremendous, and the public will rapidly realise that tuberculosis is not regarded as it was a few years ago. In many cases now it is becoming known that this change of policy has taken place, there is appearing a reluctance to apply for treatment, and, in some cases, application is only made when circumstances compel the patient or his relatives to do so. It is only those who have had experience in overcoming the unwillingness of patients to accept early treatment, even when free, who can appreciate the disastrous consequences.

In a moment of panic, the Minister of Health appears to have forgotten that the treatment of tuberculosis was undertaken, not in the interests of the patients, but for the common weal, and one is forced to contrast the attitude adopted with regard to this disease with the provision made to protect the public against the ordinary infectious diseases. In the case of such diseases as diphtheria, scarlet fever, and enteric fever, there is not only public provision for isolation and treatment, but there are legal powers whereby an obdurate patient may be compelled to accept such provision. It is not too much to say that, if the Minister of Health gave instructions (were he in a position to do so) for all public health activities with regard to diphtheria, scarlet fever and enteric fever to be entirely suspended, and for these diseases to be left to be dealt with as best they might by the general medical practitioner, the loss to the community would not be more serious than that entailed by the suggestion which has been made by the Ministry with regard to tuberculosis. The average yearly death rate from tuberculosis exceeds that from all other infectious diseases combined, from small-pox to measles, and including cerebro-spinal fever, poliomyelitis and influenza. Based on these figures alone, the outstanding importance of tuberculosis is evident; but it should be remembered that the ordinary infectious diseases attack for the most part, the younger members of the population, and when

they kill, kill quickly, whereas, in the case of tuberculosis, the majority of victims are in the wage-earning stage of life, and, on an average, they are incapacitated for two years before death. The loss in earning power in this way amounts to an immense sum. The ordinary infectious diseases are accountable for a loss insignificant in comparison, and if the disease tuberculosis were attacked with the same energy that has been evidenced in the case of, say, enteric fever, scarlet fever and diphtheria, its ravages would in the course of a generation or two, be reduced by at least 50 per cent. Also, if it could be definitely stated that a strangle-hold had been secured on the disease, the psychological effect on the community would be enormous, and the deadly fatalism with which the disease is now regarded would disappear for all time.

Tuberculosis schemes have now been in existence for a sufficiently long time to enable definite opinions to be expressed as to the attitude of the public generally, and particularly as to the views of the unfortunate persons attacked by the disease. In the early stages of the work the reluctance of patients to go to a sanatorium was an evident and embarrassing fact. This reluctance had to be overcome even in cases where the home circumstances were so deplorable as to make it a wonder that anyone could wish to remain in them. The work of the past eight or nine years has succeeded in overcoming to a surprising degree the objections of patients in this direction, and it can be said with confidence that the treatment provided is now so well-known and so generally believed in by those concerned, as well as their friends and relatives, that on every hand it is taken advantage of to its full extent. This eminently desirable result has been achieved by the inculcation of the view that eradication of the disease is so vitally important as to make it true economy for the public to pay the entire cost of treatment as well as of travelling expenses to and from institutions. If, and when, it becomes generally known that this is no longer the policy, the educative effects of the past ten years will be speedily obliterated. Such a result would be all the more to be deplored in view of the success of the past efforts, as evidenced by the falling death rate.

There is another, though much less important aspect of this question. The contributions actually received from patients amount in the total to a comparatively small sum, and the cost of recovering these small sums is altogether out of proportion to the amount received. In fact, it is probable that the cost of recovery is actually

greater than the amount received. This, however, as has been said, is the least important aspect of the question. The important fact is that if the Ministry of Health, having arrived at the conclusion that there must be a cutting down of expenditure in respect of the treatment of tuberculosis, had directed local authorities charged with the administration of tuberculosis schemes, to cut down their expenditure by certain specified sums, that is to say, to reduce the number of beds occupied, and had left them otherwise to continue their arrangements on the old lines, the decision would have been regrettable, but the effect on tuberculosis schemes generally would, in the opinion of many medical officers, have been negligible compared with the result certain to follow from the issue of the recent circular.

JUSTIFICATION BY RESULTS.

MANCHESTER AND CROYDON.

There is every reason to believe that the City Council of Manchester is completely satisfied with the results following upon its reconsideration of the question of the salary of the medical officer of health. As the result of the original inadequate offer a few thoroughly unsatisfactory applications were received, whereas, when the matter was reconsidered and a more reasonable salary was offered, they had a wide field of choice.

Similarly, when the Town Council of Croydon received the first intimation that the Society of Medical Officers of Health would advise its members to refrain from applying for the vacant appointment of medical officer of health, it is possible that the action of the Society and the British Medical Association was thought by some to be unwarranted interference in municipal affairs. After the Selection Committee of the Council discovered, however, that advertisement in lay press only produced six candidates, three of whom withdrew their applications, it is more than likely that the City Fathers began to think that there might be something in the advice of the Society, i.e., that a medical officer of the qualifications and experience expected by so important a County Borough could not be obtained for less than £1,300 a year.

At any rate, as soon as the Council came into the open market and advertised the position at a salary generally recognised by the profession as the present-day minimum value of the appointment, they were at once confronted with the difficulty of making a short list of reasonable

dimension without omitting several men of eminence in the public health service.

The following candidates were invited to appear for interview:

Dr. T. Shadick Higgins (St. Pancras).

Dr. A. H. G. Burton (Ilford).

Dr. H. J. Milligan (Reading).

Dr. G. E. Oates (Bethnal Green).

Dr. H. P. Newsholme (North Riding of Yorkshire).

Dr. F. C. Linton (Tunbridge Wells).

Dr. F. T. H. Wood (Bootle).

Dr. W. W. Jameson (Finchley).

Dr. C. W. Hutt (Holborn).

But Cape Town, we understand, was not prepared to allow Croydon an opportunity to secure Dr. Shadick Higgins, who withdrew his application before the day of the interview.

It will be apparent that in such a list the Council might have been tempted to follow the easy method of pricking adopted in the appointment of sheriffs, with the assurance that the public health of the Borough would be in safe keeping, no matter which name was transfixed by the pin, and there can now be only one opinion in Croydon as to the satisfactory results following the intervention of the Society and the B.M.A.

APPOINTMENTS TO BE AVOIDED.

It is desirable that information concerning some existing vacancies should be disseminated as widely as possible through the Public Health Service. When the position is understood we have no doubt that every self-respecting member of the Service will decline to be associated with the scheme of exploitation to which some public bodies appear to be inclined. The Borough Council of Hartlepool are attempting to obtain a medical officer of health at a salary of £600 per annum. According to the very reasonable scale of the Society of Medical Officers of Health the commencing salary should be £800 per annum, and we understand that the Ministry of Health have advised the Borough Council that the proposed salary of £600 is inadequate. The Ministry have expressed the opinion that "In view of recent experience it is doubtful whether that amount is adequate to secure the services of a competent officer." We congratulate the Ministry upon this step, and we trust that this very wise advice will be taken to heart by the Hartlepool Borough Council.

A still more flagrant example of an attempt at sweating the profession is given by the County

Council of the North Riding of Yorkshire, who have decided to advertise the position of County Medical Officer of Health at a salary of £1,000. The scale salary of this post is £1,500, and if this important area is to secure the services of a sufficiently experienced and satisfactorily qualified officer it will find itself compelled to offer that sum in order to attract suitable applicants. Any member of the Service applying for this post will be sacrificing not only his own interests, but also the interests of the whole Service. No man of any standing in the Public Health Service, or of such qualifications and experience as a large County Council of this kind ought to regard as necessary in a suitable applicant, is likely to offer himself for the North Riding appointment on these terms. The candidates are likely to be limited to some few unfortunate victims of circumstances who may be tempted to snatch at an opening in the absence of fair competition. There are, we regret to say, a few such individuals, but we cannot believe that a County Council like that of the North Riding of Yorkshire will consider that it has served the public interest by appointing a man of this type, and we sincerely hope that that County Council will reconsider its decision and offer a salary which can be accepted and competed for by loyal members of the Public Health Service. By taking this step they will secure for themselves an ample choice of candidates and will, we have no doubt, ultimately select an officer who will bring credit not only upon himself, but also upon the public body served by him.

We are particularly anxious about this County Council appointment because recent County Council appointments have been extremely unsatisfactory. The post of County Medical Officer of the important County of Staffordshire was filled up without advertisement, and without any competition at a totally inadequate salary. Herefordshire and the Isle of Ely were filled at proportionably inadequate salaries, the former owing to an unfortunate lack of action on the part of the Society and the British Medical Association, and the latter, we understand, by appointing the sole applicant. We hope and believe that every member of the Public Health Service will realise that the filling of these positions at such salaries by County Councils has the immediate effect of keeping down, below a reasonable living wage, the salaries of hundreds of assistant county medical officers who are staffing the Public Health Departments of the County Councils throughout the country.

THE NEECH PRIZE, 1921-22.

The prize founded by Dr. J. T. Neech for the best paper read in each Session before a Branch or Group of the Society of Medical Officers of Health has been awarded to

Surg.-Cdr. S. F. Dudley, O.B.E., R.N., of the Royal Naval College, Greenwich. The paper, entitled "The Carrier Problem," was read before the Navy, Army and Air Force Hygiene Group on June 9th, 1922, and was published in the December issue of "Public Health." The assessors for the prize were the President (Dr. T. Eustace Hill), Dr. R. A. Lyster, Dr. W. J. Howarth, and Dr. R. Veitch Clark.

THE ROCKEFELLER SCHOOL OF HYGIENE.

We are informed by the Ministry of Health that the further steps necessary in regard to the formation of the School of Hygiene have been discussed between representatives of the Ministry, the University of London, and the Rockefeller Foundation. It has been decided to set up at once a transitional executive committee to arrange for co-ordination with other authorities presently operating in the same or similar spheres; to evolve the organisation of the school of hygiene in detail; and to develop detailed plans of the school of hygiene to such a point that construction can actually be begun by them. It is also proposed to appoint provisionally a director of the school, who will act in an advisory capacity to the transitional executive committee, and the Foundation have undertaken to provide a sum not exceeding £4,000 per annum towards the salary and expenses of the director. The Minister of Health has under consideration the question of the personnel of the transitional executive committee.

A LETTER from Dr. W. Huntington, resigning his position of medical officer of health for the burgh, was read at the last meeting of St. Andrews town council. The Provost said that it was with a feeling of deep regret that the Council heard this letter read. Dr. Huntington had been medical officer of health for the long period of thirty-four years, and during that time had discharged the duties with the utmost efficiency. He had been a valued official, and had preserved good relations, not only with the council, but with all the other officials and doctors in the city. The whole question of the vacancy and the recognition of Dr. Huntington's service was remitted to the public health committee.

THE MEDICAL OFFICER OF HEALTH AS A PROPHET.

BY

MAJOR GREENWOOD, M.R.C.S., M.R.C.P.,
Medical Officer (Med. Statistics), Ministry of Health.

In 1875 was published the last of the monographs upon the Life and Death of the People of England which we owe to the genius of our greatest medical statistician, William Farr. Farr was then in his seventieth year; he could not have expected that he would again be able to expound the lessons of a decade of national life and death; his report on the experience of 1861-70 must have seemed to him, what in fact it was, the final account of a stewardship of hard upon 40 years, since the day when "Mr. William Farr, a gentleman of the medical profession," was appointed compiler of abstracts in the new Register Office. In unfolding the story of the past, of what had happened, he paused to consider what might happen in the future to be recorded by his successors. Perhaps the words of John of Gaunt were in his memory:—

"More are men's ends mark'd than their lives before.

The setting sun, and music at the close,
As the last taste of sweets, is sweetest last,
Writ in remembrance more than things long past."

Looked at in the aggregate, as mere brute averages, not much encouragement was to be gathered. Using the method of comparison we now affect, that of standardized mortality rates, the decade 1861-70 fared no better in the article of mortality than the 10 years 1851-60; the standardized per mille rate (persons) of the latter was 21.2, of the former 21.3. From the rates of mortality at ages a little more encouragement was to be gathered; the mortality of later childhood and adolescence was diminishing, had diminished from the beginning of registration, but the improvement was very small. He would indeed have been a prophet who, from a contemplation of these aggregate results, foretold that in the *annus mirabilis* of mortal pestilence striking a nation at the end of the greatest war in history, the standardized rate of mortality would be nearly 20 per cent. less than the average of the decennium 1861-70; indeed, almost exactly the value which Farr proposed as an attainable but unattained national standard.*

* "It will not, therefore, be pitching the standard of health too high to assert that any excess of mortality in English districts over 17 annual deaths in every 1,000 living

But Farr penetrated the crust of aggregates and perceived the significance of the items. He saw and noted the obstacles to improvement and knew that there *had* been progress. "The mortality of the city of London," he wrote, "was at the rate of 80 per 1,000 in the latter half of the seventeenth century, 50 in the eighteenth, against 24 in the present day. The mortality in the liberties of the city of London within and without the walls was in the four plague years 1593, 1625, 1636, 1665, at the rate of 24, 31, 13 and 43 per cent. In the city alone 90,472 persons died of plague in the four epidemics, and 55,604 of other diseases. The enumerated population of the city was 130,178 in 1631. In the cholera epidemic year of 1849 the mortality from all causes in the metropolis was only 3 per cent. And in the last two epidemics there was a further decline. Thus it is as certain that the high mortality can be reduced by hygienic appliances down to a certain limit as it is that human life can be sacrificed.

"The analysis of the causes of mortality renders it still further certain that the actual mortality of the country can be reduced. Many of the destroyers are visible and can be controlled by individuals, by companies and by corporate bodies, such as explosions in coal mines, drowning in crazy ships, railway collisions, poisonings, impurities of water, pernicious dirt, floating dusts, zymotic contagions, crowdings in lodgings, mismanagements of children, neglects of the sick, and abandonments of the helpless or of the aged poor.

"Furthermore, including the London district of Hampstead, there are fifty-four large tracts of England and Wales which actually experienced a mortality at the rate of only seventeen per 1,000—less by *five* than the average mortality per 1,000 of the whole country, less by *ten* than in nine districts, and less by *twenty-two* than the mortality reigning for ten years in Liverpool. Now the healthy districts have a salubrious soil, and supply the inhabitants with water, generally free from organic impurities. The people are by no means wealthy; the great mass of them are labourers and workpeople on low wages, whose families get few luxuries, and very rarely taste animal food. Their cottages are clean, but are sometimes crowded, and impurities abound; the sanitary shortcomings are palpable." " . . . The mean annual deaths at the rate of 22.4 in the ten years 1861-70 were 479,450 in England; and had the rate of mortality been 17 the annual deaths

is an excess not due to the mortality incident to human nature, but to foreign causes to be repelled, and by hygienic expedients conquered." (Supplement to 35th Annual Report of the Registrar-General, p. IX.)

would not have exceeded 363,617; so the overplus due to the operation of causes existing but less destructive in the healthier districts was 115,833. The hope of saving any number of these 115,833 annually, by hygienic measures is enough to fire the ambition of every good man who believes in human progress" (op. cit. VIII. and IX.). Against this quotation I will put one from the writings of a successor to Farr who worthily continues a great tradition. In his review of the vital statistics of 1913, the last year of the long peace, Dr. Stevenson writes:—"These deaths correspond to a rate of 13.7 per 1,000 population, which is 0.4 higher than that of the preceding year, the lowest yet reached, but is lower than any recorded previous to 1910. The lowest standardized death-rate of the nineteenth century was 16.4 in 1894, and the usual rates were considerably higher, the standardized rate for 1861-70 being 21.3 and that for 1891-5 18.35, since when the fall has been very rapid." (76th Annual Report of the Registrar-General, Cd. 7780 of 1915, p. XIX.) In the year 1913 there were only three populous districts with standardized rates of mortality exceeding 20 per 1,000, and the standardized rate of mortality of the aggregate of county boroughs in the north of England—arithmetically regarded the least healthy districts of the country—was 17 per 1,000. Using unstandardized rates, as did Farr in the passage quoted (he mentioned in a paragraph that I have not reproduced that standardization would increase the rate of the "healthy" districts, so that the contrast was not really so great as appeared), no populous area had in 1913 a rate exceeding 19.0. So the prevision of Farr was justified; what he supposed could be done has been done.

The great man I have quoted made his forecast at the end of an era in the history of western civilisation and at the beginning of an era in the history of science. In 1876 the political and economic hegemony of Europe had passed to Germany, the first steps had been taken in the *via dolorosa* which ended on the field of Armageddon. That epoch has passed; we are living in an economic world as unlike that of 1876 as the conditions of 1876 were unlike those of 1830. There is as profound a difference between the intellectual conditions of 1876 and of 1922 as separates their economic or political milieux. Fifty years ago Bacteriology had already been brought to birth, but was little more than an infant; fewer than half the discoveries which have changed all our thoughts and some of our ideals had yet been made. That era has not been marked by a catastrophe. The curve of intellectual development

has been continuous, that of economic and social development discontinuous. Economically we are in the plight of shipwrecked mariners on a strange coast, *but* we have salvaged the navigating officer's and the carpenter's stores, even the ship's library. It will be at least entertaining and, as I hope, perhaps even instructive to try to answer Banque's challenge:—

"If you can look into the seeds of time,
And say which grain will grow, and which will
not,
Speak then to me, who neither beg, nor fear,
Your favours nor your hate."

When Farr wrote there had been no great betterment of the rates of mortality of the whole population. From a comparison of the national rates of mortality in successive years or successive decennia between 1840 and 1870, no inferences could have been deduced favourable to the after-comers. To speak statistically, extrapolation by a horizontal straight line passing through the mean rates of mortality would have been as justifiable a method of forecasting as any other. There would have been no ground for optimism. As we have seen, Farr's faith in the future, so far as its justification was merely arithmetical, was inspired by interlocal comparisons. "Take, for example," he says, "the group of districts called Healthy for the sake of distinction, and here it is found that the annual mortality per cent. of boys under five years of age was 4.246, of girls 3.501. Turn to the district of Liverpool; the mortality of boys was 14.475, of girls 13.429. Here it is evident that some pregnant exceptional causes of death are in operation in this second city of England. What are these causes? Do they admit of removal? If they do admit of removal, is this destruction of life to be allowed to go on indefinitely?" (op. cit. XXI.). Farr always used this method of inter-local comparisons; 28 years before he presented the following little calculation:—

		Deaths registered in the 7 years, 1838-44.	
Population of the Town			
Sub-Districts of Manchester in 1841 ...	...	163,856	39,922
Population of the Extra-Metropolitan Districts of Surrey ...	...	187,868	23,777
Difference ...	...		16,145

"The population of Surrey," he wrote, "exceeded that of Manchester, yet in seven years 16,000 persons died in Manchester over and above the deaths in Surrey, the mortality in which from

the poverty of the labourer, and slighter degrees of the influences so fatal in Manchester, is higher than it should be." (9th Annual Report of the Registrar-General, p. 27).

From such inter-local comparisons we may still derive inspiration. The crude rates of mortality of Manchester and rural Surrey given by Farr's data are in the ratio of 195 to 100. In the census year 1911 the crude rates upon the County Borough of Manchester and the Rural Districts of Surrey were in the ratio of 164 to 100, the age standardized rates in the ratio of 181 to 100. Farr dreamed that all England might come to the level of his country districts and his dream came true; is it an idle dream to fancy that in 1952 the rate of mortality in the county borough of Manchester will not exceed that of the rural districts of Surrey in 1911? At least the hope is still "enough to fire the ambition of every good man who believes in human progress."

But if we consider the rates of mortality of the whole country, the era since 1870 is differentiated from that of 1837-1870 by the fact that for both sexes and at every age death-rates are lower, at all the younger ages very substantially lower, than in 1861-70. If then we scrutinise the annual or quinquennial rates of mortality over the forty or fifty years which cover the period from the commencement of decline to our day, can we discern an orderly progression, can we say that the rate of improvement is increasing, stationary or declining in each or any age group? If such regularity there be, dare we forecast, extrapolate, the mortality of the future?

The methods of the exacter sciences have been applied with such success in various departments of preventive medicine, that you may suppose I have at the back of my mind a hope or belief that a statistical Halley will some day elevate the art of epidemiological prediction to the level of astronomical prediction. I do not presume to assign bounds to the achievements of the human spirit, but actually I have in my mind a much humbler and a purely empirical process.

In 1891 H. S. Pritchett published certain predictions of the population of the United States; the method was to smooth the decennial census figures with a parabolic curve, i.e., to fit to the enumerated populations as ordinates a parabolic function of the time and to forecast the future population by finding the ordinate of the curve for values of the time beyond the observed range. E. J. Gumbel,* in an interesting monograph,

* (Die Berechnung des Bevölkerungsstandes durch Interpolation; Ergänzungsheft no. 2 Archiv. f. Soziale Hygiene u. Demographie Leipzig, 1916, pp. 63-65).

exemplifies Pritchett's method. He fits, by the method of least squares, a parabola of the 3rd order to the 11 census enumerations from 1790 to 1890. The formula smoothes the data reasonably well, the mean error (as a percentage of the population) is 2.14 per cent. Now the observed populations of the censuses of 1900 and 1910 were, in thousands, 75,700 and 91,972. The corresponding ordinates of the curve were 77,474 and 94,676, errors of respectively 2.343 and 2.940 per cent. You will, very justly, remark of this procedure that it is essentially irrational, since, in accordance with whether the sign of the constant multiplying the highest power of x , the time, be positive or negative, the extrapolated value must become an indefinitely great positive or negative quantity, which is absurd. Even for the short range of prophecy it is evidently systematically wrong; it over-estimates the population each time and will give worse and worse results the further one advances. Moreover, as Pearl and Reed have shown (Pearl, R., and Reed, L. J. On the rate of growth of the population of the United States since 1790 and its mathematical representation, *Proc. Nat. Academy of Sciences* VI., 1920, 275-288), a mathematical formula which does not involve such biological absurdities will give as good or better results. But when all this is said and the objection admitted, it remains true that the prediction is not far from the truth. When one considers the doubtfulness of things terrestrial, the possibility that, say, an epidemic of influenza (*perhaps* predictable qualitatively, but surely not quantitatively) or even the lesser plague of small-pox may disturb the tenour of our way, we should, I submit, be very glad were it possible to forecast the rate of mortality even one year ahead to within as little as 3 per cent., or even 5 per cent., of its "true" value.

So it seemed to me that it would be interesting to find out what sort of predictions would be given by the irrational formulæ used by Pritchett, viz., parabolic curves of low order, when the subject matter was not population, but the rate of mortality. As a first example, I take the rate of mortality upon women aged 35-45, chosen because (a) this rate has declined very far, (b) it is for a period of life wherein mortality is not subject to violent annual fluctuations, exception being again made of influenzal years. The rate of mortality upon women of this age was sensibly constant at a little more than 12 per 1,000 from the beginning of registration to the quinquennium 1866-70; since then it has fallen not perfectly smoothly but heavily to 5.4 in the year 1920. I used as the

jumping off ground the 29 years' experience from 1872-1900 (inclusive); to these rates I fitted a

Table I.

Females 35-45. Rates of Mortality 1901-20 compared with the extrapolates of a parabola fitted to the death rates 1872-1900.

Year	Observed	Extrapolated
1901	8.7	8.8
1902	8.4	8.6
1903	7.9	8.5
1904	7.7	8.3
1905	7.5	8.2
1906	7.5	8.0
1907	7.4	7.8
1908	6.9	7.7
1909	6.9	7.5
1910	6.5	7.3
1911	6.6	7.1
1912	6.4	7.0
1913	6.5	6.8
1914	6.7	6.6
1915	6.8	6.4
1916	6.3	6.2
1917	6.0	6.0
1918	8.6	5.8
1919	6.2	5.6
1920	5.4	5.4

parabola of only the second order, viz., $y = 10.663 - 0.1046x - 0.00144x^2$, wherein y is the death-rate in year x , x being measured from the middle year of the series, 1886, so that 1885 is represented by $x = -1$, 1884 by $x = -2$, etc., 1887 by $x = +1$, and so on. Thus if we put $x = 15$, 16, etc., we shall reach the forecasted rates for 1901, 1902, etc. I have set down fact and prophetic fancy in Table I. A prophet working on these lines plainly cannot hope to win the prize

offered by some newspaper proprietor, yet the result is really better than so audacious an attempt deserved to be. Although we extrapolate no less than 21 terms upon a basis of but 29 past terms, our result is never (excepting the *anni mirabiles* of influenza) more than 12 per cent. wrong and nine times less than 5 per cent. wrong—that it should be exactly right for the year 1920 is naturally a mere lucky chance.

Of course, as in Pritchett's case, the prediction is systematically wrong. It begins by systematically overestimating the mortality, then it begins to underestimate it, and, without doubt, its prediction for 1930 will be a good way on the optimistic side of the truth. Although it is against my principles to deviate from biometric adherence to the description of natural phenomena, I must confess that I was tempted by the comparative goodness of this result to try and improve upon it by using a more rational formula. So I fitted a parabola not to the actual rates but to their logarithms. You see, this locus will never give an irrational answer, never demand a negative death rate. But instead of giving a closer extrapolation, it gave a decidedly worse one, as did a parabola fitted to the logarithms of the death rates less a constant—the constants 2 and 5 were tried—which would represent a locus asymptoting not to a zero mortality but to a constant rate greater than zero. I am afraid I even tried other and, as I thought, more ingenious rational formulæ. Devising ways and means of fitting them gave me some intellectual pleasure, but they

Table II.

Females. Age Group.	Years Fitted.	$\sqrt{\sum \xi^2}$	$\frac{100 \sqrt{\sum \xi^2}}{M}$	1916.		1917.	
				Observed Rate.	Predicted Rate.	Observed Rate.	Predicted Rate.
0-5	1899-1915	2.30	5.6	26.5	(a) 32.1 (b) 28.7	26.2	(a) 32.0 (b) 27.4
5-10	"	1.76	4.9	3.0	(a) 3.5 (b) 3.1	3.0	(a) 3.6 (b) 3.0
10-15	"	1.080	3.7	2.2	(a) 2.3 (b) 2.0	2.2	(a) 2.4 (b) 2.0
15-20	"	1.087	3.0	2.9	(a) 2.8 (b) 2.6	3.1	(a) 2.8 (b) 2.5
20-25	"	1.103	3.0	3.2	(a) 3.1 (b) 2.9	3.3	(a) 3.1 (b) 2.8
25-35	"	1.091	2.0	3.8	(a) 3.9 (b) 3.6	3.7	(a) 3.8 (b) 3.5
35-45	"	1.143	1.9	6.3	(a) 6.8 (b) 5.9	6.0	(a) 6.9 (b) 5.7
45-55	"	1.439	3.5	11.1	(a) 11.4 (b) 10.8	10.6	(a) 11.4 (b) 10.6
55-65	"	1.852	3.4	23.0	(a) 24.5 (b) 22.3	22.2	(a) 25.0 (b) 22.0
65-75	"	1.851	3.4	53.1	(a) 55.4 (b) 50.3	50.2	(a) 56.6 (b) 49.8
75-85	"	4.878	4.0	132.6	(a) 135.1 (b) 120.0	126.8	(a) 139.5 (b) 119.8
85	"	11.828	4.7	283.2	(a) 272.5 (b) 250.0	280.6	(a) 280.2 (b) 249.6

(a) Extrapolate of a cubic parabola.
(b) Extrapolate of a straight line.

$\sum \xi^2$ = Sum of the squares of the deviations of observed from calculated values divided by 17.

did not extrapolate nearly so well as the simple parabola.

In the next table (II.) are shown the results of this method applied to each of the quinquennial or decennial age groups of the Registrar-General's Annual Reports, the years used for fitting a curve being 1899-1915 inclusive, the rates those upon females. The curve fitted was cubical parabola. We fitted by Tchebycheff's* process of successive approximation and found that the improvement after a cubic term had been reached was very slight, so that the additional labour of carrying the approximation further would have been wasteful. Except at the youngest and oldest ages the cubic smoothes the observations reasonably well; from 10 years to 75 years the square root of the mean square difference between observed and smoothed values does not exceed $3\frac{1}{2}$ per cent. of the mean value of the death rate. At the two youngest ages, the prediction, the extrapolate for the year 1916, far exceeds the true value. In every other age group it is within 10 per cent. of the truth. But still the result is poor. It is hardly worth doing so much arithmetic for so meagre a result; in five cases out of the twelve one would have got just as near the truth by prophesying that the death rate of 1916 would be the same as that of 1915.

Having reached this result, the following idea occurred to me. Suppose there really is a downward trend of the death rate, a trend which, at any rate for short stretches of years, is effectively linear and that upon this trend quasi periodic fluctuations, what some have called oscillations, are imposed. My curves with several constants try to follow these oscillations, and in order to do so they have to resign the task of mirroring the secular trend. Would not, after all, a mere straight line be a better servant? Further, I reflected that if this had been a question of determining the constants for a random set of 17 observations, the probable error of the residuals would be large, of the order perhaps of more than 30 per cent. of the sum of the squared deviations. Unless the improvement in passing from the first to the second and closer approximation were very great indeed, we should not be justified in attaching any importance to it. Of course this is not a case of random sampling, but the principle of the objection just started is sound; at least we may inquire further. Now in the first age group, 0-5, the sum of the squared differences between the observed values and the points of the smoothing

is only 11.7 per cent. greater than the corresponding sum for the cubic. We are hardly entitled to say that the cubic is an effectively better representation of the facts than the straight line. But the extrapolation by the straight line is much nearer the truth, it postulates a rate of 28.7 per 1,000 for 1916, within 8 per cent. of the truth, and 27.4 for 1917, within 5 per cent. of the truth. Omitting the year of influenza, we have 24.7 for 1919, a defect of 9.4 per cent., and 23.4 for 1920, which is 18 per cent. short. Even five years ahead it is a less bad extrapolate than a single forward extrapolate from the better fitting cubic. With the males, the result is similar; an error of extrapolation of 20 per cent. when the cubic is used, of only 5.7 per cent. when a straight line is taken for a single year. For 1917 the true rate was 31.7, the cubic extrapolate 39.0, the straight line extrapolate 33.2.

In the next age group, 5-10, the straight line, although a worse smoother, is again a much better extrapolator. It gives for 1916 and 1917, rates of 3.1 and 3.0 for females, 3.3 and 3.06 for males. In not one of the four cases does the error exceed 3 per cent. From age 20 to age 55, the cubic curve is both a better smoother and a better extrapolator, except in the group 35-45, where the straight line is somewhat superior as an extrapolator. At 55 to 65, where the superiority of the cubic as a smoother is not very great, its inferiority as an extrapolator is seen by the facts that the cubic postulates rates of 24.5 and 25.0 for 1916 and 1917, the straight line 22.3 and 22.0. Nature gave us 23.0 and 22.2. In this latter age group (earlier adult age groups are incomparable owing to the war) the result is confirmed by the statistics of male lives. Cubic extrapolates for 1916 and 1917 are 31.8 and 32.4; straight line extrapolates 29.4 and 29.1. The truth was 29.4 for each year.

In the last decades of life, for both sexes, cubic extrapolates are better than straight line extrapolates and very close to the truth.

This is, as I fully recognise, a very sandy foundation indeed upon which to build an hypothesis. But even a statistician must be allowed to play at building now and then. Perhaps the truth is something like this. In childhood, that betterment which began to be manifest in infant mortality rather more than 20 years ago is continuing "according to plan," as the war bulletins said. No doubt we shall not reduce our male mortality in the group 0-5 at the average rate of 1.5 per 1,000 per annum and our female mortality at the rate of 1.3 per 1,000 per annum for ever. Obviously we can't do so, else child mortality would

* The best recent account of this method is in Bauschinger's Article *Encycl. d. Math. Wissen*, 1, 2 (p. 152 et seq. of the French edition).

cease within a generation. But the figures give us no basis for supposing that the improvement is nearly at an end, that, let us say, a mortality rate of 15 or even 10 per 1,000 is utopian.

I think this process could be improved by a preliminary graduation of the rates by a summation method, but, leaving that for subsequent study, how far are we brought by the arithmetic already done? In childhood, down to the tenth year of life, in both sexes, despite oscillations above and below the trend, there still appears to be a linear downward trend, we are still advancing steadily. We are gaining from one and a quarter to one and a half per 1,000 in the first quinquennium of life, and about 0.05 per 1,000 in the next quinquennium. At the latest ages, the ages over 65, the fall is slackening, the decreasing rate of decline not being ill represented by a parabolic curve of the third order—only, of course, for a short range—and the prophet who should infer that there will not be much further improvement at these ages will not, I think, be rash or pessimistic. But what of the adult ages, the stretch of years from 15 to 65, wherein most of the work of the world is done?

Reference to Table II. shows that the decrements of mortality of women at the adult ages have been less satisfactory than in childhood. We cannot apply the same test to the males because our civilian rates of mortality at the fighting ages are not fair samples after 1914. But if we consider the years before the war, i.e., utilise the series of years 1894-1910 and extrapolate for 1911 and 1912, the result is that for every age from 15 to 55 a cubic extrapolate, which—as the constants multiplying the terms of higher order than the first are negative—is more pessimistic than a linear extrapolate, is not pessimistic enough; for instance, in the age group 35-45, the cubic extrapolates 7.4 and 7.0 for 1911 and 1912, when the true rates were 8.1 and 8.0. In the age group 45-55, 13.4 and 12.7 are the extrapolates, 14.8 and 14.7 the real rates. The suggestion is that a brake was being applied to the downward trend and that it would be worth our while to study the movement in time of rates of mortality at adult ages somewhat more closely.

A preliminary survey of the arithmetical facts is contained in Table III., which deals with the quinquennial averages from the quinquennium 1846-50 to that of 1906-10. The range has been smoothed with a second order parabola, and in the last column of the table its extrapolate for the next quinquennium, 1911-15, is shown alongside of the observed rate of mortality. Comparison is made with the secular change in Sweden. The

Table III.

Quinquennial Rates from 1846-50 to 1906-10 for All England and Wales and Sweden. Extrapolated 1911-15.

Age Group	Country	Mean Rate	Efficiency of Parabola	Extrapolate 1911-1915
Males.				
20-25 ...	England & Wales ...	6.9 ...	4.9 ...	3.3 (3.9)
	Sweden ...	7.0 ...	5.7 ...	6.2 (6.7)
25-35 ...	England & Wales ...	8.4 ...	4.7 ...	4.2 (5.0)
	Sweden ...	7.5 ...	6.3 ...	5.9 (6.0)
35-45 ...	England & Wales ...	12.3 ...	4.2 ...	7.6 (8.3)
	Sweden ...	10.1 ...	6.5 ...	7.2 (6.9)
45-55 ...	England & Wales ...	18.7 ...	3.8 ...	15.1 (15.1)
	Sweden ...	15.6 ...	5.7 ...	11.1 (10.8)
55-65 ...	England & Wales ...	33.4 ...	3.4 ...	31.2 (30.8)
	Sweden ...	27.7 ...	5.5 ...	19.1 (20.2)
Females.				
20-25 ...	England & Wales ...	6.4 ...	3.4 ...	2.5 (3.1)
	Sweden ...	5.6 ...	5.1 ...	5.7 (5.2)
25-35 ...	England & Wales ...	8.0 ...	3.4 ...	3.5 (4.0)
	Sweden ...	6.7 ...	4.9 ...	5.9 (5.7)
35-45 ...	England & Wales ...	10.9 ...	3.6 ...	6.4 (6.6)
	Sweden ...	8.7 ...	5.2 ...	6.7 (6.6)
45-55 ...	England & Wales ...	15.0 ...	3.9 ...	12.0 (11.7)
	Sweden ...	11.7 ...	4.9 ...	8.8 (8.7)
55-65 ...	England & Wales ...	27.8 ...	3.9 ...	24.6 (23.6)
	Sweden ...	22.0 ...	4.8 ...	14.8 (15.9)

most striking point is the great superiority of our record in the two earliest ages shown, its great inferiority in the oldest ages; as, however, I have discussed this in detail in my recently published Milroy lectures, I need not repeat what I have already said. I would only note that in both sexes at ages below 45, the first extrapolate considerably under-states the true mortality. Table IV. summarises a much more detailed study of events and needs some preliminary explanation. The original material was obtained from three Registration Areas, viz., London, the Registration County of Lancashire, and the South-Western Group of Registration Counties. The material, annual deaths and interpolated populations, has been studied in annual units for the quinquennial groups 15-20 and 20-25 over the 51 years 1860-1910 inclusive, and with a quinquennial unit over the period 1846-1910 for the decennial age groups from 25 to 65. Even if I could find an editor willing to reproduce the 36 separate graphs of these regional statistics which I have had drawn, few or no readers would be bothered with them. One must try to bring out the salient features more economically. I hope this has been done in the table. Each set of rates was smoothed and, with three exceptions, it appeared that a straight line was not a much less efficient smoother than a simple parabola. It was also found that, with four exceptions, the smoothing line did not depart from the course of the actual rates widely. Taking as a rough criterion the average of the absolute magnitudes of the deviations of the representative line from the actual rates, expressed as a percentage of the average rate, we find that it exceeds 7 per cent. 4 times, is between 6 and 7 per cent.

Table IV.

Males.				Females.			
1860-1910.				1846-1910.			
Age Group.	District.	Equation.	Mean Deviation. %	Range.	District.	Equation.	Mean Deviation. %
15-20	London	4.40-069t*	6.5	5.3-2.7	London	3.77-065t	6.0
	S. Western Counties	4.13-061t	4.7	5.4-2.3	S. Western Counties	4.63-084t	5.6
	Lancashire	5.45-099t	5.4	6.8-3.1	Lancashire	5.08-102t	5.9
	London	6.01-107t	7.7	7.7-3.6	London	4.55-085t	6.4
20-25	S. Western Counties	6.28-103t	6.0	9.8-3.9	S. Western Counties	5.62-103t	5.3
	Lancashire	6.86-120t	7.4	8.5-4.2	Lancashire	6.37-121t	5.4
Males.				Females.			
Quinquennia 1846-1910.				Quinquennia 1846-1910.			
25-35	London	9.15-479t	4.6	11.6-5.5	London	7.32-478t	5.5
	S. Western	7.93-383t	4.9	9.4-5.2	S. Western	7.13-438t	4.5
	Lancashire	9.62-478t	7.5	12.3-6.0	Lancashire	9.37-607t	4.6
35-45	London	15.12-556t	5.0	18.1-10.6	London	11.66-461t	5.0
	S. Western	10.43-297t	6.2	11.4-7.9	S. Western	8.85-395t	4.9
	Lancashire	15.42-398t	7.9	17.7-10.5	Lancashire	13.65-587t	6.2
45-55	London	24.20-520t	4.4	27.4-18.7	London	17.46-437t	4.4
	S. Western	15.22-191t	5.6	16.1-12.4	S. Western	11.88-244t	3.5
	Lancashire	24.77-189t	6.3	26.4-20.5	Lancashire	20.25-416t	5.4
55-65	London	40.54-490t	5.9	47.7-34.3	London	31.73-823t	3.9
	S. Western	27.82-014t	3.3	28.6-25.4	S. Western	22.86-212t	4.4
	Lancashire	44.52-237t	5.4	43.2-41.3	Lancashire	37.77-174t	5.9

*t = time in years measured from the middle year of the series. In the second half of the table the unit is 5 years.

7 times, between 5 and 6 per cent. 13 times, and in the remainder of cases less than 5 per cent. On the whole, then, the lines are fairly good shorthand descriptions of the facts which possess the immense advantage over any other representations that they tell their stories in two words of arithmetic; one is the mean, the other the annual (or quinquennial) decrement. This only needs to be supplemented by the statement of the first and last rates in the series of years used—and, of course, a word of caution in the instances where my lenient criterion is too gravely flouted.

Let us first examine the course of mortality in the youngest pair of age groups, 15-20, 20-25. The average mortality of girls of 15-20 in London is a long way below that of Lancashire or the rural South-Western Group, and nobody who has had the advantage of studying Sir William Hamar's writings on migration will need to be told why. You will also notice with satisfaction that the rate in Lancashire has declined faster than elsewhere. With satisfaction, because, as I think, the real criterion of sanitary success is for a rate of mortality to decrease most in the area where it was at first highest. Boys of the same age—not probably subject to quite the same migratory disturbance—show a like superiority in the rate of decline in Lancashire, while London and the South-West run a nearly parallel course. In the next age group there is a qualitative similarity to the trend at 15-20, but there is no real difference here between the annual decrements in the three groups, although arithmetically that of

Lancashire is still the greatest. At 25-35 there is no difference at all between the rates of decrement for London and Lancastrian males; at the close of the 60 years the two rates are just as far apart as at the beginning. The male death rate in the South-West has declined more slowly, but still had a margin in its favour at the end. The women of Lancashire have improved their position vis-a-vis of Londoners appreciably, and London has fallen below—of course the difference is insignificant—the South-West in the last quinquennium.

At 35-45 the London males started worse than and ended level with those of Lancashire; the slower decrement in the South-West has been quite enough to keep it in the first place. The Lancashire women have again done better than the Londoners, but started so much worse that their final death rate is still the highest. At 45-55 and in both sexes Lancashire is outclassed in the race for improvement. The London males began with a higher death rate than the Lancastrians and ended with a lower one. The Lancastrians have improved less than half as fast as the Londoners and only at the same rate as the South-West, which began with a 50 per cent. advantage. The story of the women is not quite so bad but it is very bad.

The tale of the decennium 55-65 is much worse. Certainly the straight line does some injustice to Lancashire (a parabola with a negative quadratic term is an appreciably better representation of the trend) her rate of male mortality in 1906-10

was not *really* worse than 60 years before. But a glance at the opening and closing rates tells us nearly all we need to know. The London males began at 47.7 and ended at 34.3; the South-Western males began at 28.1 and ended at 25.4; the Lancastrian males began at 43.2 and ended at 41.3. International comparisons are often helpful, so I note that in 1906-10 our South-Western Counties had nearly as low a mortality of males aged 55-65 as Sweden experienced in 1876-80; London was very nearly but not quite as good as Sweden in 1856-60, while Lancashire was not much worse than Sweden in 1816-20 when the rate of mortality was 40.27 per 1,000. Women in Lancashire in 1906-10, although their rate of mortality has declined more slowly than that of the South-West and much more slowly than that of London were quite as well off as Swedish women in 1816-20, in fact had exactly the same rate of mortality. From this rapid survey, you will, I believe, draw two conclusions. The first, and the more sombre, is that upon the sole evidence of the national rates of mortality no prudent man would stake money on the chance that the rates of mortality of adult males between 45 and 65 will decline much further. The second and more hopeful is that when rates of mortality as between two great industrial areas differ by so much as 20 per cent.—compare the London and Lancastrian males aged 55-65—the faith which inspired Farr should encourage and strengthen us.

It is hard to believe that racial, industrial or climatological differences make so vast an inferiority of the north-western manufacturing area inevitable. Let me present the statistical facts in a slightly different way and contrast the North-Western Registration Group, i.e., Lancashire and Cheshire, with London, using the decennia 1851-60 and 1901-10. In the age group 35-45 the London males improved from 16.3 per 1,000 to 11.1, North-Western males from 14.5 to 10.9, London women from 12.8 to 8.2, North-Western women from 14.4 to 9.0. The comparison does no discredit to the North-West. At 45-55, London males improved from 24.7 to 19.6, North-Western males from 22.1 to 20.5, London women improved from 18.1 to 13.9, women of Lancashire and Cheshire from 19.5 to 15.7, Londoners of both sexes began worse and ended better. At 55-65, London males began with a rate of 42.4 per 1,000 and ended with one of 35.4, North-Western males began with a rate of 38.1 and ended with a rate of 40.6. The London women improved from 33.3 to 25.7, the North-Western women from 33.9 to 32.3. In 1901-10 the North-Western males were more

behind the Londoners than they were in front of them 50 years earlier, and had a higher rate of mortality than in those bad old days. Is it utopian to apply to this contrast the argument Farr applied to the contrast between the "healthy" districts and all England 50 years ago and to say, despite the pessimistic indications of the national trend at adult ages, that adult mortality can be further reduced and to prophesy that it *will* be further reduced if the medical profession in general and the public health service in particular are given a reasonable chance?

This brings me to that section of my paper which is, as I am well aware, highly speculative, which I submit to you with the genuine humility of an amateur addressing an audience of experts. I preface it by calling your attention to the changes in our mortality rate from enteric fever. The rate of mortality from this disease is, not even excepting infant mortality, the highest testimonial which can be given of the efficiency of our sanitary services. Some other civilised European nations have a lower rate of infant mortality than we have; in some other countries the zymotic diseases take a lower toll than here, in a very few tuberculosis is not much more fatal, but in none, I think, is enteric fever a less serious disease. At the extremes of life enteric does not claim more than a tenth of the victims it secured fifty years ago; at the most susceptible ages the death rate is much less than half what it used to be.

Last year we were shocked by the tragic experience of Bolton-upon-Dearne and rightly shocked; but, take at random any volume of official reports of fifty or sixty years ago, and you will have no difficulty in finding a parallel to Bolton-upon-Dearne. As I write this, I happen to have on the table the Report of the Medical Officer of the Privy Council for 1867, it contains three special reports on outbreaks of typhoid fever. In the little town of Winterton, in a group of 35 houses, there resided 145 persons; between June, 1865, and June, 1866, 100 of these went down with typhoid and 17 died. In Guildford, with a gross population of 9,000, there were some 500 cases of typhoid fever between August and December, 1866, and 21 deaths. Of Terling, Sir John Simon's words may be quoted. "In that village of only 900 inhabitants, and for the most part within a period of two months, fully 300 persons were attacked with typhoid fever, and 41 of the number died. That is to say, the one preventable disease killed in that short time a larger proportion of the population than all causes of death put together ought to have killed in two years." The population of

Bolton-upon-Dearne Village—the most severely affected area in the epidemic of 1921—was 3,581, there were 260 cases of typhoid fever and 29 deaths. The population of the whole affected district was 20,497, the complete list of cases 397, of deaths 45.

The death rate from enteric fever has not declined since those bad old days uniformly, but in two steps separated by a plateau. "The first period of decline," writes Dr. Stevenson in the decennial abstract for 1901-10, "extended from 1869, when the disease was first distinguished in our records, to 1885 inclusive, though the movement only became rapid after the passage of the Public Health Act, in 1875. This was followed by a complete arrest in the decline extending to 1899, after which a second period of fall set in. But it may be quoted that the general introduction of an improved method of diagnosis (the Widal reaction, almost coincides with the commencement of the second period of rapid fall in mortality, and may conceivably have contributed to it by preventing the certification as due to Enteric fever of certain deaths which might otherwise have been attributed to it. This improvement in the means of diagnosis, however, cannot go very far in explaining the immense reduction in mortality which has since occurred, and, of course, cannot explain an alteration in age and sex incidence which mainly antedated the introduction of the new method." (Cd. 8002, 1919, p. lviii.).

I suggest, but, of course, it is only a suggestion, that the first phase of the decline was the direct result of the campaign which began seventy years ago of which Chadwick, Simon and Farr were the generals. By 1875 most men of good will had been convinced of the need of pure water supplies and the law, supported by public opinion, had been sufficiently strengthened to make a continuance of such conditions as prevailed in Guildford or in Terling in 1866 impossible. By 1885 filthy water supplies were sufficiently rare to render a steady and general reduction of mortality by action on the old lines impossible. The absolute number of exceptions was still so large that no relaxation of vigilance could have been permitted; even now, as Bolton-upon-Dearne has demonstrated, we are by no means immune from explosive epidemics of the old type, while events at, for instance, King's Lynn five and twenty years ago, showed that ignorance was still a deadly foe of the public health service. But, the momentum of the old progress had been lost and for the best possible

reason. The campaign had entered upon a new phase, the enemy's main troops had been defeated, but there were plenty of guerillas in the field. The public had to be educated in the knowledge of the personal factors of contagion, in the importance of effective isolation of the sick, whether domiciliary or institutional. The effects of that less dramatic but not less useful campaign have been manifested since 1899.

In a very interesting treatise on typhoid fever Professor Gay, of California, writes* :—"It will, we believe, be evident that all significant information concerning the nature of the disease itself and its methods of dissemination, as well as all effective means that have been devised to prevent and cure it, have depended on laboratory data and are based on the recognition of the single bacterial causative factor" (p. 10). Within a few pages, Professor Gay corrects this, in my opinion, inaccurate statement by the remark that "all subsequent information, extended and elaborate as it is, has not supplanted the explanation of Budd, and has for practical purposes added little to it" (p. 42). But the heresy implicit in the former statement has done and will yet do great harm in the art of preventive medicine. I think it is fair to say that our triumphs over Enteric owe nearly everything to the epidemiologist and hardly anything to the bacteriologist, *so far as the civilian community in peace time is concerned*. I italicise this proviso because it is of capital importance.

When the standard of living is so debased—as it must be in war-time—that water supplies and food supplies *cannot* be shielded from contamination, the discoveries of Budd, the safeguards suggested by those discoveries and advocated by Simon are of no avail. When mankind is reduced to that melancholy level, it must be helped in another way. That other way was discovered by a bacteriologist and he would be a poor-spirited man who refrained from expressing admiration of the genius of an Almroth Wright whose researches have saved many thousands of lives in the past ten years. I am not, however, attempting to rival Mr. Gilbert Chesterton when I say that if anti-typhoid inoculation had been discovered in 1860, our present position would have been far worse than it is. It is much better to have armour of proof than a leathern jerkin if one is going to tilt against Sir Brian de Bois-Guilbert, but it is best of all to hang the Bois-Guilberts and stop tournaments and melees altogether. Simon and Farr did not stay to consider whether it might be

* F. P. Gray, *Typhoid Fever*. New York (Macmillan), 1918.

possible to immunise the population against typhoid, they said there ought not to be any typhoid at all. We all agree with them on that point, and civilian experience shows that they were not foolish optimists clamouring for the moon. There is still room for some of that optimism now. We hear much about the education of the young sanitarian, he is expected to learn a great deal of bacteriology, but is he expected to read the papers and reports of the great masters of his own art? Of the students who sit for the D.P.H. there are very few who are not on friendly terms with *b. typhosus*, and at least bowing acquaintance of *b. paratyphosi* A to Z. How many have read one of Simon's reports? Reduced to a few lines in an examination text book, the proof that polluted water or milk may lead to an epidemic of typhoid seems the easiest thing in the world to bring. Yet perhaps the scientific acumen which went to the composition of many of those old reports was not a very small thing; I have not yet convinced my son that Ballard, Thorne-Thorne and Power were much cleverer detectives than Sherlock Holmes, but he is only 14 and D.P.H. candidates are 24.

The point up to which I am so tediously leading is this. If one considers the catalogue of diseases which are immediately responsible for that excessive mortality at the later adult ages which is the gravest blot upon our public health record, they are for the most part diseases which the medical officer of health has considered to be quite outside his sphere of action. Thus the non-tubercular respiratory diseases, pneumonia and bronchitis, are horribly fatal in the North-West. In 1901-10, the death rate from pneumonia in Lancashire (males) was 2.45 per 1,000 at 45-55 and 3.85 at 55-65; the death rate from bronchitis at 45-55 was 1.43, and at 55-65 it was 5.09. In the neighbouring county of Cumberland the rates were 1.94 and 2.83 for pneumonia, 0.44 and 1.93 for bronchitis.

Do you really believe that nothing can be done to level down these rates? In 1851-60 the death rate from all causes of males aged 55-65 was 30.9 per 1,000, in the whole country, in 1901-10 it was 31.8. The rate in 1851-60 was the lowest of the whole six decennia. In women the 1851-60 rate was 27.0, the 1901-10 rate 24.8, this latter rate was far the lowest of the series. The change for the worse in the male rates is correlated with—I do not say caused by—industrialisation. We are not, I submit, to wait idly until some witch doctor invents a sovereign antidote to the legion of bacteria which slay the victims of a faulty

hygiene, a hygiene, some of the faults of which we already know, many of which we might know if we chose.

What then are the causes, known or knowable, of the gigantic toll our industrial civilisation takes of human life in the sixth decennium?

I think a comparison between London and Lancashire, or the smaller scale comparison between particular industrial towns which I made in the Milroy lectures, makes it improbable that the unfavourable position in the North-Western districts can be referred to purely economic causes; I mean that the hypothesis some thinkers have entertained, that high rates of mortality are the inevitable penalty of maintaining a too heavy population in this small country, is not a sufficient explanation. I suggest that it is just as hard to earn a living in Reading or Northampton as in Bolton or Warrington, but it is much easier to die—nearly twice as easy, if you are a man between 45 and 65, in Bolton as in Reading. In the first place there are the physiological factors which Dr. Leonard Hill has studied. I need not spend time in telling you what you know already about the Smoke Evil. I admit that it is not possible—or at least I have not found it possible—to express statistically the relation between, say, a London Fog and the rate of mortality, but such natural experiments as those performed by the Industrial slump at Sheffield can hardly leave us in doubt as to the lethal influence of smoke-polluted air. The repercussion of other atmospheric effects upon well-being has been measured by Dr. Hill; here again I need not repeat what he has already said so much better than I can say it. At least you will agree that under these two headings there is room for very considerable improvement.

Perhaps, in mentioning these quite definite results of modern investigation, I have not quite kept my promise, or threat, to be a speculator. I will employ the last minutes of the time in being as bad as my word.

Sir William Hamer recently said in jest, "Those of us who are not mercifully spared such a fate will probably be attacking conditions inimical to health by the methods of psycho-analysis, say, five or ten years hence."† Sir William's jests usually contain more thought than duller men's earnest. From the excessive mortality of males aged 55-65 to the Oedipus complex is a very long journey. I do not believe that even in 10 years candidates for the D.P.H. will be examined in the technique of dream interpretation.

† J. Roy. Stat. Soc. LXXXIV., 283.

But, if it has done nothing else, the psychological revolution has made us all realise more clearly than before that man is a very old animal and industrial civilisation a very new thing. We used to think that the power of imagination, the facility with which aborigines told to die actually went and died,* had no practical interest for us. We know better now. Perhaps here we have a clue to the difference of mortality between the older men in industrial and rural districts which is worth following. Economically the lot of an agricultural labourer in the sixth decennium does not seem preferable to that of a town artisan. But agriculture is a very old craft and a very select craft; not many townfolk become agricultural labourers.

"Only a man harrowing clods
In a slow, silent walk,
With an old horse that stumbles and nods,
Half asleep as they stalk.
"Only thin smoke without flame
From the heaps of couch-grass,
Yet this will go onward the same
Though Dynasties pass."

Our agricultural labourer of 55-65 is adjusted to his milieu. Our industrial is not. When the animal forces of life are abating, when football matches, motor bicycles and other excitements of an industrial life begin to pall, life is surely a little drab unless one has a balance in some spiritual savings bank. A platitude is not, as some people seem to think, a statement which isn't true. Even we who have interesting intellectual work to do in our daily lives are very glad when we have passed even the juvenile age of forty, to find a little in our spiritual savings box, to have cultivated some intellectual hobby, whether it be translating Aristotle or playing auction bridge. Has our national system of education yet reached such a level of excellence that the industrial workers in the decline of life have any balance at all? Their remote ancestors, as almost any village church proclaims and Morris taught, had an emotional sense of beauty; their faith, as the churchman might say, compensated for their low intellectual level. The beauty and the faith are gone, the intellectual substitutes are too meagre. Perhaps people die because it isn't worth while living. Perhaps a better educated urban population, all other things unchanged, the smoke still there, the unphysiologically ventilated factories still there, the rows of mean streets still there, would have some resources to make life

* See Frazer's *Taboo and the Perils of the Soul* (The Golden Bough), pp. 135 et seq.

worth living after 55 and would go on living. In a word, *taedium vitae* is perhaps as important in the ætiology of ill-health leading even to death as any other. A psychological study of the older adults in different parts of this country might be worth making. In this way we might make Sir William Hamer's jest good earnest, and I will end with my rashest prophecy—that when the medical officer of health is a psychologist, as well as a bacteriologist, a legal expert, a eugenicist, a statistician, and all the other things he is now, we shall see a further decrement of mortality at the most unpromising period of life.

DISCUSSION.

The President remarked that Dr. Major Greenwood's paper raised several points for thought and of value to the members. The reduction of the enteric fever mortality rate was of particular interest because in the North of England the high death rate from this disease had during the last ten years come down to that of England and Wales as a whole. This gratifying result had been brought about not so much by improved housing, sanitation, and water supply, as by the education of the individual. In 1893, when the rate was so high, there was no definite evidence, except in a few local outbreaks, that the question of water supply as a causative factor seriously arose. The epidemics were largely environmental, and were due chiefly to the careless habits of the population. As to the view that dense populations gave high death rates, Durham showed the falseness of that, the rate declining from 20 per 1,000 to an average during the last five years of 13 per 1,000. Particulars had recently been got out of various rates in Durham, and these showed that there had been practically no decline in the enormous mortality, especially in the later ages of life, in bronchitis and pneumonia, or in the developmental diseases in early life. Referring to infantile mortality, passing reference was made to an opinion of Prof. Mellanby that by the greater education of the people the rate ought to be brought down to 30.

Dr. James Wheatley (Shropshire) considered that if certain diseases had been completely exterminated by inoculation we should now probably be worse off. One of the greatest reasons why we had not progressed properly was that we had labelled certain important diseases as preventable whereas we ought to regard all diseases as preventable. We inherited tendencies and weaknesses, but it was doubtful if we inherited disease. Papers of this kind directed our attention to the

fact that our country was one of the best protected in the world, but when it came to the question of food and exercise, lack of sunlight, fresh air, and household management, possibly we fell far behind. It was these great things that accounted for the fact that physically we were not particularly high, and were probably rather low as compared with other nations. It all came back to this—that the great improvement in the health of the nation was now a question of research and teaching of the people. The Government should be pressed in every way to grant money to extend research, and at the same time to bring the knowledge gained to the people.

Col. F. E. Fremantle, O.B.E., M.P., thought that where we were often on the wrong tack we continued our procedure as if the particular need were still there. Our attention had been fixed far too much on diphtheria, scarlet fever and typhoid fever, to the detriment of other diseases which had now been brought more to the fore. Were we rightly educated with a view to our task? Certainly "No" at the present time. Generation after generation of public health workers had gone along on the same lines, and very few had taken a scientific and academic view of the question. Version after version of works had been very little else than scissors and paste. The development of industrial hygiene came not from us but from industrialists themselves, and progressed quite apart from our side of the science. So far physiologists had been deaf to the idea of bringing their work into line with that of public health. The object of our profession in general was to prolong life, but what would be the good unless people were going to be happier or the work of the world advanced. Our education must be extended to cover a much wider field. In the proposal for the formation of a central institute of instruction, under the Rockefeller Foundation, there was a wonderful possibility of centralising the teaching of public health in all its aspects, and of affording a foundation larger than that under which the present generation of public health workers were brought up. In expressing the opinion that psycho-analysis would have to be taken into consideration in the education of the medical officer of health, Col. Fremantle related an instance of cholera breaking out on a cargo boat in the East some years ago where the more nervous of the oriental crew sickened with the disease before they had really got it.

The President proposed a vote of thanks for the paper, which was carried with acclamation.

Dr. Major Greenwood briefly responded, and

expressed agreement with the views of the various speakers. Snobbishness worked right through into intellectual circles, and it was that spirit of being highly technical in certain narrow lines that was so wrong. He hoped that he had not given the impression that his remarks with regard to psychologists were intended to be satirical.

NOTES FROM BRANCHES.

THE METROPOLITAN BRANCH.

CONFERENCE ON DAY NURSERY SCHOOLS.

On the invitation of the Islington Borough Council over a hundred delegates from metropolitan borough councils and various bodies interested and concerned in child welfare met in conference at the Islington Town Hall on the 10th April, 1923, to consider the advisability of establishing day nursery schools on the lines of the Rachel McMillan School at Greenwich. Miss Margaret McMillan, C.B.E., gave a description of the work and details of expenditure, and pressed for the establishment of similar schools in other parts of the metropolis. Practical experiment, she stated, had shown that the full cost of feeding a child, giving three meals a day, including a two-course dinner, amounted to half-a-crown a week, that cost including cooking and firing, wear and tear of utensils, wages of cook, and food. The whole annual cost of a nursery school conducted on the best lines should not be more than £14 or £15 per head, but in order to run a scheme as economically as possible it was advisable to begin on a large scale. A resolution, moved and seconded by two members of the Islington Borough Council, passing on Miss McMillan's recommendation to the London County Council was, after some discussion, carried, and the Mayor of Greenwich undertook to introduce a deputation to the County Council in the event of their deciding to receive one.

HOUSES LET IN LODGINGS BY-LAWS.

Among the matters to be discussed at the next meeting of the Branch, the date of which will be announced in the usual way in due course, is that relating to the by-laws as to houses let in lodgings.

CHADWICK LECTURE ON SANITARY LEGISLATION.

A large audience assembled in The Inner Temple Hall, London, on the evening of 12th March, 1923, to hear a lecture by Dr. Charles Porter, Medical Officer of Health, Borough of

St. Marylebone, of the Middle Temple, Barrister-at-Law, on "The Principles and Practice of Sanitary Legislation," delivered under the ægis of the Chadwick Trustees, whose Chairman, Sir William J. Collins, K.C.V.O., M.D., presided. Following a brief historical note of the Temple and its associations and of the evolution of the Inns of Court, the lecturer essayed successfully to comprise within the space of an hour what might well have been enough material for a series of addresses on a subject of such importance and ever-widening boundaries. Choosing to regard it rather as the laws of health than as law in the ordinarily accepted sense, Dr. Porter dealt with health legislation from the administrative point of view as distinct from the purely legal standpoint, and traced its origin to the beginning of last century, referring to the influence of Chadwick on its social basis and of Simon on the medical provisions which health law subsequently embraced. The early efforts, it was shown, had aimed at improving environmental conditions, but gradually it was sought to get into touch with the individual himself, and later legislation had fully recognised this aspect of health work. Space does not permit details of the survey of the numerous Acts, Orders and Regulations which formed the bulk of a tightly-packed discourse: suffice it to say that generous reference was made to all the principal measures relating to public health and their bearing on the general scheme of health activities. Describing the central and local health authorities, the lecturer traced the Ministry of Health of to-day back to the General Board of Health set up in 1848; indicated how the local executive duties had passed into the hands of the present district councils, and referred also to the appointment of health officers, concluding with a word of appreciation of the efforts of health visitors—the most recent recruits to the service.

MIDLAND BRANCH.

WORCESTERSHIRE MILK RECORDING SOCIETY.

The last annual report of this Society shows that considerable progress has been made since the start of the Society.

Most of the leading farmers in the county are now keeping milk records, and it is becoming more and more evident that it is only by adopting up-to-date methods that milk can be economically produced.

The most suitable calves can be retained in the herd and the worthless cows can be disposed of.

With his records in front of him the dairy farmer can proceed to build up a good milking herd and place his dairy farming on a sound business basis. The average yield per cow of the ten most productive herds in the Society varied from 953 gallons to 775 gallons.

Of the most productive cows, two yielded above 1,400 gallons, four above 1,200, nine above 1,100, 21 above 1,000, 146 above 700, 170 above 600 gallons. The average amount of butter fat found in 908 composite samples from each herd and 842 samples from individual cows of evening and morning milk was p.m. 4.07 per cent., a.m. 3.3 per cent.

NATIONAL ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS.

On the invitation of the Lord Mayor of Birmingham, the National Association for the Prevention of Tuberculosis will hold its ninth annual conference in the city of Birmingham on Thursday, 12th, and Friday, 13th July. The Council of the Association and the local executive committee have selected as subjects of greatest immediate interest the following:—(1) care of advanced cases of tuberculosis, especially as regards prevention of infection; (2) extent and nature of damage done by tuberculosis derived from infected milk and methods of prevention; (3) relative prevalence of tuberculosis among workers in different trades, and methods which are likely to reduce the incidence in special trades; (4) notification of tuberculosis: proposed amendments of procedure. The discussions will be opened by speakers of authority on the several topics. The conference will be presided over by the Hon. Sir Arthur Stanley, G.B.E., C.B., M.V.O., chairman of Council of the Association. The full programme will be obtainable from Miss Freda Stickland, secretary of the National Association, 20, Hanover Square, W.1.

DEATH OF SIR SHIRLEY MURPHY.

As we go to press, news reaches us of the death of Sir Shirley Murphy, formerly Medical Officer of Health of the County of London, and thrice President of the Society of Medical Officers of Health. A fitting tribute to his services for the advancement of Preventive Medicine and Health Administration will appear in the next issue.

Dr. C. W. F. YOUNG has resigned his appointment as medical officer of health for the county of Middlesex owing to ill-health.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.

COUNCIL MEETING.

A meeting of the Council was held at the house of the Society on April 20th, the President (Dr. T. Eustace Hill) in the chair. There were present: Lt.-Col. Herbert Jones, Prof. H. Kerr, Drs. G. F. Buchan, Cates, Pearce, Shadick Higgins, Thomas, Gibbons Ward, Snell, Stocks, Stirk, McMaster, J. T. C. Nash, Wilshaw, Charles Porter, Barlow, Clements, Frederic Thomson, Pedley, and Col. H. W. Grattan.

The minutes of the last meeting having been approved and signed, messages of apology for absence were received from Drs. W. J. Howarth, R. A. Lyster, Peyton, Rees Jones, Ewart, Evans, Jolly and Garstang, and Prof. H. R. Kenwood.

Correspondence.—(1) From the Medical Department of the Board of Education, acknowledging representations forwarded by the Society on January 23rd, 1923, regarding payments by parents for the medical treatment of their children, and enclosing a copy of the Board's circular 1300 (16th March, 1923) covering the various points which the Society had brought to their notice. (2) From the Ministry of Agriculture notifying the arrangements made by the World's Dairy Congress Committee for the attendance of British representatives. (3) From Mr. Sidney Webb, M.P., inviting the Society to assist the Labour Party with suggestions for a Public Health Acts Amendment Bill. It was decided to ask the Branches to submit proposals in this connection to the Council, who would then consider the appointment of a special committee to deal further with the matter. (4) From a medical officer of health suggesting that the Society should ask the Ministry of Health to issue their circular re Annual Reports not later than November in the year to which the reports refer. It was agreed to forward a representation to the Ministry advising that earlier publication of the circular would be a convenience to medical officers of health. (5) From a medical officer of health drawing attention to the Notice of the Requirement of Vaccination (Form A) which gives such prominence to the provision made for conscientious objectors, that some parents who are not opposed to vaccination are led to suppose that it is their duty to obtain exemption certificates for their children. It was agreed to bring this matter to the notice of the Ministry of Health and the Association of Public Vaccinators. (6) From the League of Nations Union enquiring if the Society would be prepared

to send representatives to a conference on questions affecting the health and welfare of industrial workers which it is proposed to hold in May or June next. It was agreed that representatives of the Society should be nominated to attend such a conference. (7) From the North-Western Branch in reference to the remuneration of the school medical staff at Liverpool. The Executive Secretary was directed to inform the branch that the Council had addressed a communication on this subject to the Liverpool Education Committee and that further action in the same connection would be considered at the next meeting of the Council. (8) From a medical officer of health complaining that copies of circulars, memoranda, etc., concerning medical matters issued by the Ministry of Health and the Board of Education are not sent direct to the medical officers concerned in spite of the undertaking given by the late Sir Robert Morant in his letter dated March 10th, 1920 (see Council Minutes, *Public Health*, April, 1920, p. 116). Members of the Council expressed the opinion that there was little cause for complaint in regard to communications from the Ministry of Health, but that the Board of Education should be asked to follow the same procedure in regard to documents on medical matters as was set out in the letter of Sir R. Morant referred to above. (9) From Dr. G. F. Buchan asking to be relieved of his duties as representative of the Society on the Parliamentary Sub-Committee and Maternity and Child Welfare Sub-Committee of the British Medical Association, on his election to succeed Dr. Howarth on the Insurance Acts Committee of the Association, which was likely to occupy much of his time. Dr. Buchan was thanked for his past services, and it was decided to nominate Drs. Snell and Porter for the Parliamentary Sub-Committee and Dr. Stocks for the M. & C.W. Sub-Committee to fill the vacancies caused by the resignations of Drs. Howarth and Buchan. (10) From a county medical officer of health regarding a decision of the Ministry of Health which appeared to make "security of tenure" of very doubtful value. The letter was referred to the chairman of the Salaries Committee, and the Executive Secretary for inquiries, and to be dealt with at their discretion.

Scale of Salaries.—Arising out of recommendations of the Scottish Committee of the B.M.A., a minor amendment in reference to temporary appointments in hospitals was approved for the scale to be included in the annual report of the B.M.A. Council.

Association of County Medical Officers of Health.—The representatives appointed by the Council on November 17th, 1922, to confer with representatives of the Association of County Medical Officers of Health submitted the following resolutions adopted by the conference:—

- (a) That membership of the Society of Medical Officers of Health should be an essential qualification for membership of the Association of County Medical Officers of Health.
- (b) That the Association of County Medical Officers of Health should recognise the Society of Medical Officers of Health as the representative body of the whole Public Health Medical Service.
- (c) That the Association of County Medical Officers of Health should confer with the Society of Medical Officers of Health before making representations to a Government Department on any matters other than those relating exclusively to the work of county medical officers of health.
- (d) That granted the above conditions, the Association of County Medical Officers of Health should enjoy the same privileges in regard to the use of the Society's house, etc., as are extended to groups of the Society.

Public Health Propaganda.—On the proposal of Dr. Wheatley it was agreed to write to the Ministry of Health urging the establishment of a Propaganda Department at the Ministry. The following preliminary draft of the letter was approved:

The Society of Medical Officers of Health is of opinion that the most promising way of improving the public health at the present time is by education of the people in the principles governing health. The reasons on which this conclusion is based are as follows:—

- (1) A very large proportion of health work, up to the present, has been directed to protecting the people from the dangers of their environment.
- (2) Even so protected, the health of the people may still be most unsatisfactory unless it is supplemented by personal effort directed by personal knowledge.
- (3) It is fairly generally accepted that the most valuable effect of the Child Welfare and Tuberculosis schemes is the educational effect. This must apply to all schemes directed to the prevention of diseases where individual effort and consequently individual knowledge is necessary.
- (4) Research in recent years has gone far to put on a sound scientific basis our knowledge of the effect on health of food, exercise, fresh air and sunlight, etc., and it is imperative that this knowledge should be brought to the notice of the people as effectively and as early as possible.
- (5) As the need for economy is holding up many of the more costly schemes of public health, the present is a most opportune time for pressing public health education, it being the cheapest and probably the most effective of all forms of public health work.

Efficient propaganda work is extremely difficult at the present time, but with the authority and help of the Ministry it might become a very effective force.

The Society, therefore, puts forward for the consideration of the Ministry, the proposal that this work should

be made a duty of Local Authorities and that the Ministry should form a special propaganda department.

If it is the wish of the Ministry, the Society will be prepared to submit to them, in general outline, their views on public health propaganda.

Local Government Areas.—Arising out of a representation from the Home Counties Branch the following were appointed as a special committee to consider the advisability of preparing evidence for submission to the Royal Commission on Local Government, especially regarding the constitution of local government areas: Dr. Cates, Dr. Barlow, Dr. McMaster, Dr. Clements, Lt.-Col. Herbert Jones, and Dr. Charles Porter.

Disciplinary.—It was decided to proceed in accordance with Article 11 of the Society's Articles of Association in regard to one or more candidates for a recent appointment.

Office Furniture.—The Council authorised the Hon. Treasurer to expend a sum of £15 on furniture required for the office of the Executive Secretary.

M. & C.W. Group.—This group gave notice that reports on "The Hours and Holidays of Health Visitors" and "The Duties of Medical Officers of M. & C.W. Centres," would be submitted for consideration by the Council at their next meeting.

The Council then adjourned.

ORDINARY MEETING.

An ordinary meeting was held at the house of the Society on Friday, April 20th, 1923, the President (Dr. T. Eustace Hill) in the chair. There was a good attendance.

The minutes of the last meeting having been approved and signed, messages of apology were received from Prof. H. R. Kenwood, Sir William Willcox, Dr. W. N. W. Kennedy, and others.

The following candidates, having been duly nominated, were elected as members of the Society:—

Arnott, James, M.D., B.S., Durh., J.P.; Davidson, Frederick Churchill, M.C., M.B., Ch.B., Ed., D.P.H.; McMillan, James Clarke, M.B., B.Ch., B.Sc., Belf., D.P.H.; Meynell, Joseph Leopold, M.D., Durh., M.R.C.S., L.R.C.P., D.P.H.; Mooney, Annie, L.S.A., D.P.H.; Norman, Doris Barbara, M.B., Ch.B., Vict.; Thynne, Mildred Archer, M.R.C.S., L.R.C.P., D.P.H.

A number of candidates were nominated for election at the next meeting.

Sir William Hamer, on behalf of the Metropolitan Branch, asked the President to accept a portrait of Dr. W. J. Howarth to be added to the gallery of Past-Presidents. Sir William said it

was only fitting that the Branch should commemorate the year of office of one of their number who had so admirably filled the presidential chair. Dr. Howarth as Medical Officer of Health of the City of London served so ancient a corporation that one must go further back than such moderns as Chaucer and Shakespeare to find a quotation which would do justice to his conduct in the chair. From his limited memory of the classics he would pay tribute to Dr. Howarth in those lines from Ovid:—

*Ingenuas didicisse fideliter artes,
Emollit mores, nec sinit esse feros.*

The President, in thanking Sir William for the presentation, said that the excellent portrait before them would serve to remind members of long and valuable services rendered to the Society by Dr. Howarth.

Dr. A. H. Bygott then read a paper on "Death Registration, more especially as it affects the Office of Coroner." The paper with a report of the discussion will be published in an early issue of "Public Health." After a vote of thanks to Dr. Bygott, the meeting adjourned.

METROPOLITAN BRANCH.

A meeting of this Branch took place at the Society's House in London, on Friday, 9th March, 1923, the President (Sir William H. Hamer) occupying the chair.

Consideration was given to the Report of the Special Committee of the Society on London Government, but in view of the fact that the Report of the Royal Commission was likely to appear in a short time it was decided that it would be useless to offer any comment until after that had been considered.

In response to an invitation of the Committee appointed by the Society to report on the working of the Midwives Act and the Rules of the Central Midwives Board, the Branch made the following suggestions:—

- (1) That at the first suitable opportunity the Act should be so amended as to permit the London County Council to delegate their powers as local supervising authority to the metropolitan borough councils.
- (2) That with a view to clearing up a considerable amount of misunderstanding and to obviate dangerous delay in connection with cases of ophthalmia neonatorum, the Public Health (Ophthalmia Neonatorum) Regulations, 1914, and the Rules of the Central Midwives Board

should be brought into consonance, definitions where necessary being altered so as to require that any inflammation of the eyes, however slight, shall be notified both to the local supervising authority and to the medical officer of health of the local sanitary authority.

The discussion of the orders, circulars and memoranda with regard to the grading of milk was postponed until the next meeting, an invitation to attend on that occasion to be extended to Dr. A. W. J. MacFadden, C.B., of the Ministry of Health.

HOME COUNTIES BRANCH.

At a meeting held on Friday, March 2nd, with Dr. A. B. McMaster in the chair, a paper was read by Dr. Scurfield.

In opening his address, Dr. Scurfield referred to the recent paper by Dr. Mitchell, Chief Medical Officer of the Union of South Africa and enumerated the weak spots as follows:—

1. Want of unification of the Public Health Service.
2. Overlapping in County and Local Administration.
3. Want of definition in the scope of the Tuberculosis Dispensary.
4. Inadequate provision for Surgical Tuberculosis.
5. Insufficient control over Tuberculous Milk.
6. Inadequacy in length of treatment in respect of Venereal Diseases and the harshness of the system employed.
7. Harshness of the treatment of the illegitimate child.
8. Inadequacy in the scope of Pre-natal Clinics.
9. Insufficient knowledge as to the nature of food and the beneficial effect of sunlight.
10. Insecurity of the provision for the old age of a worker's life.
11. Insufficiency of the means for dealing with the unwanted child.
12. The inadequacy of our attempts to keep atmospheric pollution under control.

The President, Dr. McMaster, commented on the points raised, bringing instances from his own personal experience, and suggested that the Society was indebted to Dr. Scurfield for a very interesting paper.

Dr. Buchan, in continuing the discussion, criticised the recent attempts made to further public health administration, in the appointment of Advisory Committees. He further dwelt on

the necessity for some unification of areas, and in his opinion the Essex scheme was not a solution.

Salaries.—The Secretary reported that some difficulty had arisen in connection with the appointment of members to attend the Divisional Meetings of the British Medical Association.

Resolved that the Secretary ascertain what members of the Branch are not members of the B.M.A., and communicate with them respecting their omission.

Midwives Act.—Dr. Cates, at the invitation of the President, suggested the following modification of the rules framed by the Central Midwives Board, under the Midwives Act, 1902 and 1918.

1. Training.—That all midwives should be fully-trained nurses.
 2. Removal of Name from Roll (page 14, par. 1).—That the prosecutor should be the supervising authority and not the Secretary of the Board.
 3. Supervision of Practice of Midwives (page 20, par. 2).—That in all instances where the previous pregnancy had been difficult, medical assistance must be obtained.
 4. (page 21, par. 5).—The word "preferably" be left out.
 5. (page 24, rule 12a).—The midwife must advise the patient to attend a Welfare Centre.
 6. (page 25, rule 19).—The midwife shall not be allowed to give any other drug other than a simple aperient, before the child is born.
 7. Duties to Patient (page 24, rule 14).—That the words "Quickening of pulse" be omitted.
- Page 27.—It was suggested by Dr. West that the word "serious" with respect to ruptures of the perineum be omitted.

Page 28.—That all deaths which occur must be notified.

Page 29.—Notification of intention to practice as a midwife. That monthly nurses be included.

It was proposed by the Secretary that the period of training should be doubled. This was put to the vote and was lost. The remaining suggestions were agreed to.

Dr. Clements proposed and Dr. Kirkhope seconded, that the administration of the Midwives Act be transferred to the Local Authority. This was agreed to.

At a meeting held at the house of the Society on Thursday, April 5th, 1923, with Dr. A. B. McMaster in the chair, Dr. W. J. Cox, Medical Officer of Health for the Borough of Watford, read an interesting paper on "Methods of Infant Feeding."

It was stated that no other method should be

attempted until every effort had been made to establish and maintain breast feeding. The importance of partial breast feeding or "mixed" feeding was emphasised. The "test feed" was advocated in all cases where mixed feeding was contemplated, first to decide whether it is necessary to employ supplementary feeds, and also to determine the amount of such feeds which is necessary in any particular case.

The pros. and cons. of feeding with citrated whole milk, humanised cow's milk, dried milk of various brands, and condensed milk were briefly reviewed.

The uses of patent foods and condensed milk as routine methods of feeding healthy infants, were condemned, but it was stated that their use was indicated in certain pathological conditions for a limited period of time only.

Dr. T. King and Dr. E. Pritchard were quoted as advocates of humanised milk methods of feeding, and the methods of the latter were described in some detail. Dr. Pritchard's insistence on "balance" and the importance which he attaches to "accessory factors" were discussed.

It was considered highly desirable for Medical Officers of Health to persuade cow-keepers in their areas to produce "certified and grade A milk," in order to promote the feeding of infants on raw milk.

It was stated that no particular method of artificial feeding could be considered the one and only ideal system. The method most suitable for individual requirements should be employed in each case, but experimentation with a large number of various methods in any one case was deprecated.

At the close of the paper several members of the party of foreign Medical Officers of Health entered and Dr. Cox was called upon to give a short resumé on their account.

This was done, and a discussion followed, in which the Chairman (Dr. McMaster), and Drs. Kirkhope, Nash, Bostock-Hill, Jamieson, and (Mrs.) Stewart Stalker took part.

Dr. Cox briefly replied to the various points raised by these speakers.

MIDLAND BRANCH.

Meeting held in the Council House, Birmingham, on Thursday, March 1st, 1923.

Present: The President, Dr. H. Gibbons Ward, and 16 members.

The minutes of the previous meeting were read, confirmed, and signed.

The Hon. Secretary reported that he had sent out an inquiry to every member of the Midland

Branch asking if they were members of the B.M.A., and the Division to which they were attached; and submitted a summary of the replies received. Directions were given for certain further steps to be taken in respect of those members who had not sent any reply.

The Hon. Secretary reported the action he had taken in connection with the post of M.O.H. to an Urban District Council, which was being advertised in certain lay papers at an inclusive salary of £600 a year.

Certain further circumstances in connection with this appointment were intimated in a letter from one of the members of the Midland Branch, which was then read. It was resolved that the action of the Hon. Secretary be confirmed and that he be instructed to forward this further information to Headquarters, and also to call the attention of the Council of the Society to the fact that the "Sanitary Record" was inserting advertisements for posts in the Public Health Service which were black-listed by the medical journals.

A discussion then took place on the working of the Midwives Act and the Rules of the Central Midwives Board. This discussion was opened by Dr. Jolly and continued by Drs. Snell, Stocks, McNab and others.

It was agreed to send the following recommendations to the Special Committee appointed by the Council of the Society to consider this question:—

- (1) The Branch recommends that the control of a midwife should be under a Local Authority which has set up an approved scheme for Maternity and Child Welfare, provided that it can satisfy the Ministry of Health that it has necessary organization for dealing with this question.
- (2) *Administration of Drugs by Midwives.* The Branch consider it inadvisable that a midwife should be permitted to administer any drug except a simple purgative, and it desires to emphasize the dangers that may ensue if midwives are permitted to give the following drugs: Pilitrin, Opium, and Ergot (prior to the birth of the child).
- (3) The Branch considers it eminently desirable that there should be a clear definition of the term "Midwife." It holds that once a woman is admitted to the Roll of Midwives she is always a midwife, unless removed from the Roll, and should therefore comply with all the rules laid down by the C.M.B., except when she is

actually directed otherwise by a medical man who is himself personally in attendance at the time.

- (4) *Rule 12a of the Central Midwives Board.* The Branch considers that where Breast Feeding cannot apparently be continued, medical assistance should be sought under Rule 20. The Branch also consider that the conditions outlined in Paragraph 2 of Rule 1 of the Central Midwives Board should be made a reason for summoning medical assistance under Rule 20.

Dr. Mitchell was then called upon for his paper on "Congenital Syphilis and Syphilis in Pregnancy." This paper constituted an admirable treatise on our modern knowledge of this subject. The writer divided his paper into three parts: (I.) Some effects of (a) Ante-Natal; (b) Congenital Syphilis on the Public Health. (II.) Syphilis in Pregnancy: (a) Acquired; (b) Conceptional. (III.) Congenital Syphilis versus Acquired Syphilis in Infants.

The paper was illustrated by charts and diagrams; all the modern theories of the causation of this disease were referred to, and Dr. Mitchell added to the interest of his paper by mentioning cases which he himself had dealt with, in exemplification of his remarks.

A hearty vote of thanks was passed to Dr. Mitchell for his extremely valuable and interesting paper, but the lateness of the hour precluded any discussion on it, and the meeting then adjourned.

NORTHERN BRANCH.

Meeting held in the Medical Institute, 7, Windsor Terrace, Newcastle-upon-Tyne, Friday, 13th April, 1923.

Present: Dr. Heslop (chair) and nine Members.

The minutes of the last meeting (23rd February, 1923), having appeared in "Public Health," were taken as read, and signed by the Chairman.

Local Government and other Officers Superannuation Act, 1922.

The Honorary Secretary reported that he had received a copy of the report on the Conference which was held in Newcastle on the 17th March, 1923. Dr. J. A. Hislop represented the Northern Branch at that meeting. A further meeting was held in Newcastle on the 7th of April, and a corresponding one was fixed for the 14th April, at Durham.

Hartlepool Medical Officer of Health.

The Honorary Secretary reported that Dr. Jubb had resigned his appointment on account of the proposed reduction in his already small salary, and that an advertisement for his successor had appeared in the lay press. The Secretaries of the B.M.A., and of the Society, had the matter in hand.

Reference from the Council of the Society regarding the Final Draft of Revised Articles of Association.

The Honorary Secretary reminded the meeting that the Northern Branch had already approved of the above in October last, and the meeting thereupon reaffirmed the previous decision.

The Honorary Secretary reported that he had received five pounds towards the Branch funds on account of the recent visit of Foreign Health Officers under the League of Nations.

Reports of Progress Regarding Negotiations with the B.M.A.

Dr. T. Eustace Hill had reported attending a special meeting of the Darlington Division of the B.M.A. to explain the new proposals for closer co-operation between the B.M.A. and the Society, and had obtained a promise of full support. The Honorary Secretary stated that he had obtained the adherence of the Newcastle Division Executive in preparation for the reference of the report to the Division.

The Honorary Secretary again emphasized the fact that there was much more than the scale of salaries in the recommendations of the Council of the B.M.A., namely, the very direct intimate inter-representation upon the Central Councils and the Local Executives of the two bodies, and also that on the condition of the B.M.A. undertaking to fight the battles of the smaller body, the latter would relinquish independent medico political initiative until at least every possible means of agreement with the B.M.A. thereupon had failed.

He also drew attention to the keenness and energy with which the report was being promoted by many very influential members of the B.M.A. Council.

The Honorary Secretary then gave particulars of a long list of recent cases of inadequate salary, or victimisation, which had been successfully contested through the help of the B.M.A., including appointments at:—

Dundee.	North Riding.
Rowley Regis U.D.C.	South Shields.
Lytham and St. Annes.	Manchester.
Haltwhistle.	Croydon.
St. Helens.	Bristol.

Cheshire C.C.	West Bromwich.
Plymouth.	Halifax.
Southampton.	Ilford.
Hindley.	Liverpool.
Whickham.	Monmouth C.C.
Long Benton.	

Failures to obtain what was desired had been experienced at West Hartlepool and a Jarrow, and it was pointed out that a great deal remained to be done in those places, as in others, to convince the Local Division of the B.M.A. of the justice of our cause, and that without its support everywhere our difficulties were rendered enormously greater.

To Consider Further Means of Recruitment of Membership of the B.M.A. and of the Society.

On consideration of further means of recruitment for the Society and the B.M.A. it was suggested that the high subscription of the B.M.A. was a deterrent to people who were already paying an increased subscription to the Society, but opinions differed as to whether reduction in the amount of the subscription would inevitably lead to any great increase in the membership of either.

It was proposed, however, that the suggestion for a reduction on the combined subscription of the two Societies upon the total of the two separate subscriptions should be put forward to headquarters for consideration at the proper moment.

The Honorary Secretary stated that the Northern Branch had a complete census of all members of the Public Health Service in its area, with particulars of membership of the Society and of the B.M.A., and that he proposed to follow up his previous circulars by letters to non-members of either, and by reminders to heads of departments as to defections among their staffs.

Summer Meeting.

It was unanimously decided to hold the summer meeting again at Dinsdale, and that the date and arrangement of the meeting be left in the hands of the President and Honorary Secretary.

NORTH-WESTERN BRANCH.

Meeting held at the Exchange Hotel, Liverpool, Friday, March 9th, 1923.

Present: Drs. Peck (in the chair), Veitch Clark, Spence, Letheron, Dearden, Ferguson, Wood, Sharpe, Brown, Smith, Stallybrass, Burton, De Jong, Forster, Grahame, Mathieson, Daley, Wright, Adams, Hauxwell, Barlow, Hanna,

Mussen, and Joseph (Hon. Secretary), and the following visitors:—Drs. Peter Stoenescu (Roumania), Apers (Antwerp), Masek (Czechoslovakia), Borg (Finland), Emeric (France), Diesen (Christiania), Bendix Poulsen (Denmark), Ronca (Italy).

Minutes of last meeting read and confirmed.

The Chairman cordially welcomed the members of the party of Foreign Health Officers who were studying the problems of Local Health Administration in Liverpool and Manchester and who had been invited to the Branch meeting.

A report on Chemical Preservatives in Food was considered, and it was resolved:—"That it be a recommendation to the Council that a communication be addressed to the Ministry of Health urging that in the interests alike of manufacturers, retailers, consumers and Local Authorities, steps should be taken without delay to appoint a Committee to inquire into the use of preservatives and colouring matters in foods and that the recommendations of such Committee should be given effect by law."

In view of the visit by the Branch to the Government Wool Disinfecting Station, Dr. Hanna gave a short resumé of the outstanding facts regarding anthrax, and the danger to man and animals from trade in foreign animal products. He outlined the present position regarding disinfection of dangerous wool and hair. The clinical forms of anthrax were described and the most recent and approved methods of treatment discussed. Statistics of cases and deaths in connection with the different classes of wool and hair were given, and the most dangerous from the point of view of infection were stated to be East Indian wool and goat hair, Persian wool, Turkey mohair and camel hair. Certain features which tend to spread contamination amongst good wool were mentioned. The measures adopted in this country under the Factory and Workshops Act of 1901 and various local Acts for the notification of cases which starts the usual routine inquiries and preventive measures were referred to. Amongst these may be mentioned the steeping in water of bales of dangerous wool and the opening and sorting of these bales over efficient sorting boards with mechanical exhaust draft. The valuable work which has been done in the past by the Bradford Anthrax Investigation Board has been a valuable factor in elucidating the subject of infection amongst blood-soiled wool.

Following the report of the Departmental Committee on Anthrax, an order in Council has been issued under the Anthrax Prevention Act of 1919,

requiring all goat hair from India, and all wools and animal hair from Egypt to be landed and disinfected at the Port of Liverpool.

The method of disinfection known as "the Duckering" process was explained, and bacteriological evidence shown of its complete value as a process of disinfection for anthrax. Formalin in 2½ per cent. in water is used with previous treatment of the wool to remove albuminous material from the spore. The charge of 1½d. per lb. is levied on the weight of the cleansed and disinfected material.

The Advisory Committee of the International Labour Conference which met in Geneva reported in December of 1922 that certain dangerous wool and hair should be disinfected before they are handled industrially. These recommendations will of course receive further consideration before they are put forward for final adoption.

A hearty vote of thanks to Dr. Hanna was passed on the proposition of Dr. Veitch Clark, seconded by Dr. Dearden.

Through the kindness of Mr. G. E. Duckering, the Director of the Government Wool Disinfecting Station, an opportunity was afforded of seeing the process in operation under his personal guidance. The members thoroughly appreciated the visit and a hearty vote of thanks was accorded to Mr. Duckering on the proposition of Dr. Barlow. The members then returned to the Exchange Station Hotel, where an excellent tea was provided for members by the Liverpool City and Port Sanitary Authorities, at the conclusion of which the thanks of the Branch were tendered on the proposition of Dr. Allen Daley, seconded by Dr. Emeric, a visitor (who spoke in French). Dr. Mussen replied on behalf of the Local Authority.

Meeting held at the Public Health Laboratory, Manchester, on Friday, 13th April, 1923.

Present: Dr. E. W. Rees Jones (President) and 25 members.

Minutes of last meeting read and confirmed.

The Hon. Secretary reported that Dr. Haworth, M.O.H. for Darwen, has recently died, and on the proposition of the President it was resolved "That the Branch place on record its regret at the death of an old member of the Society, and that the Hon. Secretary be instructed to write to the relatives tendering the sympathy of members with them in their bereavement."

A communication was read from the Executive Secretary enclosing a copy of a letter forwarded

to the Town Clerk of Liverpool re the proposed appointment of an Assistant School Medical Officer. It was resolved that a letter be sent to the Council expressing the thanks of the Branch for the action taken.

The draft Articles of Association circulated in the April number of "Public Health" were considered, and the Hon. Secretary was instructed to forward the following suggestions to the Council:—

- (a) Paragraph 15 (8th line): The words "and may by special resolution of the Council pay travelling expenses" to be deleted and the following substituted: "and shall pay travelling expenses of any member of the Association . . . unless the Council by special resolution for financial reasons decides otherwise."
- In the same paragraph "3s." be substituted for "2s. 6d."
- (b) Paragraph 17: The Officers of the Council to remain as at present, viz., President, Ex-president, three Vice-presidents, Treasurer, Editor, two or more Trustees, Executive Secretary.
- (c) Paragraph 18: The Editor not to be included amongst officials who shall not be re-elected for more than three years in succession.
- (d) Paragraph 19 (d): To read "One Medical Officer of Health to be elected by the Council from nominations submitted by the Branches, for each representative elected or due to be elected by a group."

Professor Topley's Address.

At the conclusion of the business tea was kindly provided for those present by Professor Topley. Following this Professor Topley gave a splendid address on "What hope there is of preventing Infectious Disease by a policy of Isolation." Professor Topley first addressed himself to the question, "Has isolation succeeded in limiting the Incidence of the Acute Infections?" He presented a series of charts made by Dr. Chalmers, of Glasgow, showing the relationship, in the cases of Enteric, or Scarlet Fever and Diphtheria, between the isolation of actual cases and the case incidence. The chart for Enteric showed that whereas in 1897 when 55 per cent. of actual cases were isolated the case incidence was 1,100 per million of population, in 1919 when 90 per cent. of the cases were isolated the case incidence had fallen to 150 per million of population. It was pointed out, however, by Prof.

Topley that in the intervening years the water supply and the general sanitary conditions of the city had been improved. In the case of Scarlet Fever the chart showed that with increased isolation of cases there had first of all been a decline and afterwards a rise in the incidence of the disease.

In the case of Diphtheria while the isolation rate rose from 20 per cent. in 1897 to 70 per cent. in 1919, the incidence of the disease gradually rose till the year 1913. The chart apparently showed a coincident increase of isolation and incidence. From these facts Prof. Topley deduced the conclusion that at any rate as far as Enteric, Scarlet and Diphtheria are concerned there was no evidence to show that an increase of the percentage of cases isolated leads to a decreased incidence.

Prof. Topley next considered the question, "Whether money spent on Isolation Hospitals was well spent?" The key to the problem is the existence and importance of the carrier; the people who introduce disease need not themselves be diseased. In the case of a small epidemic, say, of Cerebro-spinal Meningitis, the number of people harbouring the infecting micro-organism is very much larger than the number of people who are clinically infected. It has been worked out that during the occurrence of an epidemic in an area, the typical cases will, of course, all harbour infecting organism; of typical cases 20 to 60 per cent. will show the organism; of healthy contacts 10 to 30 per cent.; of non-contacts in the actual epidemic area 5 to 20 per cent.; of non-contacts in other areas about 0.2 per cent. The carrier rate must reach a certain height before there is a single clinical case of the disease; in the case of Cerebro-spinal Meningitis the carrier rate must rise to 20 per cent. before an outbreak is to be apprehended. What really happens, therefore, is a progressive change in the equilibrium between the host and the disease until the epidemic occurs. The actual cases are in the nature of an epi-phenomenon, they are the crests of the waves on an ocean of infection. It is, therefore, hopeless from the point of view of prevention to isolate the actual cases until the carrier rate is reduced.

Prof. Topley did not, however, advocate the closure of Isolation Hospitals, but on the whole he thought that their curative value was greater than their preventive value. As a means of preventive medicine Prof. Topley thought highly of the Schick Test in the case of Diphtheria.

Dr. Wheatley, in proposing a vote of thanks, expressed the pleasure of the Society at meeting

Prof. Topley and hoped that he would carry on the tradition of Professor Delepine. He thought that the Medical Officers of Health could stimulate a University by suggesting lines of research and keeping it in touch with the everyday difficulties of medical administrators. While Medical Officers of Health were coming to Prof. Topley's conclusions in questioning the value of isolation he thought that Small-pox and Measles were non-carrier diseases, and that fresh cases must arise before an epidemic could develop. He pointed out the dangers of overcrowding, especially in school-rooms where, though the cubic capacity might be arithmetically sufficient the children were crowded together into a part of a classroom. Dr. Wheatley thought that immunisation against the Tubercle Bacillus would come.

Dr. Barlow seconded the vote of thanks to Prof. Topley. He stated that he now took into Hospital Scarlet Fever for cure only and not for prevention, and that he relied much more on general measures of prevention such as house disinfection, etc. He raised the point whether Scarlet Fever and Measles might be spread by fleas like Typhus.

Dr. Stallybrass supported the vote of thanks. He stated that in a paper written in 1912 on Enteric Fever he showed that housing was far more important than hospitalisation; but he maintained that isolation of the first case would cut short an epidemic. He pointed out that in Prof. Topley's mice experiments there was a possible fallacy in that Prof. Topley's criterion was death and not morbidity, and that that standard might make the results of less comparative value when they were supplied to the human species. He thought that isolation was of value in so far as it skimmed the severe cases and removed the more virulent from contact with susceptible neighbours.

Dr. Milligan asked when after the first case of an Infectious Disease an actual epidemic might be anticipated.

Dr. Cox asked for Prof. Topley's views on the value of isolation in advanced cases of Tuberculosis.

Dr. Rees Jones conveyed the vote of thanks to Prof. Topley not only for his excellent lecture, but also for his kindness in providing the members of the Society with tea.

Prof. Topley, in reply, stated that isolation was useful in early cases in a non-infected population. In the case of Measles and Small-pox which had been mentioned by Dr. Wheatley, he thought it was as rational to argue that on the

analogy of Cerebro-spinal Meningitis there may be carriers as to assert the reverse on no analogy whatever. He thought that the carrier rate could be reduced by preventing "Significant overcrowding." He thought that the great thing was to separate the cases, hence the value of school closure in rural districts and its failure in urban districts. He thought that isolation was of value against Infectious Diseases. He thought that infectivity is frequently greater during the incubation period, and that infectivity and virulence are quite different things, and not necessarily related. He thought that Pulmonary Hospitals for the isolation of advanced cases of Tuberculosis were useful.

NAVAL, MILITARY, AND AIR FORCE HYGIENE GROUP.

With the kind permission of the Medical Research Council and the Officer Commanding R.A.F. Medical Units, Hampstead, a meeting of the Naval, Military, and Air Force Hygiene Group of the Society of Medical Officers of Health was held at the National Institute for Medical Research, Mount Vernon, Hampstead, on Friday, the 9th March, 1923.

Descriptions and demonstrations were given of the following:—

- (1) The Katathermometer and recent modifications.
- (2) Silicosis.
- (3) A new dark ground illuminator.
- (4) Methods of selection of flying personnel.

Dr. Leonard Hill briefly described the Katathermometer and emphasized its great value in dealing with problems of ventilation. He showed that the mortality rate in factories, laundries, etc., with bad Katathermometer readings was invariably high. In South African mines with bad readings there is found to be a great loss of labour efficiency which can be remedied by improving the harmful conditions.

Dr. Hill stated that in temperate climates the dry Katathermometer is important, but in the tropics the wet Katathermometer, which indicates the condition of the sweating body, is of greater value. The practical bearing of this work upon heat-stroke, labour conditions, healthy exercise and sedentary occupations has been amply demonstrated in recent experience.

Dr. Schuster then demonstrated a recent modification of the Katathermometer by which it is possible to keep a record of the readings.

Dr. Purdy gave a demonstration of slides illustrative of Silicosis. He called attention to the recent work on this subject, more especially with regard to its relationship to pulmonary tuberculosis. He showed that colloidal silica has a destructive action on endothelial cells from which the phagocytes are derived. Silica is rendered harmful by the tissues of the body changing it to a soluble form, which acts as a toxin encouraging acute infection by the tubercle bacillus.

Mr. J. E. Barnard then demonstrated a new dark ground illuminator of sufficiently high angle to permit the use of an objective of 1.2 N.A. The improvement in the image and increased resolution were demonstrated in a most convincing manner by means of specimens of *Leptospira ictero-hæmorrhagiae*.

Group Capt. H. M. Flack, C.B.E., R.A.F.M.S., then gave a most interesting and instructive description of the methods of selection of flying personnel.

This system is admirably devised to answer the three fundamental questions:—

- (1) Can he learn to fly?
- (2) Will he be able to stand (a) the nerve strain, (b) the diminished oxygen tension?
- (3) Has he a suitable disposition for this class of combatant work?

No. 3 is supplementary and not an integral part of the medical examination.

The various physiological tests employed were explained in some detail, and their application in determining the answers to the above questions was fully explained.

The meeting terminated after the cordial thanks of the Group had been expressed by its President, Maj.-Gen. Sir Wm. Macpherson.

SCHOOL MEDICAL GROUP.

The seventh annual and eighteenth general meeting of the School Medical Group was held at the Society's house on Friday, 13th April, 1923, at 5 p.m. Fifteen members and non-members, mostly members of the L.C.C., were present. Dr. C. J. Thomas, the President, was in the chair. Apologies for absence were received from Dr. G. A. Auden, Vice-President, Drs. J. Fraser of Hull, Andrews of Worcester, Gurney of Cambridge, and others. The minutes were read, approved and signed. Correspondence was read from the Maternity and Child Welfare Group inviting the School Group to a joint meeting for discussing the question of the treatment of venereal diseases in school children, infants and expectant and nursing mothers, and the inadvisability of treatment of such cases at Venereal Diseases Clinics. Dr. Puddicomb proposed and Dr. Kelph seconded, and it was resolved, that "The S.M. Group sympathises with the object of the M. and C.W. Group and feels that such treatment can be provided at V.D. Clinics at special hours; but regrets inability to arrange a joint meeting to discuss the matter, as it is not of sufficient importance *re* school children." From the Royal Institute of Public Health, inviting the Group to send a representative to its Congress during Whitsun week at Scarborough. It was resolved that as no section of school hygiene is included in the agenda, the Group is unable to appoint a delegate, but hopes that some member will be able to attend the Conference and report on any matter relevant to the S.M. Service. The Hon. Secretary drew the attention of members to the dental leaflet published in "Public Health," page 203, as a result of a Conference at which the Group was represented.

The Midland Sub-Group reported that a meeting was held at the Education Offices, Stafford, on December 9th, 1922. Dr. G. A. Auden, of Birmingham, was elected President, and Dr. A. H. Newton, Deputy S.M.O., of Coventry, as Hon. Secretary. Drs. Auden, Newton, Wilkins of Staffordshire, and Andrews of Worcester were elected Group representatives. Thirty members and non-members were present when Dr. Hamblin Smith gave an address on "Juvenile Delinquents," followed by a discussion on "Moral Imbecility," introduced by Dr. H. Herd, of Manchester. Drs. W. A. Potts, M.O. to the Birmingham Mental Care Committee, Hughes of Wolverhampton, Wilkins, H. Bracey of Warwickshire, and others joined in a very interesting discussion.

The North-Western Sub-Group reports a meeting held in Manchester on November 10th, 1922. A discussion took place on "Remuneration of the School Medical Service." Three resolutions were passed and directed to be forwarded to the Group for consideration. It was resolved that these resolutions be specially considered at a Group meeting to be held in June, 1923.

Meetings of other Sub-Groups have been held and accounts will be published in "Public Health."

Election of officers then took place. Dr. Ashkenny proposed and Dr. Kidner seconded, and it was unanimously passed, that Dr. C. J. Thomas be re-elected president and Representative of the Group on the Society's Council. The President suitably thanked the Group for thus re-electing him. Dr. Slowan proposed and Dr. Puddicomb seconded, and it was resolved that Dr. G. A.

Auden be re-elected Vice-President. Dr. Spaul then proposed and Dr. Bensley seconded, and it was passed nem. con. that Dr. Ashkenny be re-elected Hon. Secretary and Treasurer. It was also resolved to accept the nominations of Sub-Groups to form the Council of the Group and that the Council co-opt members from non-Sub-Group areas to serve on the Council. It was resolved that a Council meeting be held half an hour before the Group meeting on a Saturday afternoon in June. The Draft Articles of Association of the Society of M.O.H. were considered. Dr. C. J. Thomas explained that at several Conferences with officers of the Society he impressed the importance of granting the three points raised by the Group. These have now been granted. It was then resolved that the Draft Articles as published in the April "Public Health" be passed, and to thank the Council of the Society for trusting the Group by granting it more equality and freedom.

The hour being late, it was decided to refer the discussion on the Relation of School Care Committees to Medical Inspection and Treatment to the Metropolitan and Home Counties Sub-Group at their meeting in May, 1923. A vote of thanks was passed to the Hon. Secretary for his guidance of the Group from its commencement in 1912 to the present satisfactory issue in obtaining the new Articles of Association.

OBITUARY.

Dr. THOMAS A. MURRAY, M.O.H., Warrington Rural.

Dr. Thomas A. Murray, Medical Officer of Health of the Warrington Rural District, a Fellow of the Society of Medical Officers of Health and Hon. Secretary of the Warrington Division of the B.M.A., died suddenly at his residence, Penketh, near Warrington, on March 21st, aged 61 years.

ROYAL INSTITUTE OF PUBLIC HEALTH.

SCARBOROUGH CONGRESS, MAY 16th TO 21st INCLUSIVE.

An excellent programme has been arranged in connection with the Annual Congress of the Royal Institute of Public Health at Whitsuntide. The sections include State Medicine and Municipal Hygiene; Naval, Military, Air, and Tropical Diseases; Bacteriology and Bio-Chemistry; Women and the Public Health; Industrial Hygiene; and a most attractive list of papers and

discussions are shown in the programme. Reduced railway fares have been arranged and full particulars can be obtained from the Secretary, Royal Institute of Public Health, 37, Russell Square, London, W.C.1.

CORRESPONDENCE.

A CORRECTION AND A SUGGESTION.

From Dr. EDMUND SMITH.

In the April number of "Public Health" you give a list of the outbreaks of smallpox according to shires, but in some places you put "Yorks," in others "York." Well, to a careless reader, the "York" might seem to imply the City of York, and we have not had a single case of smallpox, I am glad to say, for several years. Why not put "Yorks" all the way down?

I see that the meetings of Groups of the Society are all being held in London, which is at one end of the kingdom. Why not have an occasional meeting, at any rate, somewhere in the Northern or Western provinces. Why should the Northern and Western people always have to consume time and money in travelling to London? I think it is contrary to the complete success of Societies and Groups always to be meeting in London. It means a concentration and majority of London and Home Counties members who attend, and does not give a fair chance at all to the more distant members. I wish you would submit this suggestion to the groups. As you know, I have pointed out the same need as regards the meetings of the Central Society, and the Council of the Society.

Yours faithfully,

EDMUND M. SMITH.

Health Department,
York.

April 24th, 1923.

THE corporation of Bristol has received no applications for the post of assistant medical officer of health of that city. The advertisement was declined by the professional journals on the ground that the salary offered was inadequate for an assistant who, in fact, would be deputy medical officer of health. Although the city corporation was fully advised of the attitude of the British Medical Association and the Society of Medical Officers of Health in regard to the proposed appointment, they proceeded to advertise in the lay newspapers, but not a single candidate applied.

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Editorial.

CHARGES FOR TREATMENT.

The members of the Nottingham Education Committee are to be congratulated upon their opposition to the pressure which has been recently exercised by the Board of Education upon local authorities to extort fees from parents for the medical treatment of school children. In Nottingham treatment has been provided for specified ailments at clinics established in various parts of the City. Parents, when able to do so, have always been required to pay the wholesale cost of spectacles prescribed by the doctors, but in cases of genuine poverty such spectacles have been given free. With this sole exception all medical treatment has hitherto been entirely free from charge.

The Committee were therefore seriously concerned when in October last they received the general circular letter from the Board of Education, which stated that they would require the Authority to adopt a scale of charges for treatment, and suggesting that such charges should be regulated by an income scale. In the opinion of the Committee this proposal would involve a considerable expense in the way of inquiries into parents' circumstances, and, in view of the comparative smallness of the amounts that could be collected, the methods proposed would not be economical. Moreover, the general imposition of charges would deter many school children from receiving the treatment needed, and would moreover affect the efficiency of the clinics.

By correspondence with other education authorities it was ascertained that the majority of large County Boroughs shared the same views, and presumably as the result of the combined opposition, some modification of the Board's proposals have now been secured. The scale which has been adopted means in effect that people with an income of £2 10s. a week, after payment of rent, will be asked to pay a fee of 5s. for cases

of tonsils and adenoids, also the wholesale cost of spectacles. Below that income no charges will be made. For dental treatment parents will be invited to make voluntary contributions according to their means, and minor ailments will in all cases be treated free of charge.

MEANNESS DISGUISED AS ECONOMY.

Many mean actions are now being taken by local authorities under the cloak of economy. Reactionaries everywhere, who have always been hostile to public health work, but who until recently have been in a minority, are now having the time of their lives, and are devoting most of their attention to expenditure upon public health. Perhaps the distinction of having reached the limit of meanness was achieved by the Warwickshire County Council at their recent meeting. A few years ago Dr. Bostock Hill retired from his position as County Medical Officer for Warwickshire, after a long and distinguished career in the public health service. The Warwickshire County Council had had the services of Dr. Bostock Hill for a long period at a grossly inadequate salary—a salary which should have been impossible if the Public Health Service had been properly organised, or if the Local Government Board of those days had been properly alive to the importance of securing an adequately paid public health service for the community. Upon his retirement, without pension, the County Council appointed Dr. Bostock Hill Consulting Medical Officer, at a salary of £250, another salary which will be readily recognised as miserably inadequate payment for an unlimited call upon such eminent consultant services. We should have imagined that the Warwickshire County Council would have been content with this record of underpayment for skilled professional work, but the reactionaries have evidently been at work again and, in accordance with their usual custom, have devoted a lot of attention to public health. In cutting down the salary of Dr. Bostock Hill as Consulting Medical Officer of Health from £250 to £105 they have reached a limit in meanness which constitutes an example which we hope will not be followed by any other authority in the country.

HOW THE POOR LIVE.

Dr. John F. Macdonald, Medical Officer of the Maldon Rural District, in his annual report to the Council, deals with the rents of the

Council's houses, which vary from 4s. to 8s. weekly, exclusive of rates. He describes these rents as excessive if the houses are to be occupied by agricultural labourers in the present period of depression and low wages. He states:—

To show how impossible it is for those with low wages to pay such rents I give the following detailed weekly budget of a labourer's family, consisting of husband, wife, and five children—the latter's ages varying from 13 months to 11 years. The man's regular weekly wage is 26s., and the wife spends it weekly as follows:

BREAD, ETC.	s.	d.	s.	d.
Bread, 21 half-loaves at 4d. ...	7	0		
Flour	0	8		
Milk for baby	1	9		
Skimmed milk, rest of family ...	0	7½		
			10	0½

GROCERY.	s.	d.	s.	d.
3½ lbs. sugar, white, 7d. lb. ...	2	0½		
1 lb. sugar, brown moist, 6d. lb. ...	0	6		
1½ lb. margarine, 7d. lb. ...	0	10½		
¼ lb. tea	0	7		
¼ lb. cocoa	0	4		
1 lb. Dutch cheese	1	3		
1 lb. pieces, cheese	0	8		
½ lb. dripping	0	8		
Black lead	0	2		
1 lb. washing soda	0	1½		
Half-bar soap	0	3½		
1 square blue	0	1		
1 box matches	0	1		
Salt	0	1		
½ lb. rice	0	2		
			7	11

MEAT.	s.	d.	s.	d.
2 lbs. pieces	1	8		
2 lbs. shin beef	1	2		
			2	10

FUEL AND LIGHTING.	s.	d.	s.	d.
1 cwt. coal	2	5		
Paraffin oil, 1 quart	0	3½		
			2	8½

CLUB MONEY.	s.	d.	s.	d.
5 children, ½d. each	0	2½		
Nurse's club	0	1½		
Husband's State Insurance ...	0	5		
Husband's Club	0	6		
Toward's children's boots ...	1	0		
Clothing Club	0	3		
			2	6

£1 6 0

Money earned by occasionally working overtime has to provide for rent (3s. per week, including rates), and husband's clothing. Nothing is allowed for vegetables; these are grown in the garden.

The wife adds, "My husband goes without beer and tobacco; if anything is urgently needed in any other way we have to go without meat to get it."

M.O.H., CAPETOWN.

An interesting deputation from the Western Province Branch of the British Medical Association recently waited upon the City Council with regard to the proposed division of the work of the Health Department into two sections, curative and preventive. The deputation explained that in the opinion of the Branch any separation of the duties hitherto under the Medical Officer of Health into two branches would be detrimental to the public health. The Branch took no exception to the proposed division so far as executive functions were concerned, but felt strongly that the ultimate administrative control should be with the Medical Officer of Health, for the keynote of public health was unity and of direction. The resolution quoted by the deputation had been adopted unanimously by a meeting of 61 members of the Western Province Branch.

Dr. Jasper Anderson was appointed first Medical Officer of Health in 1901, and has just retired for reasons of health. Glowing tributes to his work were paid recently when he was the recipient of tangible tokens of esteem at the hands of the Municipal Officers' Association and the Health Committee.

Dr. Thomas Shadick Higgins, Medical Officer of Health for St. Pancras, has been appointed Medical Officer of Health, and will proceed to Capetown in June. The appointment carries a salary of £1,500 per annum, in addition to which Dr. Higgins will receive £300 a year from the Cape University, where he will fill the position of lecturer in public health.

M.O.H., HUDDERSFIELD.

An excellent illustration of the way in which useful and effective co-operation with the British Medical Association may be brought about is given by the recent development at Huddersfield. The question of the salary of the Medical Officer of Health has been taken up by

the local Division which decided to make representations direct to the Town Council on the subject. A deputation from the Huddersfield Division waited upon the Health Committee and put forward their views in support of an increase of salary to the Medical Officer of Health, and succeeded in persuading the Health Committee that an increase of £100 a year should be given. Some criticism naturally arose at the Council meeting, and comments were made upon the alleged "interference," but one of the aldermen commended the organised medical profession for looking after the legitimate interests of one of its members. The proposed increase was carried by the Council.

SEX INSTRUCTION FOR CHILDREN.

In replying to a deputation from the National Birth Rate Commission, the Parliamentary Secretary to the Board of Education made it clear that the Board was not in favour of sex instruction in schools.

The Board, he said, was satisfied that the detailed teaching of sex hygiene was not appropriate in the public elementary schools; still less was any direct reference to the cause and prevention of venereal disease.

"Objections," he added, "to mass instruction in sex matters, always serious, are specially formidable in the case of elementary schools which include pupils of both sexes, of different social grades, and various religious beliefs. In such circumstances a general course of instruction applied to all pupils of a given age would not merely give offence to many parents, but must also do positive harm by ignoring the different home surroundings in which the children have been brought up.

"Every social class is exposed to its own peculiar dangers, and each tends, I think, to develop its own protection against them—its own social standard and conventions, its own unwritten code of thought and speech.

"It would be fatally easy for members of different social grades for whom life is focussed at a slightly different range to damages this natural protection without replacing it.

COUNTY MEDICAL OFFICER, MIDDLESEX.

Sympathetic references have been made everywhere to the resignation, for reasons of health, of Dr. C. W. F. Young, County Medical Officer

of Health for Middlesex. He has been in the service of the Middlesex County Council for 31 years, and under his control the Public Health Department has developed to its present state of efficiency. The Council have accepted his resignation with the greatest possible regret and sympathy, and have resolved that he should be granted a superannuation allowance upon the one-sixtieth basis for each year's aggregate service, amounting to an allowance of £645 16s. 8d. per annum.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.

NOTICES.

The revised *Articles of Association* have been forwarded to the Board of Trade for approval. On the completion of this formality they will be submitted to Extraordinary General Meetings of the Society to be held on July 6th and 20th, 1923, at 5 p.m., at 1, Upper Montague Street, W.C.1. Official notice of the meetings will reach every member in due course, but as the revised Articles have been referred more than once to the Branches and Groups a large attendance at the statutory meetings is not expected, and it is hoped that the proceedings will be of a formal and non-contentious character.

The *Annual Provincial Meeting* of the Society will be held at Hull during the congress of the Royal Sanitary Institute. Notice of the time and place will be published in the July issue of "Public Health."

A meeting of the *School Medical Group* will be held at the house of the Society on Saturday, June 16th, at 3 p.m. There are several important matters of business to be discussed. The Council of the Group will hold a preliminary meeting at 2.30 p.m.

A meeting of the *Tuberculosis Group* (Metropolitan Sub-Group) will be held at Queen Mary's Hospital, Carshalton, on the afternoon of Saturday, June 16th, by invitation of Dr. Gordon Pugh. Members intending to be present should notify the Hon. Secretary, Dr. H. B. Gibbins, 4, Station Road, Maidstone.

MANCHESTER M.O.H.

For special services rendered during the vacancy in the Medical Officership of Health for Manchester, two assistant officers, Drs. McClure and Young, have been recommended to receive honoraria of £200 and £100 respectively.

THE ROCKEFELLER SCHOOL OF HYGIENE.

The Minister of Health, with the concurrence of the Trustees of the Rockefeller Foundation, has appointed a Transitional Executive Committee in connection with the proposed School of Hygiene. The functions of the Committee will be to appoint a Director, to arrange for amalgamation or co-ordination between the School and other institutions working in similar or closely related spheres, to prepare plans for the new school, and to begin building, unless in the meantime it has been possible to set up the permanent Governing Body. The members of the committee are: The Rt. Hon. Neville Chamberlain, M.P. (chairman); the Rt. Hon. The Viscount Burnham, C.H.; Captain Sir Arthur Clarke, K.B.E., C.B.E.; Sir Walter Fletcher, K.B.E., M.D., F.R.S.; Lieut. Col. Fremantle, O.B.E., F.R.C.S., M.P.; Sir Harry Goschen, K.B.E.; Sir George Newman, K.C.B., M.D.; Sir Cooper Perry, M.D., and Sir Arthur Robinson, K.C.B., C.B.E.; with Mr. L. G. Brock, C.B., of the Ministry of Health, as Secretary.

CORRESPONDENCE.

THE SPREAD OF INFECTION.

From Dr. T. W. N. BARLOW,

DEAR SIR,—In the May number of "PUBLIC HEALTH," referring to a meeting of the North-Western Branch, in seconding a vote of thanks to Professor Topley for his paper read before that Branch, I am reported to have said, in connection with Scarlet Fever, that I "relied much more on the general measures of prevention such as house disinfection, etc." As a matter of fact, I said just the opposite. I said in Manchester what I have said on many other occasions, that in my view house disinfection as a factor in the prevention of Scarlet Fever is of no value whatever, and that it had to a very large extent been discontinued in Wallasey. I am also reported to have said that "Scarlet Fever and Measles might be spread by fleas, like Typhus." The point I raised was whether bugs and fleas might not be a factor in the spread of Scarlet Fever and Measles just as lice are in the case of Typhus. These are small points, but I do not desire any of my friends to imagine for a moment that I have become a convert, and that I now worship at the shrine of the disinfectant.

Yours faithfully,

T. W. N. BARLOW,
Medical Officer of Health, Wallasey.

PIT HEAD BATHS AND OTHER AMENITIES IN COLLIERY AREAS.

BY

E. COLSTON WILLIAMS, M.D., F.R.C.S., D.P.H.,
County Medical Officer for Glamorganshire.

When asked by our President to give a paper on a subject for discussion at the Society I offered him a choice between one on Pit Head baths and one on the present and future function of V.D. clinics. He chose the former rather than the hackneyed subject of V.D. I need therefore not apologise for introducing this subject, though it is more within the province of industrial hygiene than within the scope of our present duties. I do so because I believe that the introduction of pit head baths would contribute in no small measure to an improved standard of health and self respect of the coal miner, and would much diminish the domestic labour in his home. The weight of that task is a heavy one for the women and injuriously lessens the time and energy available for the care of his children.

By pit head baths, I mean such provision as will enable the miner to go to his work like other men in ordinary clothes; at the pit head or near by, to change and store them safely before putting on his pit clothes and clogs or boots. When he has finished his job of work he can have a warm bath to remove the sweat and coal dust and so be able to return to his home clean and in clean clothes ready for his meal.

The present conditions are so marked a contrast to this that I must describe at some length in the words of my friend, Edgar Chappell, a typical case whom we will call William Thomas. Thomas is engaged at a colliery on the first shift, which commences at 7 a.m. He resides in a village six miles away from the mine in which he is employed. In order to get to his work in time, he has to be out of bed, summer and winter alike, an hour or two before he is due at the mine. A workman's train is provided to convey him and his mates to and from work. Trains, however, do not run near every home and Thomas and other residents in his village have to walk half a mile or more to the railway station. This may be a healthful and pleasant exercise on a bright spring or summer morning, but in winter and during wet and stormy weather generally the case is different. Roads are muddy and rough and the atmosphere thick with fog, while rain, sleet or snow wets his clothes and chills his body. Frequently he is soaked through before he arrives at the railway station.

The workman's train consists of a number of coaches that formerly did duty for ordinary passenger

traffic, but which have been stripped of their upholstery and other comfort-giving fittings, and are now used solely for conveying men to and from the mines. They are usually cold, draughty and ill-lighted. The train reaches its destination, the railway station or halt nearest to the colliery. Not infrequently the colliery is a mile or more away and Thomas and his shivering comrades face another dreary walk, sometimes through lanes and along field paths which are nothing better than a series of pools of water and soft slush. By the time they reach their destination it is not surprising that in bad weather their garments are often sodden with rain and mud. After such a journey Thomas would gladly welcome a change of clothing and a lounge in front of a blazing fire, but no provision is made for such luxuries as these. There is, as a rule, not even a cloak room where he can store his umbrella, mackintosh, top-coat or tarpaulins until his work is done. These garments are usually hung up in one of the sheds at the pit top or else taken down the mine. Very rarely indeed is any provision made for drying the clothing.

Thomas now proceeds to the lamp-room where he is handed a numbered lamp. He then joins the queue of workers who are waiting at the pit head to enter the cage in which they are conveyed to the pit bottom. Sometimes he has to wait ten or fifteen minutes or more for his turn, frequently exposed to the rain and the blast. At length, however, he is lowered into the mine. The colliery is an old one and his working place is half a mile from the bottom of the shaft. This is not an abnormal distance—in some collieries the extreme workings are two or three miles from the entrance. Under the best of conditions underground the travelling is not exactly pleasant, the roads are rough and uneven and the drops of water falling from the roof have an unpleasant knock of finding their way down the necks of the miners. The main roads are also draughty as it is along them that the chief ventilating currents pass. After a long and perhaps exhausting walk the working place is reached. Here the air is warmer and he is able to discard his upper garments, which are, of course, the dampest. This, however, is not much of an advantage if his working place is a wet one. Evidence was given before the Royal Commission on Mines in 1906-1909 that a very large number of miners in Lanarkshire had to work in very wet workings owing to the collieries being shallow, and that some of them were wet through before they had been ten minutes at work.

Having reached his narrow stall, Thomas labours hard for six or seven hours with the perspiration

streaming from his body and increasing the dampness of his shirt and other under garments. At length his day's toil is over. He leaves his working place, travels again along the main roads to the pit bottom and is conveyed to the surface. The sudden transition from a temperature of 65 or 70° Fahrenheit to an outside temperature, often cold, makes him shiver and the warm damp glow of his body gives way to an unpleasant sensation of clamminess. Having recovered his top garments he starts on his homeward journey, repeating in reversed order the same stages as he passed through in the morning. As his body is exhausted with his day's toil he is now less fit to face the inclemency of the weather and the discomfort and roughness of the journey than when he started to his work.

When he reaches his home, let us suppose it to be in a Welsh mining village, which is fairly modern and in which the dwellings consist of five rooms and a back kitchen or scullery. His house usually possesses no hot water service and no bath. All water for bathing purposes has to be heated in saucepans or boilers on the kitchen fire, a duty incumbent upon the hard-worked wife or daughters. Thomas has five children, two boys and three girls.

One of the girls is 19, and one of the boys, who works with him at the colliery as his assistant, is 17. In addition there is an adult male lodger working at a neighbouring colliery.

The three men return from work about the same time, and Mrs. Thomas and her daughter are kept busy for perhaps two hours before and after their return preparing meals, boiling water, clearing up, drying clothes, etc. Sometimes the meal precedes the bath, sometimes it follows. Sometimes one man bathes while the others eat. The bath is taken in the kitchen, the popular living-room, in front of a large fire.

The man takes off his clothes and washes himself in a wooden tub or a galvanized iron pan, while the family sit round or busy themselves with their domestic duties. Sometimes the wife or daughter assists the menfolk by scrubbing their backs. Not infrequently the family circle is enlarged by the addition of a visiting dressmaker or of male or female friends or relatives making a friendly call.

This daily incident is regarded by those accustomed to it with perfect indifference. The women look upon it as a mere item in the household routine, and would be astonished if they were told they were guilty of impropriety in being present while the men were washing themselves. That the practice is an undesirable one, however, cannot be denied. The men themselves often feel that greater privacy is

necessary, and in some houses the children are sent out of the room while bathing operations are going on.

It is obvious from what has been stated that the present system involves a considerable amount of labour on the part of the women. Each man has to have a good supply of hot water. The preparation of these supplies involves much heavy work in making up fires, filling and refilling saucepans and kettles, and attending to the necessary requirements of the men. If the wife is not conscientious the second bather has to use the same water as his predecessor, which is distinctly unpleasant and may be unhealthy. Nor is the preparation of the baths the heaviest burden that the system imposes on the women. The baths are followed by the clearing up, the putting away of utensils, the scouring of the floor, and, worst of all, the cleaning and drying of the men's clothes. The latter task, especially on a wet day, is irksome and offensive. The clothes are often soaking and covered with mud and coaldust. They soil everything they touch. The wet and dirty garments must be dried, and often mended, and the big fires prepared for heating the water must be kept up. The clothes are hung on the oven doors, on clothes horses, over chairs, wherever they can benefit from the heat of the fire. They have to be carefully watched and turned from time to time, so that the women are kept busy long after the men have gone to the club or the cinema or the institute or to one of the numerous meetings or institutions at which the colliers seek recreation and society. Whether they go out or remain at home, however, the atmosphere of the dwelling is made unpleasant and unhealthy by the reek of the steaming garments and the disagreeable odour of damp coaldust. The pollution of the domestic atmosphere by the drying of dirty clothes is unpleasant even in the better-class houses of the newer coalfields.

It will be realised that in districts where three shifts are worked and where there may be different members of the family in different shifts, the labour of the women in preparing baths and drying clothes is greater and more continuous than where all the men go and return together. So heavy is this that it has been said that the miners work seven hours themselves and work their women seventeen.

As one of the incidental dangers which occurs when the bath is taken in the home before the kitchen fire, one of the local coroners remarks upon the frequency of deaths due to scalds occurring in children in miners' homes. He states that he has no hesitation in saying that hundreds of children have lost their lives during the last ten years through scalds at home, and that every winter he holds more inquests on miners' children who die from scalds

or burns than he does on miners who are killed underground.

An incidental advantage of the institution of the pit-head bath system would be in the diminished risk of the conveyance of matches into the mine. Although the colliers endeavour to put their pipe and tobacco and matches in some unobserved place on the surface, yet so long as they carry matches in their pockets and go down in the same suit of clothes the risk of accidental conveyance of matches is likely to continue.

Those who live in or near mining districts are subjected to considerable annoyance by the dirt which is brought into conveyances, such as trains and trams by colliers in their working clothes going to and from their work. While things are as they are, there is no way of avoiding this, but it is tacitly resented by the general public: and the collier is well aware that he is an unwelcome neighbour to other folk who are wearing their ordinary clothing—especially to women who are wearing garments which are easily soiled. This does not obtain in Germany: and in Essen, even before the war, a collier appearing in the street or using a public conveyance in his working clothes came under the notice of the police; but as I have noted elsewhere, the use of bathing facilities is there compulsory.

At the present time, when psychology is the vogue, it is interesting to speculate upon the effect that industrial habit has upon the minds of those engaged in particular trades. The collier in the street or in a public conveyance and who is returning from work with a blackened face and dirty clothes, is conscious that he compares unfavourably with others who do not bear upon them the unpleasant mark of their profession. He feels at a disadvantage or that he is looked down upon. The miners appreciate the inequality of a colour bar, they are sensitive to the psychology of clothes. Reaction and self-defence sometimes lead to offensive self-assertion or self-indulgence and clannishness due to a black face, increases the strong sectionalism of a now powerful class. My friends among the miners' leaders tell me from their own experience that such feeling influences action in the life of the coalfields. That a large body of men should feel that they are a class apart because of a social disadvantage is harmful and dangerous.

The movement for pit-head baths in this country merely follows on pioneer work which has been in vogue on the Continent for many years. In Germany bathing facilities have become compulsory, and in France and Belgium the system is in general use, and while evidence has been given in various Mine Commissions of the desirability of this provision it was

not until the passing of the Coal Mines Act of 1911 that there was any legislative recommendation in this country of the need. This recommendation followed on the Royal Commission on Mines (1906-1909), in which evidence was given of the system at work in Westphalia by members of the Commission, and as a result of this there was a unanimous recommendation that washing and changing facilities at collieries should be provided, but there was a division of opinion at whose cost this should take place. It was argued by the coal owners that it would not be equitable to impose compulsory provision of pit head baths at their cost unless there was also compulsion upon the workers in the industry to take advantage of them; and although the representatives of the Miners' Federation of Great Britain advocated compulsion upon the miner, they could not get the backing throughout the districts that was necessary to enforce this, and, therefore, in the Act of 1911, the position is that a majority of two-thirds of the workmen must be obtained by ballot before an owner is required to provide accommodation and facilities for taking baths and drying clothes at the mine, and that the workmen should undertake to pay half the cost of the maintenance of the accommodation and that the charge on the workmen shall not exceed threepence per week for each workman liable to contribute. There are additional clauses exempting mines which employ small numbers of men and where the mines are held on short leases, but these are immaterial to the general question.

The section of the Act which I have mentioned was found to be impracticable at the outset, because, even in 1911, the estimated cost of maintenance per week for each man was found to be too low, and at the present time, with the great rise in costs, it is still more so. In spite of this setback, the provision of baths began in certain districts in this country, and Chappell states in his book that by 1920 there were seven installations—four in Lancashire, one in Yorkshire, one in Scotland and one in Wales. As the latter is in my county a brief mention of the type of provision may be of interest.

These baths were provided by the generosity of certain large shareholders in the Ocean Colliery Company and were opened in 1916. They are in a massive stone building, which includes not only baths for men but also baths for officials and boys, with an ambulance station and a general office. The whole of the building and equipment cost £8,000. The bath accommodation consists of a large central dressing room alongside of which are 54 bath cubicles in a separated corridor. At one end are separate baths for boys under 17, also baths and

lockers for officials. The clothes are hung on endless chain suspenders which run from the roof to the floor and are fitted with hooks, and there are 800 of these provided. Near the floor level are radiators for drying and airing clothes. Each miner has his own position in the hall, with his numbered chain which can, if he wishes, be secured by a padlock so that it cannot be tampered with and renders his stored clothes more secure. The cubicles are of white glazed brick arranged in such a way that privacy is secured although there are no doors. Hot and cold water supplies are laid on to a spray within the cubicle and the temperature can be adjusted by mixing the water as the man thinks fit. On an upper floor a special drying room for wet clothes is provided and this is fitted with drying rails surrounded by steam radiators. There are about 2,200 men employed in the mine and the bringing out of a shift takes about an hour and a half. Each man takes about seven minutes for his bath, and the 70 sprays will serve 420 men per hour, so at least 630 can be put through without waiting at all, and the remainder will not have long to wait. The men provide their own soap and towels and pay 6d. per week for the use of the baths. In the working of these baths such a charge does not cover more than the cost of water and caretaker's wages. In reply to any objection that the men will not use the baths owing to their natural conservatism, these baths are used to their utmost capacity and objection is being made by the present users to any further applicants being accepted. The method of procedure is:—The man comes from his home to the mine, enters the bath house, takes off his outside clothes, puts them on the hooks (either separately or in a bag), unhooks his working garments, puts them on, and pulls his chain with its load up high to the roof. On coming up from the pit he takes his soiled clothes off, has his bath and stores his pit clothes and takes off the hooks his outside clothes. The working clothes must be taken home at the end of each week for washing and mending. During that time the cleaning of the bath establishment is done. It is also fumigated quarterly.

Management.—In the installation of which I have given some details, there is joint management by owners and men—an equal number from each side.

This management committee lays down rules for conduct while in the bath establishment and for enforcing reasonable discipline, and controls the receipts from the men and payments made for working costs. In Germany, management, I believe, is entirely by the representatives of the colliery owners.

In Germany also there is an extensive establishment of canteens in connection with the bath houses and men, coming to or going from work, can obtain such hot drinks and food as are most usual in the district.

Certain objections have been guarded against in this installation, the defect of some establishments being that there was no privacy. If there is risk of theft, protection against theft is provided. As I have said, padlocking of chains is little used. That bathing will weaken the spine or that it will increase the susceptibility to colds need not be dealt with seriously in an audience like this. The objection that pithead baths would be unnecessary if baths were provided at home again need not be laboured, because it is probable that, even in the South Wales valleys where housing is relatively good, there is at the present time not more than 5 per cent. of the older houses provided with baths. In any case, the daily introduction of the fouled clothes of several men into a cottage home renders the task of general cleanliness of the house an overwhelming one, even to the most energetic and cleanly woman in the home, while the smell of sweat-soaked garments is an offence that, once it can be done without, would not be likely to be desired again. The putting away of outside clothes before going down into the pit does require a few minutes' earlier arrival at the pit head, but for a substantial improvement this point will have to be met. One great drawback at the present time is the apathy of the miners as a whole, and quite recently, when a proposal of a further installation was made for a pit in the valley adjacent to where the installation I have spoken of is in successful working, the majority of miners turned down the proposal and there is yet a great deal of explanation and propaganda to be done, particularly among miners' wives. When they realise that here is a means of release from heavy drudgery, an opportunity for greater cleanliness, greater decency and improved social consideration for the miner, the matter will be successfully dealt with. While the Miners' Federation holds on strongly to its policy of the provision of pit head baths, it is now committed to the principle that the provision and maintenance of bathing installations should be a charge on the industry and borne by the owners, and therefore along the lines of legislation, useful action must inevitably meet with delay.

Associated with the pit head bath system, I have mentioned in my title "other amenities in colliery areas," and these are in prospect owing to a recommendation of the Sankey Commission, which was embodied in the Mining Industry Act of 1920, establishing a Welfare Fund.

The objects of the Miners' Welfare Fund are to improve the social well-being, the recreation and the conditions of life of those who work in or about mines, and to promote research and mining education.

The Fund is built up by a levy of a penny on each ton which is raised, and it is estimated that in five years of statutory existence it will yield the sum of five million pounds. Over that five million pounds the Committee have complete control; but as regards four-fifths, they were obliged by statute to allocate four million pounds to local schemes for the purposes above. As regards the other one-fifth, the Committee kept that in their own control and in their complete discretion; as regards the four-fifths, they relied upon their district committees to tell them what their local requirements were and, in that way, be able gradually to improve the life of the miners. Lord Chelmsford said he was fully conscious that there are many who were doubtful about the value and utility of this expenditure of money; but he would ask those who were so sceptical, before they allowed their scepticism to crystallise, to ponder over the condition and life of the mining community—a man doing his work underground without light of the sun, recumbent or crouching, hewing out the coal and then returning to his home in his drab and dreary mining village; surely any little thing which can be done to introduce what has been called sweetness and light into the lives of the mining community was all to the good.

The statutory allocation from this Fund, up to December 1st, 1922, was £174,000 for the South Wales Coalfield. Sixty thousand pounds had been allocated and £31,000 paid to the district committees, leaving a credit to the district fund of £143,000.

The duty of allocating the amount from time to time standing to the credit of the Fund is vested in a committee of five persons appointed by the Board of Trade, one of them being a medical member who is a Fellow of this Society (Dr. Collis): and the committee is assisted by three assessors appointed by the Ministry of Health, the Board of Education and the Scottish Office respectively. The assessors have the right of attending meetings of the committee and of taking part in their deliberations, but not of voting; and it is open to the committee, if they think fit, to invite a local authority to submit a scheme for any of the purposes within the scope of the Act. So far, locally, the only representations by a local authority are in respect of mining education, and the chief claims will come from the district committees set up under the Act, representing the requirements of their districts as a whole. The

allocation has to conform to the requirements of the district as a whole and no individual colliery or group of collieries has any prescriptive right to the return of the actual amount contributed by the owners in their area.

The Fund is established for a five-year period, and in view of this the allocations are made rather for capital than revenue purposes, and it is required that in claims made for grant, there shall be a statement as to what voluntary effort is being made and what guarantees can be furnished for maintenance in respect of annual expenditure. The committee hold the view that allocations should be in aid of sums already raised and should not defray the whole cost of schemes when they are of a local character; but such a proviso does not apply to mining research. The number of applications received in the South Wales coalfield up to date are:—For recreation, grounds, parks, etc., 108, representing an amount of £255,000; for workmen's institutes, halls, etc., 55, representing £139,000; other claims, 13, representing an amount of £9,600.

The local committees put up claims which they think most suitable for their districts, and at present the proposals are mainly for recreation grounds, the building of clubs and institutes and the improvement of ambulance training. In recreation facilities, swimming baths, cricket and football pitches, bowling greens and tennis courts are well to the fore, but gymnasia, allotments, mining and other education—to include intellectual and recreative aspects such as music, art and literature—are agreed to be within the scope of the movement. It is on the Public Health and treatment side that I think very useful work can be done in which we are more particularly interested, and while such objects appeal to the miner less than a football field or a bowling green, yet in time, by steady pressure, useful additions can be made.

The question of the supply of water to underground workers is mentioned by the central committee, but I think that this falls within the scope of the Factory Acts rather than the Welfare Fund; but I think the Welfare Fund can do much for improving ambulance and first-aid facilities, and massage centres for joint injuries and fractures. From my own experience as a colliery doctor, the need for having prompt access to ophthalmic surgeons by an ophthalmic service is a thing I well remember, for there are many cases in which small injuries to the eye can only be kept from becoming of major importance and probably causing loss of vision, by quickly reaching the care of an experienced eye-surgeon. A common example of this is a spreading ulcer of the cornea.

It is being pressed upon the South Wales committee that one of the most valuable pieces of propaganda that can be done in relation to the pit head bath movement would be the establishment, in a few chosen centres, of an installation which would serve as a pioneer example, which would soon make its influence felt upon the surrounding district.

The geographical condition of the South Wales coalfield is entirely different from the South Lancashire coalfield. Our coalfield consists of a series of valleys cut out of a high plateau and running from the North in a Southern direction—sometimes with an inclination to South-East or South-West—and the elevations of the hills are from 1,000 feet, fading off to the South towards sea-level. Along the valley floors, at various elevations, the mining villages are placed. At the lower levels, where the valleys are wider, there is a fertile lowland, and ample room for houses, gardens, parks and communications. Yet, at higher levels, there may be extreme narrowness with only sufficient room for a main road and a railway, and the houses crowd from the main road at the bottom up the slopes, which may rise 500 to 600 feet at each side; and here the sun pays only a partial visit, as in the early evening the rays are cut off by the heights above even in summer. A steep-sided, narrow valley has several social disadvantages. The community must spread along the valley floor; housing sites not involving extensive levelling and free from the risk of subsidence are hard to find. Flat spaces for playing fields sometimes cannot be found, and football grounds must be derived from the flattened surface of a tip.

As many of these valleys are closed on the North and are not through communication valleys, living under such conditions tends to produce a feeling of limitation and isolation from other communities, so that in such places these improvements of social amenities under the 1920 Act may prove to be of great value, and it is to be hoped that boxing and billiards which are recreations demanding a minimum of room may become less sought after when football, swimming baths, and other clubs compete with them more favourably. Enforced idleness may be the mother both of intemperance and other evils, and the drab monotony of isolated communities with insufficient social resources breeds evils for the State.

There is nothing new in my paper, and for my facts I am indebted to Edgar Chappell's book on the subject, and for facts about the Welfare Fund I have to thank my colleague, Henry Davies, the Director of the Mining Education for Glamorgan. Others here with an intimate knowledge of mining areas will be able to supplement the argument. My personal

knowledge is confined to the Lancashire coalfield and the Welsh coalfield. Local circumstances and local habit vary from district to district. Chappell's description of Henry Thomas, as you remember, is a description of a Welsh miner, but the general problem is the same.

Those of you who are familiar with Disraeli's description of miners and mining villages eighty years ago in his novel, "Sibyl," will appreciate what great improvements have taken place in their life and environment. Much remains to be done and is in the doing, and many of us whose work lies in colliery areas may give a hand. Cleanliness, healthy recreation and education, either technical or literary, react with pervasive and increasing force in bettering the standard of public health. With knowledge comes an increasing desire for beauty. In the Glamorgan valleys, woodland and stream within the encircling hills still preserve much of their pristine beauty, and with higher personal standards of health and knowledge, beauty may not always be incompatible with industry.

The immediate and remote benefits to be hoped for from a general use of pit-head baths and the wise use of the Welfare Fund, I need not labour. Industrial hygiene, of which my subject is a detail, is likely to prove one of the most humane and beneficent agencies of our own generation. To you, I hope, I may have brought something of interest, something to enlist your sympathy with allied forces working for the same ends for which we ourselves strive. The mining population moves uneasily, half awake, conscious of defect, too conscious of its power but striving for betterment of the conditions of life. The clamant and mischievous among them are not those whom I have seen competing at the pit head to get down the mine with the rescue party in a time of disaster or who shared the fame of the Gallipoli landings. In the main they are decent, industrious folk like the rest of our people, no better or worse than ourselves, and for whose difficulties and perplexities, knowledge, work and patience are the only means of solution. Any reforms or improvements which will bring them a potentially better, fuller and brighter life demand, in electioneering phrase, "our interest and support."

Discussion.

The President, in inviting discussion, regretted that probably owing to the nearness of Christmas the attendance was below the average, but expressed the hope that the paper would be published in extenso in the Journal. Coming from one of the largest mining areas in the country, the subject was of special interest to him, and the

provision of facilities such as those described by Dr. Colston Williams would be of the greatest possible advantage. In Durham the matter had been before the local mining association for years, but owing largely to conservatism and the question of payment no decision had yet been arrived at. The three-shift system in vogue in that part of the country meant that in many homes bathing was going on practically throughout the day. From the public health standpoint, apart from the matter of cleanliness, there was a great deal to be said for pithead baths. There was a high mortality amongst miners from acute long affections, due no doubt to the conditions under which they worked. Going down to the mines in wet clothes naturally resulted in the development of respiratory troubles. The statement as to the frequency of deaths amongst children in mining areas from scalds due to the preparation of baths was deserving of special notice. Referring to the Welfare Fund, the President considered this to be of great benefit to the miners. Though he had been advised that the fund was not applicable for the purposes of improved housing, it was to be hoped that it might be made available in connection with the formation of further maternity and child welfare centres in mining areas, many of the voluntary centres being handicapped for want of money. The fund might also be used for providing additional medical services.

Colonel Herbert Jones (M.O.H., Herefordshire Combined Districts) stated that in the Rhondda Valley he could only recall one area where baths were provided in the houses, and there some were used for bathing purposes, but others were not, the common practice being for the miners to use a 40-gallon cask cut in two. Colonel Jones could not understand why pithead baths were not generally provided because so many facilities already existed at the pits—hot water, steam, etc.—to make their introduction possible, and was disappointed to hear that since 1911, when there was some agitation in connection with the provision of pithead baths, so few had been installed. The baths that men had been accustomed to in fixed military camps were just the sort suitable for the purpose, and he should have thought that soldier colliers on their return home would have insisted upon them. He suggested that it might be possible to get miners to use baths more than they did if instead of being placed at the pitheads they were constructed in blocks nearer their homes, thus meeting the objection of liability to cold entailed by travelling home from the mine after a bath. In supporting the need of a proper supply of water for underground workers, Colonel Jones

instanced two outbreaks of typhoid fever traced to men who had filled their receptacles from water found below the surface. Dr. Williams had referred to the fact that in the Aberdare Valley from 60 per cent. to 70 per cent. of the men made use of the experimental baths provided. This was extremely interesting and should be an object lesson to others, and prompted the suggestion that money from the Welfare Fund might be spent in carrying out similar experiments elsewhere.

Dr. E. H. T. Nash (M.O.H., Heston and Isleworth) with experience of certain Lancashire colliery districts, emphasised the importance of the effect of pithead baths on the psychology of the colliery population, but regarded as impracticable the idea of getting baths away from the pithead. At the mine waste steam could be utilised; elsewhere administrative and working costs would be considerably higher.

Dr. T. Shadick Higgins (M.O.H., St. Pancras), speaking as one of those members not associated with colliery districts, drew attention to the lack of interest shown in the past by employers as to the enormous amount of mortality, unhealthiness and misery due to conditions in industries throughout the country, which serve to create the greatest menace to social order and progress. Hygienists could flatter themselves that they are gradually bringing about a transformation in these matters.

Dr. C. S. Thomson (M.O.H., Deptford) ventured the opinion that pithead baths would be in general use within the next 25 years. The present financial stringency prevented many things being done, and in the meantime those concerned with the public health could only go on teaching.

The President agreed with Dr. Nash that the views of Colonel Jones with regard to the provision of baths near the homes of the miners would not apply in Durham because the houses there were mostly near the pits. A great deal was to be said for making pithead baths a charge on the pits. The outlay would pay the colliery owners in the resulting improvement in health and effort of the men. Many of the owners were inclined to hold that view, and it would be necessary to educate not only the men but the owners.

Dr. Williams, who received a hearty vote of thanks for his paper, hoped the Society would keep close touch with industrial hygiene, and give it all the encouragement possible. Common nuisances would tend to disappear with increased knowledge of hygiene. In one colliery area it had been insisted that baths should be attached to football grounds. How much more necessary was it

for such accommodation to be available for miners after a day's work? Dr. Williams stated that in his own area there was great progress in all forms of social life in connection with the various religious societies, and this had a profound effect on the social development of the district. He concluded by expressing his great indebtedness to a number of authorities and particularly to the work on "Pithead and Factory Baths," written by Messrs. Edgar L. Chappell and J. A. Lovat Fraser, after ten years' work in connection with the subject.

THE PRESENT POSITION WITH RESPECT TO CANCER.

BY

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Cancer has for years past played a prominent part in the mortality rates for this country, and, indeed, for all countries having reliable methods of statistical compilation.

A perusal of the latest report of the Registrar-General (1920) shows that for the first time Cancer claimed more deaths than Tuberculosis. The method in which this disquieting result has obtained is illustrated by the following table:—

Year.	Tuberculosis.	Cancer.	General Mortality Rate.
1916 ...	53,858	40,630	508,217
1917 ...	55,934	41,158	498,922
1918 ...	58,073	41,227	611,861
1919 ...	46,312	42,144	504,203
1920 ...	42,545	43,687	466,130

The slow but steady increase in well shown, and I believe that improved diagnostic methods may be discounted inasmuch as there have been no noteworthy diagnostic advances in this subject during the past five years. During this same period the general mortality has dropped from 508,217 in 1916 to 466,130 in 1920. The estimated civilian population covering these years remained nearly stationary, whilst it may be reasonably inferred that cancer is not a disease of the army population.

Cancer is essentially a cellular disease. The cancer cells are derived from the cells of the tissue involved, but, although the individual cells may be replicas of the normal cells of a particular tissue, their arrangement is abnormal and they bear certain embryonic characteristics.

The growth of cancer cells is unrestrained and appears independent of the factors governing the

growth of normal tissues. The acquisition of the power of unrestrained growth seems to be a slow process and it is a property of the individual cell.

In this connection it is helpful to bear in mind certain facts. Cancer is a disease of tissues derived from the epiblastic layer of embryonic life. One of the functions of this tissue is protective, and it is in consequence subjected to wear and tear. This means an endowment of active proliferative powers. All chronic processes initiating cancer are attended by repeated destruction and repeated repair. There is evidence that the epithelial cells do undergo changes giving them embryonic characteristics in consequence of continual demands upon them for repairs. Processes creating the demand may, in consequence, be directly responsible for the origin of malignant growths.

The intercellular substance may have some influence in this matter. Champy in a series of experiments showed that epithelial cells grew in vitro in an even sheath without exhibiting specific arrangements, i.e., similar to the in vivo growth of cancer cells. Drew¹ then demonstrated that these undifferentiated cells at once resumed their differentiation in vitro when connective tissue was added to them. This does not seem to be explicable upon a purely physical basis of different surface tensions.

Cells may be stimulated to growth by chemical means. The ova of frogs may be stimulated to multiplication, resulting in the formation of embryos, by the addition of weak, or alkaline salts to the water in which they are kept. Multiplication of plant tissues may be induced by the injection of similar chemicals; and, when such substances are applied continuously, the growth becomes continuous.

The especial attributes of the cancer cell are, firstly, its power of invasion; secondly, its powers of migration; and thirdly, its low vitality. Sir George Beatson² in a recent paper has summed up, comprehensively, the accepted knowledge concerning cancer. He states that the following facts are acknowledged:—(1) The antiquity of the disease. (2) Its occurrence in all races of mankind. (3) The unequal susceptibility of different races. (4) Its existence in all vertebrates. (5) That the disease starts in a single cell which becomes possessed of great power of continuous and uncontrollable multiplication. (6) That the cell retains its parentage, always breeding true. (7) That it differentiates very little, and that irregularly. (8) That a periodicity of growth is common, and (9) That the development is neither

purposeful or beneficial. It is sometimes argued against heading six that if this were so, how is it that squamous called carcinomata are found in regions where the normal cells are columnar. This is explainable by the alteration of the columnar cells by the wearing down process of continual irritation and consequent active proliferation until the originally highly specialised glandular cells lose their function and their attributes to become merely protective squamous cells, the secretive function being sacrificed solely for protection.

CERTAIN THEORIES OF CANCER FORMATION.

Parasitic Theory.

Butlin³ believed that the cancer cell was an independent organism like a protozoon and that it lived as a parasite in the body. Professor Smith thinks that cancer in plants is due to a micro-organism which can be isolated and cultivated and which produced cancer when inoculated upon healthy plants. No organism has been found in man which conforms with Koch's postulates.

This theory has now been almost wholly abandoned. The numerous inoculation experiments carried out in animals helped to bring this about, and it will be expedient to summarise a few of the findings and conclusions arrived at under this aspect of the problem.

Certain tumours are transplantable in animals, but different tumours vary in their power of successful transplantation. Also varying strains of mice do not exhibit the same susceptibility. Bashford, Murray and Cramer⁴ showed that a state of resistance can be acquired in animals after they have been inoculated with tumour material. It is now known that all tissues, especially those rich in cells, produce a limited degree of resistance to tumour growth when inoculated into animals of the same breed. Cancer cannot be transmitted from animals of one species to those of another.

It is essentially a disease of specific cells.

Mice in which a transplanted tumour had undergone spontaneous recovery could not be successfully re-inoculated. Bearing on this point, Chambers, Scott and Russ⁵ recently demonstrated that a degree of immunity may result from an adequate irradiation of a malignant growth, i.e., by destruction of cancer cells.

Briefly, the numerous inoculation experiments only appear to prove (1) That a tumour is inoculable in a certain percentage of cases and under certain conditions; (2) That inoculation takes place more readily in animals suffering from cancer than in healthy animals; (3) That there is

developed a certain degree of immunity in animals who have recovered from inoculated cancer.

A conclusion to be inferred from the latter finding, but not yet proved, is that certain animals have a natural immunity or resistance to cancer, and by inference some human beings are more susceptible than others of the same race.

Irritation Theory.

This is perhaps the most promising single theory at the present, although it seems that the causation does not lie in one direction only. A combination of mechanical and obscure chemical factors is the possible exciting cause.

Under this theory I propose to divide known types of cancer, presumably caused by irritative processes, into three headings, following the classification of Wolbach⁶.

A.—*Trade Processes.*—Scrotal cancer in chimney sweeps is a classical instance. The epithelionata of paraffin workers; workers in aniline oil and tar. In all, the evolution of the cancer is the same, namely, a dermatitis, followed by warts, ulceration, cancer. In all the exciting cause is a constituent of coal tar. The epitheliomata of X-Ray workers is another type, with a different exciting cause, but with a similar clinical course.

B.—*Cancer Due to Chronic Infective Processes.*—Leukoplakia, a chronic proliferative inflammation of the tongue, is associated with a relatively high cancer incidence. The supervention of cancer upon lupus, cancer of the bladder following bilharziosis or vesical calculi; cancer of the gall-bladder accompanying or following gall stones are all well-known clinical instances.

C.—*Cancer and Peculiar Habits.*—Certain Kashmiri tribes (Neve⁷), in order to keep themselves warm, carry a small earthenware stone fixed round the abdomen. Cancer of the abdominal skin is very common in these people, but is very rare in other human races.

Cancer of the cheek is a rare disease of women, but it is common in the women of India. This may be due to the habit of betel-nut chewing. The nut is ground up with lime, made into a wad, and this wad is kept in one side of the mouth for days on end.

Cancer of the tongue, mouth and upper respiratory passages is far commoner in men than in women. Possibly this is due to the practice of smoking, which until recent years was a habit of the male sex. It will be interesting to see, in years to come, whether the female sex, following upon their emancipation, retain their favourable position in this respect.

The Experimental Production of Cancer.

Cancer can be produced by long continued and repeated exposure to the X-Rays. Fibiger produced cancer in the stomach of rats by means of *Spiroptera neoplastica* (Cockroach worm). Yamagaya and Itchikawa produced cancerous growth of a rabbit's ear by repeated applications of tarry substances. It is curious that Murray failed to cause cancer by similar means in the rat.

As stated previously, an animal in which a tar cancer had been produced and the tumour successfully removed appeared to be insusceptible to the further application of tar, but was still susceptible to grafts of its own cancer. Cruickshank observed that two mice, which developed spontaneous mammary cancer, did not react to repeated and prolonged tar applications.

Germinal (Reproductive) Theory.

Sir George Beatson² has recently profounded a theory which presents many interesting points. Deducing from the undoubted effect that removal of the ovaries has upon inoperable cancer of the breast, he believes that the sex glands have a powerful influence on the disease. He observes that the division of the nucleus of malignant cells closely resembles that found in developing reproductive tissue, and he thinks that the secretion of certain glands, usually dealt with by the testes and ovaries, is used by tissues which have retrograded physiologically, and so produces cellular growth typical of cancer. He surmises that the fat of the body might act as a middleman in the same way as the lymph does in ordinary nutrition. He also thinks that the pigmentary functions of cell life exert some action upon the reproduction of the cell. Pigmented moles are especially liable to take on malignant characteristics. These moles consist of groups of pigment forming cells identical with those occurring normally in some stages of development of the skin. Lister many years ago noticed that in inflammations the first changes were in the cell pigments. The fat in the neighbourhood of cancerous growths often shows abnormal pigmentation. Distinct support is given to this hypothesis when some of the predisposing causes of cancer are reviewed, e.g., age, the whitening of the hair, patches of cutaneous pigmentation all point to a migration and redistribution of body pigment. Chronic irritation marked by a cell proliferation is often accompanied by an increased deposit of pigment in the area.

In connection with the supposed part played by the body fat the following experimental findings are of interest.

Analysis of the fat of cancer patients showed chemical differences from normal fat in that there was an excess of non-saturated fatty acids. Shaw-Mackenzie⁸ found that the serum of blood taken from cases of cancer not only has an increased antitryptic value, but can accelerate the action of pancreatic lipase far more than normal serum. Sturrock⁹ showed that the average alkalinity of the blood serum in cancer cases was appreciably higher than in non-malignancy, whilst Mayo¹⁰ observed that abdominal cancer appears only in an acid medium and that alkalinity retards cancer growth.

Another interesting item bearing upon this subject has been contributed by Ross.¹¹ He found that the blood of a cancer patient, or the juice of a cancer, produced marked stimulating effects on leucocytes. Irritation causes cell death, and cell death liberates what he terms auxetic substances, i.e., augmentors of cell growth. In his opinion two factors are necessary for the production of a cancer: (1) The tissue in which it arises must be one in which katabolic changes predominate. (2) The presence of augmentors is required in the tissues.

To sum up briefly the views of a few of the great investigators into this baffling mystery.

Bashford, speaking at the International Congress of Medicine in 1913, looked upon cancer as an indirect result of chronic irritation. He was inclined to believe that the cause which led to proliferation and unbounded growth was some subtle chemical or biological agent.

Freund at the same discussion stated that normal blood contained a substance which was able to destroy cancer cells. He demonstrated that it was a fatty acid. He was of the opinion that chronic physical or toxic irritation produced a predisposition to cancer by destroying the normal fatty acids.

Lazarus Barlow, on the other hand, held that the etiology of cancer was inseparably associated with the radio-active content of the tissues, radio-active material being present in larger amounts in cancerous tumours than in normal cells.

Bond¹² thinks that cancer must be regarded as an adaptive response on the part of certain cells or cell groups to environmental change and as the result of a process of variation and selection among the cells of the organism.

Sir George Beatson² supposes that one of the conditions which keep cells from dividing is the integrity of its nucleus and of the protoplasmic contents, but if any chemical or physical reaction

takes place in them their division of the cell may result and may continue indefinitely as the outcome of the permanent change in the nuclear pigment.

Jordon¹³ follows Arbuthnot Lane and thinks cancer is to a large extent secondary to toxæmia of intestinal stasis.

SITES OF FATAL CANCER COVERING THE FIVE YEARS, 1916—1920.

Site.	Male.	Female.	Total.
Lip	1,213	93	1,306
Tongue	5,440	567	6,007
Mouth	2,919	377	3,296
Jaw	2,530	859	3,389
Pharynx	1,133	359	1,492
Œsophagus	6,207	1,994	8,201
Stomach & Gall Bladder	19,038	16,764	35,802
Liver	*9,428	*13,054	*22,482
Mesentery	553	1,391	1,944
Intestines	10,156	14,110	24,266
Rectum	9,743	7,326	17,069
Larynx	2,686	782	3,468
Lung & Pleura	1,340	803	2,143
Pancreas	1,676	1,521	3,197
Kidneys	902	798	1,700
Bladder	2,943	1,204	4,147
Brain	215	192	407
Bones (not jaw)	1,592	1,442	3,034
Prostate	2,859	—	2,859
Testes	454	—	454
Skin (including penis) ...	3,347	2,150	5,497
Breast	167	21,195	21,362
Ovary & Fallopian Tubes	—	2,836	2,836
Uterus	—	20,596	20,596
Vulva & Vagina	—	1,462	1,462
Other organs	3,005	2,173	5,178
Undefined	2,622	1,257	3,879
	92,392	116,454	208,846

In comparing the incidence of cancer upon different organs in the male and female respectively, it is found that there is a male preponderance for the lips, tongue, mouth, jaw, pharynx, œsophagus, skin (scrotum), larynx, bladder, and slightly for the rectum, lung and pleura. A female preponderance is exhibited for the reproductive organs, breast, intestines, mesentery, liver and gall bladder. (As primary cancer of the liver is exceedingly rare, the seeming preponderance for this organ is probably due to secondary growths from the breast and reproductive organs.) The two sexes are about equal as regards the stomach, pancreas, kidneys, brain and bones (excluding the jaw).

Treub showed that the average age is higher with cancer of the body of the uterus than with cancer of the cervix. It is more frequent in married women, but less comparatively with cancer of the body of the uterus. Fibromas are more common in unmarried women. Uterine cancer is 100 per cent. more common in married than in unmarried women.

A consideration of these points leads us to the following conclusions:—

- (1) Where the conditions are similar in both male and female, the incidence of cancer is about equal.
- (2) Areas exposed to chronic irritation are the most usual seats of cancer.
- (3) The excess of cancer in the male in the upper respiratory and alimentary regions is explainable to some extent by habits peculiar to males.
- (4) Organs undergoing great involutive changes, or subjected to intermittent periods of great activity, are particularly liable to cancer.

Brownlee¹⁴, in a recent monograph, has shown that the mortality from cancer is higher in rural than in urban districts and that it increases from North to South. For practically all other lethal diseases the reverse is true. His conclusion is that the frequency of cancer is a function of senescence and that the cancer mortality at any age varies directly (under different conditions of environment in the same region) with the physiological age of the populations concerned.

Recent Austrian statistics show that waiters and public-house owners show a high mortality from cancer of the œsophagus—an interesting finding from the irritative theory view point. These same statistics indicated some evidence of a predisposition to cancer. The reappearance of cancer after a lapse of years, as sometimes occurs, is a support for this view. There is direct evidence that warts, burns, scars, etc., can be irritated to rapid growth and to degeneration by traumatism.

Williamson¹⁵ thinks that cancer is unaffected by environment. He points out that in by far the largest number the disease affects the alimentary tract and wonders whether present-day feeding exercises any influence.

Public Health Aspects.

In 1900 the cancer death-rate was 0.7 per 1,000. In 1920 it had risen to 1.6 per 1,000. In spite of this no serious attempt has been made to grapple with the position. Sanitary measures have been

confined to diseases known to be infectious or contagious, but little has been done for those, like cardiac disease or cancer, which do not manifestly appear to depend upon the element of contagion. Yet Public Health should concern itself with all causes affecting adversely the health and longevity of the people. The expectation of life for people over sixty has become less rather than more, in modern times, and cancer contributes an important quota towards the maintenance of this unsatisfactory position.

I submit that much can be done to lessen the cancer mortality. Trade cancers are preventable. Many cases of cancer of the lips, tongue and throat could be avoided by adequate universal dental treatment.

Again, cancer is a product of senility. This senility is not to be measured in years, but in the actual state of tissues and glands.

Tissues which first commence to atrophy are those most prone to cancer. Senility is brought about more rapidly under modern conditions than was formerly the case. The wear and tear of this restless age makes men young in years old in vitality. The psychology of the people is a great asset in furthering the public health. Enlightened authorities are coming to recognise that cheerful surroundings, recreation, adequate housing and intelligent nutrition are of the highest importance to the State. More and more are providing parks, recreation grounds and golf courses for their citizens. As cheerful surroundings in everyday life make for the maintenance of health, so does a hopeful temperament make for recovery from illness. The present pessimistic outlook of the ordinary citizen when confronted with the reality of cancer is detrimental. The need is for a better education of the public in the known facts of cancer. They should be brought to realise the bright side as well as the obverse; to learn that cancer in its early stages is curable; to learn the early signs by which they may know that the time has come to seek adequate medical assistance. The best method in which this ought to be done is a matter for the various localities to decide upon themselves. Methods useful in towns might be futile in country districts.

An article in "Medical Science" for November, 1920, dealing with propaganda, said: "It is obvious that improved results in cancer cases can be brought about by increased knowledge on the part of the general practitioner, but he in turn depends on the patient. Patients come to hospital with growths as large and as inoperable as they did fifty years ago." It would be clearly neces-

sary, in following this doctrine, to provide a sufficiency of hospital beds.

In 1921 the American Society for the control of cancer inaugurated a Cancer week. They held that such a week was justifiable upon two grounds: (1) The ignorance and indifference of individuals in regard to the early evidence of cancer. (2) The frequent lack of discrimination shown by persons in selecting the kind or cult of medicine for their treatment.

Cancer prevention is an individual matter. There is no evidence to support any infectiousness in the disease, although Ochsner¹⁶ thinks every precaution against cancer infection should be taken even though infectiousness has not been proved. The hereditary aspect is very problematical. He instances that the Japanese, who are scrupulously clean regarding their skin, are very free from external cancer, the reverse being true of the people of India. The factor of irritation would explain this, however.

Propaganda to be effective must aim at

(1) Educating the people at large in the early signs and in the vital necessity for earlier consultations.

(2) It should be continuous.

It must be realised that propaganda will not seriously reduce the incidence of cancer. That cannot be achieved until the cause is discovered. The most that can be hoped for is that in a certain number of cases life will be saved or at least prolonged for a number of years.

Tentative measures have already been put into operation in a few towns. Some years ago Dr. Mearns Fraser issued a pamphlet upon the subject. Recently Dr. Millard has followed suit in Leicester. The Cancer Research Fund of Ireland has issued a popular handbook and pamphlets upon the subject. Otherwise little has been done. Government Commissions are not altogether un-mixed blessings, but it is surely time that a Commission should sit upon so important a question in order to sift the mass of evidence, experiments and other data now available, and to sum up in a concise and popular form the present position of the Cancer problem, and to suggest any measures practicable for its alleviation.

Medical Officers of Health, unfortunately, in many cases do not take sufficient interest in this problem. They argue that the cause is unknown and therefore nothing can be done to mitigate its ravages. Such an attitude of indifference, of fatalism, reacts unfavourably upon the public in all matters appertaining to the health of the people. It is our duty to give to the public such

advice as is sound and proved. It is proved that early diagnosis and operation lessen mortality, and therefore the public—and by the public I mean the unreading and unthinking portion in particular—must be educated to comprehend this and urged to act upon it. Surely we are firstly practitioners of medicine, and secondly administrators, endeavouring to administer to the best advantage the knowledge gained by others and by ourselves in the clinical branch of the profession.

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METHODS OF INFANT FEEDING.

BY

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The subject of infant feeding which we are considering is a vast one, and it is for this reason that I am dealing with only some of the methods employed.

Obviously the first method to consider is Nature's method, or breast feeding. In any actual case of infant feeding no consideration of other methods can for a moment be entertained until the possibilities of breast feeding have been fully explored.

In this paper, however, I shall devote comparatively little space to the consideration of the subject of breast feeding.

This is merely for the reason that I can say little about this subject which will be of interest to you, or new to you, but I feel sure that you will acquit me of any desire to minimise the importance of it. I must, in passing, refer to the valuable service done to the cause of breast feeding by its great advocate, Dr. Truby King, and also to the useful practical work in breast feeding which is being done at the home he has founded, where the restoration of breast feeding has in many cases been accomplished many weeks after its abandonment. Also the entire feeding of triplets at the breast is quite easily attained in this institution, being in fact practised there whenever the opportunity arises.

Budin laid down as a rule at his clinic that every woman must suckle her infant while in hospital. It has indeed been found that nearly 100 per cent. of mothers are able to suckle their infants whilst lying-in at a hospital.

Mothers are less successful in their own homes during the first fortnight of lactation than in hospital, presumably owing to the fact of less favourable environment caused by the proximity of household worries.

Various reasons are given for the failure of breast feeding when the mother leaves her bed and gets up. Amongst these is the ingenious suggestion that the infant for a time is less vigorous, owing to deprivation of the heat from its mother's body which in many cases it enjoys whilst the mother is in bed, in spite of advice against this practice by Health Visitors. Being less vigorous it does not stimulate the breasts with its usual vim, with the result that breast milk tends to fail.

From whatever cause, there is undoubtedly a large percentage of failures in breast feeding, not only among the working classes, but also among the middle classes, who perhaps more frequently fail in this natural duty to their offspring than the poorer classes of mother.

Among the middle classes, too, little use is made of partial breast feeding. It is quite common for the working class mother to give breast feeds only at night, or night and morning, in addition to artificial feeding. Sometimes this practice is kept up for a long period, often much longer than twelve months, and provided that an abundance of other suitable food is given there can be no harm in this practice.

An infant will not develop rickets from being kept on the breast too long, unless there is an insufficient supply of other foods. Further, every ounce of breast milk which the infant obtains is

so much positive gain, as there is no other food of equal value.

It has been disputed whether the proteids of cows' milk have the same food value as those of human breast milk, and as a matter of fact the infant will thrive on a much smaller quantity of breast milk than the amount of cows' milk which it requires to support it in a state of health. Holt, the American authority, goes so far as to say that the proteins of cows' milk have only one-third the value of those of breast milk.

However this may be, the unfortunate fact remains that many mothers are unable to feed their infants entirely at the breast. In such cases the test feed should always be resorted to, in order to determine how much breast milk is yielded per day. It is not sufficient to try one test feed and obtain, say, three ounces, and then multiply this amount by the number of feeds per day, say six, and assume that the daily amount of breast milk is 18 ounces.

The amount of milk yielded varies considerably at different times of the day. Naturally the first feed of the day, after the night's rest, is usually the best in the twenty-four hours. If an accurate estimate is required of the amount of breast milk yielded, it is necessary to make every breast feed a test feed for several days. It is then possible to ascertain what amount is required for a supplementary feed. It is even better still, if the mother will take the trouble, to make every feed a test feed for several months, adding the right amount of supplementary feed on each occasion. Dr. Pritchard states that the amount of breast milk secreted by slum mothers is surprisingly small. He gives 3.08 ounces as the average at seven months and 2.87 ounces as the average at eight months. German figures are much higher in many cases, sometimes amounting to seven ounces at six months.

Doubtless the healthy country mother secretes much more milk than the slum mother. Probably she approximates nearly to the German standard mentioned.

At Infant Welfare Centres in towns, it is, however, frequently necessary to resort to supplementary feeds at five or six months. Every Centre should therefore be provided with a pair of scales for the purpose of test feeding. Any balance will do which is sufficiently delicate to turn at $\frac{1}{4}$ of an ounce.

Many mothers are unfortunately not aware of the system of supplementary feeds, or if they do know about it, they will not trouble to adopt it. The infant of such a mother is then exposed to a variety of risks and may be launched on a perilous

adventure. He may, fortunately for himself, be the type of child who will thrive on almost any kind of food, but even then he will probably suffer to a minor degree. If in a poorer home he may be put on condensed milk and eventually develop rickets, unless rescued in time by a vigilant Health Visitor.

It is a fact that almost any child will develop rickets in six months if fed exclusively on condensed milk. If living in a middle class home of the type to which the Health Visitor does not penetrate, the infant may still have to suffer quite as badly, as he will probably run the risk of scurvy on account of the great faith in patent foods which sometimes exists in such surroundings. Many people are only too ready in cases of difficulty to give the easy advice to try a patent food. This is tried and succeeds very well for a time, but it is kept up too long in most cases. As a routine food for the normal infant patent foods are useless, and highly dangerous if persisted in.

No one can deny, however, that they have their use as "rest" foods in certain pathological conditions of infancy, particularly in cases of intolerance of fat, or in other circumstances where gastro-intestinal disturbance arises. Condensed milk is also valuable as a "rest" food, and I have also known it successfully prescribed as a supplementary feed for infants where the breast milk is reduced in quantity. In such cases a teaspoonful of condensed milk is frequently given, to be licked out of a spoon by the infant, and this method is free from the objection there is to certain other methods in which the counter-attraction of a bottle is presented to the infant.

Whatever the legitimate uses of condensed milk may be, I do not think it is advisable to suggest its use to uneducated mothers in any case for infant feeding, owing to the liability to abuse. In institutions it may often be usefully employed in cases of vomiting where little else can be kept down.

In the poorer homes, probably a half-cream dried milk is the nearest approach to condensed milk which it is advisable to make, and as a "rest" food this is excellent in many cases.

Assuming that for some reason or other, the mother is unable to feed at the breast, or that supplementary feeds are necessary, what is the best substitute for breast milk? This is a highly controversial matter, and one which is made more controversial by the existence of cranks and fanatics who favour one particular method to the exclusion of all others. Thus there is the advocate of cows' milk and nothing *but* cows' milk, and as a sub-variety of this group, the man who

wishes to put all artificially fed infants on citrated whole milk. Again, there is the dried milk enthusiast.

The humanised milk school, as represented by Drs. Truby King and Eric Pritchard, has now a large and increasing following, and I must say that it appeals to me as a very reasonable method, which is probably suitable for the majority of cases which are artificially fed.

According to Dr. Eric Pritchard in "Physiological Feeding of Infants and Children," the physiological laws governing artificial feeding are as follows:—

- (1) The energy value of the food consumed as measured in calories, must correspond with the total energy value of the output in work, heat, growth, etc.
- (2) The "Balance," or the relative proportions of the three main constituents of the diet namely, the proteins, the carbohydrates, and the fats—must conform to the physiological standard—in other words, to the standard of breast milk.
- (3) In addition to the three main constituents, there are certain essential accessory factors in a physiological diet which must not be omitted. These include salts, vitamins, extractives, lecithin, cholesterolin, etc.
- (4) The food must not only be adjusted to the existing digestive capacity, but it must also be of such a nature as to promote exfoliation of the still undeveloped digestive functions.
- (5) The times and details of feeding must be so arranged as to fit in with the general physiological requirements.

There are the five postulates of Dr. Eric Pritchard, and the most salient features of them are the insistence on "balance," and the importance which he attaches to accessory factors, by which are meant salts, vitamins, extractives, lecithin, cholesterolin, etc.

With regard to balance, Dr. Pritchard insists that the correct physiological balance is 1.5 per cent. protein, 3.5 per cent. of fat, and 7 per cent. of sugar, or the same proportions of those constituents as are found in human milk.

With regard to accessory factors, he is of opinion that cows' milk does not contain the same proportions of these bodies as human milk, if indeed it contains them at all. He therefore recommends that these be supplied to the infant fed on cows' milk in the form of bone and vegetable broth, for which he gives an excellent recipe in

his book. Four ounces of this broth should be added to the feeds of 24 hours. He considers that as a general rule dried milk should not be reconstituted by merely adding water, any more than cows' milk should be given merely diluted with water, but that dried milk, like cows' milk, should be so modified as to give a resultant fluid which is similar in balance to that of human milk.

Citrated whole milk is stated to throw too great a strain on the kidneys and also to produce a hypertrophied stomach owing to increased work thrown on the stomach for the digestion of milk proteid. Another objection to the prolonged use of sodium citrate is that it has been known to produce oedema. A review of Dr. Pritchard's "Physiological Feeding of Infants and Children" appeared in the "Medical Officer," November 11th, 1922, in which the question was asked, "Where are mothers to obtain the 33 per cent. fat cream?" (which it is proposed to add to the milk mixture in order to enrich the fat content). The answer is that this is now on the market in the form of a preparation known as "Vitoleum Cream" (33 per cent. fat), which may be obtained from St. Marylebone Preparations, Limited, 2, Barlow Street, High Street, London, W.1. This is a synthetic cream which has the advantage over natural cream that it is germ free. It is said to have all the properties of the butter fat of human milk.

The natural cream of cow's milk is a dangerous fluid to use in infant feeding, owing to its high bacterial content, so that the synthetic product will no doubt be welcomed by medical officers of Infant Welfare Centres. The safe modification of dried milk and also of cow's milk is greatly facilitated by the existence of this new preparation, and also by the fact that a good whey powder known as "Secwa" is now produced by the Trufood Company.

Excellent formulæ for modifying cow's milk will be found in Dr. Truby King's "Feeding and Care of the Infant," and also in Dr. Pritchard's new edition of "Physiological Feeding of Infants." In some methods the additional fat is obtained by using top milk suitably diluted and modified, and in others by adding cream.

If it is desired to employ the top-milk method the apparatus known as Maw's Humaniser (price 5s.) is very useful for making small quantities in a private house. This is an apparatus in which milk is allowed to stand for several hours to allow the formation of layer of top milk. The lower half is then removed by pressure applied by means of an indiarubber ball and the top milk remains in the bottle.

When dealing with intelligent mothers at an Infant Welfare Centre it is useful to be able to supply them with typed directions for making humanised milk from cow's milk and also from dried milk. I therefore keep copies of these directions at the Centre, also the formula for making bone and vegetable soup. One has to realise, however, that a large proportion of mothers are not sufficiently intelligent to carry out such instructions, and that in addition, in many cases, their dwellings have no proper storage accommodation for cow's milk.

In theory, one wishes to prescribe something better than dried milk reconstituted with water, but in the case of a family living in one room under present conditions of overcrowding how is this possible? In such cases if breast-feeding fails, the tin of "Glaxo" appears to be the readiest and the safest substitute. I believe this preparation contains the correct amount of sugar, and that the "balance" can be suitably modified by the addition of cream (say a synthetic cream like "Vitroleum" Cream) and dilution with water.

This is in case you wish to obtain the correct "balance." In practice, however, it is well-known that the majority of infants thrive exceedingly well if the mother merely follows the directions on the tin! If there is any error in these directions it is usually in the direction of prescribing too large quantities, and this should be borne in mind if the infant is delicate. The half-cream variety of dried milk, as already mentioned, is excellent in cases where the infant is suffering from fat indigestion. In all cases where milk is modified by the addition of cream the tendency to fat indigestion must be kept in mind. In modifying cow's milk it is necessary to have an analysis to ascertain the percentage of milk fat, otherwise an excessive amount of fat may be given to the infant. This is particularly the case with Jersey milk which may contain 6 or 7 per cent. of milk fat, or double the usual amount contained by ordinary milk.

"Certified" and "Grade A" milk are also liable to run to a high percentage of fat, and should therefore be used with caution and only after having obtained an analysis for the percentage of fat. It is desirable that the production of "Certified" and "Grade A" milks should be encouraged in connection with infant feeding, when such a supply is available. If it is not available the Medical Officer of Health may sometimes be able to persuade a local cowkeeper to pro-

It is a great advantage for any district to have a supply of clean milk free from tubercle, which can be used *raw* for infant feeding. The question of raw milk v. pasteurised or boiled milk seems to be a very debatable question in some quarters. In my own opinion one should take no risk of giving infants glandular or abdominal tuberculosis through the milk supply. Further, I would not suggest to the average mother the idea of pasteurising cow's milk unless he is fairly intelligent. It is much safer to recommend boiling.

With regard to our public milk supplies I believe we are rapidly approaching the time when nearly all our milk dealers will resort to pasteurisation. Unless a supply is good enough to be graded it is only right that the public should be protected by pasteurisation. As a matter of personal taste I do not like pasteurised milk, but from a health point of view, as compared with dirty milk, which has recently been described as an "emulsion of cow dung," I consider that the pasteurised variety is preferable to the unsavoury emulsion in its crude state, being, in fact, the lesser of the two evils.

I wish it could be ensured that all milk could be brought to "Grade A" standard, or better still to "Certified" standard, but at the present time this standard is much too utopian for all milk supplies.

I have said little on the subject of dried milk, chiefly because its uses and properties are very well known. The number of firms manufacturing this product appears to be on the increase. Formerly "Glaxo" and "Cow-and-Gate" almost monopolised the field, but recently "Ambrosia" has entered into competition, and in addition Lever Bros. have put on the market "Trufood." The last named differs from the others in the fact that it is spray dried at a lower temperature than the first three mentioned, which are cylinder dried. It therefore approximates more nearly to the condition of natural milk, from which fact it derives both its advantages and drawbacks.

To take the drawbacks first, "Trufood" or "Trumilk," as it is variously called, does not keep so well as the other dried milk, and the curd which it forms in the stomach is less digestible, being less flocculent and less finely divided than that produced from the cylinder-dried milk. This is merely because its curd more nearly resembles that of natural milk. The advantages of the spray dried milk are, that when reconstituted, the cream separates like that of ordinary milk, and not as a layer of butter fat as in the case of "Glaxo." The makers of "Trufood" also state that it has the advantage of containing lactic acid bacilli

which are a preventive of putrefactive changes in intestinal digestion.

Owing to lower temperature at which "Trumilk" is dried these are not destroyed in the process. Their presence, however, is a disadvantage in one way as it interferes with the keeping properties of the milk powder. It is worthy of note that the same firm who make "Trumilk" are also the manufacturers of "Secwa" (dried whey powder), and a humanised dried milk. Much has been said against the use of dried milk in infant feeding. At one time it was stated to cause Rickets and Scurvy, but this has been disproved by experience.

It appears that the prescribing of orange juice with dried milk is not necessary as an anti-scorbutic, but there may be other physiological advantages in the administration of the citrates contained in fresh fruit juice.

Doubtless much of the opposition to the use of dried milk is due to prejudice, as there seems little difference between using dried milk and boiled milk, from the chemical and physiological point of view. The opponents of dried milk feeding sometimes tell you that they can always "spot" a baby fed on dried milk from its fat appearance and unwholesome complexion, but I have seen numerous cases in which this is not borne out. It may be that the infant fed on dried milk tends to run to fat, and for this I suspect that the directions on the tin are largely responsible. I have noticed that they never err on the side of under-feeding.

I am not here, however, to advocate the claims of dried milk, but merely to judge it in a fair and impartial spirit. To give it its due, I must say that I consider the use of it has been largely instrumental in reducing infant mortality by preventing diarrhoea in the summer and autumn months, and that the majority of infants do quite well on it. I do not feel that mere mixtures of cow's milk and water are in any way superior to the dried milk method. I consider, in fact, that a dried humanised milk powder ought to give better results than cow's milk diluted, but I have not as yet had much experience of the use of such a dried milk.

I am inclined to think that the best results will be obtained with a raw milk of "Grade A" quality, modified to the same composition as human milk, and fortified with extractives, salts, cholesterin, lecithin, etc., by the addition of bone and vegetable broth, as suggested by Dr. Eric Pritchard. I have had but limited experience of this method, but what results I have obtained so far have been very good.

I feel very doubtful of the wisdom of giving much starchy food at a comparatively early age, say, six or seven months. As soon as the teeth appear, which they often do at this age, it is advisable to give some hard food so that the infant may practice masticatory exercises, but I consider that the hard crusts or rusks which are then used should be given more for this purpose than as an education of the starch digestive function.

Finally I would say that no one method of infant feeding should be exalted above all others as *the* one and only satisfactory system. It will be usually found in practice that the method must be made to suit the requirements of the particular infant under consideration.

I do not mean by this that every unfortunate infant should be subjected to a series of experiments to ascertain which variety of feeding is best adapted to its needs. I am well aware that this is a very common practice, but it is to be strongly condemned. The infant's food should be changed as little as possible. I merely mean that there is no uniform standard system of feeding which is suitable for all cases, with the exception, of course, of breast feeding, but even breast feeding, it seems, sometimes has its drawbacks, as under some circumstances breast milk becomes toxic.

It is, however, only by the practice of various methods of feeding that actual knowledge will be gained, but this practice should be on the most careful and scientific lines.

EXPERIENCES WITH COLLOSOL CALCIUM IN THE TREATMENT OF TUBERCULOSIS.

BY

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It is with some diffidence that I have selected Collosol Calcium for a subject of discussion. My experience of the drug is by no means vast, and I hope this afternoon to obtain some information from those who have greater resources at their command than I have.

On January 14th, 1922, Prest published a paper in the B.M.J. in which he stated that he had observed definite improvement in a case of tuberculous glands with discharging sinuses, the sinuses ceasing to discharge in a very short time. He further claimed that Hæmoptysis ceased in some cases, temperature became normal in one case, sputum dried up in two cases and became markedly less in others, night sweats ceased in some cases, breathlessness was improved, and in many cases there was a markedly

improved feeling of general well-being. It was admitted that the number of cases treated was small, and that only immediate results were given, this method of treatment having been in use since the previous July only. It was further admitted that it was difficult to justly ascribe cause and effect.

Shortly after that paper was published I commenced using the Colloid of Calcium in the Sanatorium of which I have charge, and in this paper I would give you the results of my experiences with the drug during the past twelve months. My cases are limited in number, but have not been chosen in any way—practically every case that I have had in the sanatorium during the past twelve months having been treated.

Collosol Calcium is a milky fluid, which according to the makers contains 0.85 per cent. of Calcium Oleate, protected by glutaminic acid, the salt being dispersed in the fluid medium in the form of innumerable ultra-microscopic particles which are capable of passing through the finest of filters. How the drug really acts, I am not sufficient of a bio-chemist to explain, but that its administration is followed by systemic disturbance in some cases, is, I think, without question. I have observed not only local reactions, such as pain, redness and swelling at the site of injection in some cases, but also focal disturbances such as increased cough and sputum, rise of temperature, and in at least two cases, Tubercle Bacilli have been found in the sputum where previous examinations had been negative. Headaches and gastric disturbances have also been complained of.

For the purposes of this paper I have divided my cases into groups:—

I. Children.

II. Adults.

(a) Early Cases.

(b) Chronic Intermediate Cases.

(c) Febrile Cases.

And in addition, a group of 3 cases where, in addition to the lungs, other parts were involved.

I. *In Children.*—Here, I think, I have obtained my most favourable results. Some children have done particularly well, and seemed to put on weight more rapidly after the course of Collosol Calcium was commenced. It is extremely difficult, I know, to ascribe fairly how much of this marked improvement is due to the general hygienic measures of sanatorium life, but I do believe that Collosol Calcium has a very definite value in children. In this series there are

16 children, ages ranging from 6 to 14 years. Two of these had rather advanced bilateral disease—one girl of 11 had a cavity at the L. Upper Lobe, with creps and rales throughout the rest of the lung and involvement of the Right Apex; the other, a girl of 13, had crepitations throughout both lungs. Both had positive sputa. Von Pirquet was marked in both cases, persisting in one case for 4 days, in the other for 2 days. In both cases 16 injections were given, commencing with 0.1 c.c. and going on to 0.9 c.c. Local reactions were very marked in both cases after a dose of 0.7 c.c. was reached, and this dose was repeated several times at weekly intervals. No reaction was noted after the final dose of 0.9 c.c. was given. The child of 13 put on 15 lbs. in weight in five months, but seven months later had lost 10 lbs. in weight; the other only gained 4 lbs. in weight, but seven months later still maintained her gain.

Sputum ceased in both cases altogether, and physical signs in the chest were much improved. These two represent my most unfavourable results in children; both children did very much better than I had anticipated, and although neither is very robust at the moment, the after-history is, I believe, better than it would have been had they not had Collosol Calcium.

The other 14 cases in children, whose ages ranged from 6 to 14, had all more or less definite physical signs and symptoms, such as evening rise of temperature, impaired resonance, altered breath sounds, presence of moist sounds, and general lassitude. The sputum, if present, was negative. Von Pirquet was positive in all. Most came from homes where there was an open case of Tuberculosis, so I think the diagnosis of infection by Tubercle may be accepted. The number of injections varied from 8 to 23, the number entirely depending upon the duration of stay in the sanatorium, and the gain in weight varied from 5 to 19 lbs. Cases seen 3 to 6 months after treatment was completed have shown that the improvement has been maintained. As an example I give you one case, N.W., who gave a history of Influenza in 1918, had lost much weight after an attack of Bronchitis in 1921. Been under the doctor at various times with her "chest," appetite was poor, had slight cough, always tired, did not play with the other children. Thirteen years of age, she weighed 5-st. 8-lbs. on admission to the sanatorium. She was very much under-nourished, there was impairment of resonance at the right, expiration prolonged at both apices, and in the Left Axilla there

was an area of crepitations. Spinal whispering pectoriloquy was well marked, as also over both apices. During the first three weeks there was frequent evening rise of temperature to 99.6. In one month before being put on Collosol Calcium she gained 2½ lbs. in weight, thereafter she gained 2½ lbs., 6 lbs., 3 lbs., 4 lbs. in each succeeding month. The initial dose was 0.3 c.c. increased to 1 c.c., in all 11 injections. Six months after discharge her condition of good health was maintained and she has continued since to put on weight, having gained 7 lbs. since her discharge from the sanatorium. During that time she has had no treatment of any kind. This case, typical of many others, would show that the effect of the Calcium was a lasting one.

II. Adults.

(a) *Early Cases*, with little or no rise of temperature, physical signs limited to the apices or to one lobe. There were 23 cases in this group, 4 T.B. positive, 19 negative. The initial injection has varied from 0.3 c.c. to 0.5 c.c., the dose being increased at weekly intervals or occasionally at fortnightly intervals. The number of injections has varied from 6 to 15, and the increase in weight has varied from 6 to 24 lbs.

All the cases in this group did well whilst in the sanatorium, and with the exception of one, all have kept uniformly well up to the present time. The exception was a lad of 17 years, admitted with a lesion at the Left Upper Lobe, sputum positive. He had been in the sanatorium for some four months, and had done remarkably well, had gained 20 lbs. in weight and was about to be discharged—when one day his sputum was brightly stained. I had just received my first supply of Collosol Calcium, so I gave him an initial injection of 0.3 c.c. He had no further blood-spitting at any time whilst in the sanatorium. The doses were increased gradually at weekly intervals, ten injections being given in all. He then got tired of sanatorium life—he had been in for seven months. He had maintained his weight, although still having some positive sputum physical signs were very slight—no adventitious sounds being noted.

Three months after his discharge I again saw him. He had been working as a machine hand at one of the tube works—a rather laborious job. He had lost all the weight gained, and was obviously going down hill. Three months later he had abdominal complications.

I will content myself with saying that no lasting benefit appears to have been conferred on this particular individual from the Colloidal

Calcium, whether the fault was mine in giving too short a course, or not, I cannot say.

Of the other cases in this group, on discharge the three positive cases had no sputum at all. All did well, and have kept well up to the present. The history of the following case is also of interest. Z.H., a young, well-developed girl of 18, was admitted with a caseating lesion limited to the Right Upper Lobe. Sputum negative. She was put on Collosol Calcium. After her eighth injection (0.7 c.c.) she had a sharp hæmoptysis of 4 ounces, in a couple of days sputum was again clear. The dose was reduced to 0.4 c.c. and gradually increased. There was no further hæmoptysis, and on discharge from the sanatorium 12 weeks later, sputum had ceased and the gain in weight was one stone. There was little or no alteration in the physical signs in the lungs.

(b) *Chronic Cases* of the usual type, all of some years standing, showing only occasional rises of temperature, troublesome cough, sputum fairly abundant. There were 19 in this group, 7 T.B. positive, 12 negative.

With the exception of five cases (3 positive, 2 negative) all have done fairly well. The number of injections has varied from 8 to 21, depending upon the duration of stay in the sanatorium. My method, as before, has been to increase the dose slowly at weekly intervals, reducing the dose if a reaction was experienced, and after reaching 1 c.c. continuing at fortnightly intervals so long as the patient remained under my charge.

One patient, W. H., with positive sputum, crepitations noted over the whole of the Left Upper Lobe, and over the Right Upper Lobe, complained of pain over the Right Upper Lobe after his first injection, had slight staining after his fourth injection, and after his tenth injection (1 c.c.) had a hæmoptysis of 3 ounces. The dose was reduced to 0.7 c.c., and two days later there was again some staining, but subsequently none further. Physical signs showed little improvement on his discharge, he had lost 5 lbs. in weight. That was six months ago—he has had a very severe hæmoptysis since and is going down hill.

Three other cases (1 positive, 2 negative) have been apparently uninfluenced.

One, since fatal, was unfortunately, from domestic reasons, only able to stay in the sanatorium eight weeks, so that no fair trial could be made. The other 14 cases in this group, however, have undoubtedly benefited. Sputum has

become markedly less, physical signs have improved, and the patient's life has been made more comfortable. How much of this is due to sanatorium principles, and how much to Collosol Calcium, it is of course difficult to say.

(c) *Mixed Cases* comprise two with Laryngeal involvement, and one with extensive cervical glands. One of the Laryngeal cases (with positive sputum) did particularly well, the other (with negative sputum) appeared to suffer severe reactions after her injections, the throat becoming dry and painful. She was accordingly treated with Collosol Calcium by mouth, and she herself declares that she has benefited greatly thereby. The case with cervical glands has also done very well—the sputum, which was positive, is now quite dried up and the glands have improved considerably. This patient has suffered frequently from severe headaches after his injections, and severe local reactions.

(d) *Febrile Cases* were ten in number (6 positive, 4 negative); they were cases of acute illness or of advanced disease with febrile temperatures. I cannot say that these cases have been benefited in the slightest degree by the administration of Collosol Calcium, either by mouth or by subcutaneous injections. I have failed to influence the temperature in the least, and I am not prepared to say that night sweats were influenced either. G.W., a female, with abundant positive sputum, had been in the sanatorium for seven months, there was extensive disease in both lungs, and there had been several attacks of hæmoptysis. On April 18th, 1922, I commenced treatment with Collosol Calcium, the initial dose being 0.3 c.c., and in all 20 injections were given, spread over a period of four and a half months. After the fifth injection (0.5 c.c.) the temperature shot up to 103 degrees F., she complained of pains in her chest, the cough became more troublesome, and there was a slight hæmoptysis. The dose was reduced, but the temperature did not come down for six weeks. No higher dose than 0.6 c.c. was given at any time. The temperature remained fairly stationary for ten weeks, when it again shot up. The injections were discontinued; three weeks later the patient died. Did the injections of Collosol Calcium cause the exacerbation of temperature after the fifth injection, or did it arise in the natural course of the disease? I leave the question unanswered.

Of the remainder, all are dead with the exception of one, and he is gradually going down hill.

III.—*Glands*.—In addition to these cases treated in the sanatorium, I have treated six cases of Cervical Gland disease in children

attending the Dispensary—all appear to have done well, the glands have decreased in size, and so far, three to six months later, all have remained well.

To sum up, I have treated 72 cases in the sanatorium.

Children.—16 cases, 2 positive sputum, 14 negative.

All the negative cases have done well and kept well.

Adults.—56 cases.

23 Early cases, 4 positive, 19 negative sputa.

With the exception of one, all have done well.

19 Chronic cases. 7 positive, 12 negative.

14 Cases have done well.

10 Febrile cases: 6 positive, 4 negative. All have done badly.

3 Mixed cases: 2 positive, 1 negative. Two have done well, the other has shown little change.

A total of 21 positive and 51 negative, and from observations upon these I would draw the following conclusions:—

I.—In acute or advanced cases the administration of Collosol Calcium has, in my hands, been of no value.

II.—The occurrence or recurrence of hæmoptysis in patients undergoing a course of treatment is not prevented by its administration.

III.—Children appear to derive real benefit.

IV.—Adults with early disease and certain chronic cases also appear to benefit. In short the cases which respond best to the administration of Collosol Calcium, are those cases with good powers of resistance, the type of case that responds most readily to Sanatorium treatment.

V.—In glandular tuberculosis, Collosol Calcium is of real value.

I have given you details of some of my failures. They were cases which, had the drug been a specific, one might reasonably have expected, would have responded to its administration. It is on this point that I seek further enlightenment this afternoon.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.

COUNCIL MEETING.

A meeting of the Council was held at the house of the Society on Friday, May 11th, 1923. Dr. T. Eustace Hill (President) was in the chair, and there were present:—Professors H. R. Kenwood and H. Kerr, Drs. G. F. Buchan, Charles Porter, Horne,

Pearce, Rees-Jones, Joseph, Evans, Garstang, Snell, J. T. C. Nash, Peyton, Gibbons Ward, Stirk, Stocks, Jolly and Lyster.

The minutes of the last meeting having been approved and signed, messages of apology were received from Dr. A. B. McMaster, Dr. R. J. Ewart, Dr. R. Veitch Clark and Lt.-Col. Herbert Jones. The Executive Secretary was directed to convey the sympathy of the Council to Col. Jones on the accident which kept him in bed, and to wish him a speedy recovery.

Correspondence.—(1) From the Ministry of Health, suggesting that the Society's Scale of Salaries should be submitted to the Associations representative of Local Authorities, before its adoption by the British Medical Association. The Executive Secretary was directed to reply that this course of action had been jointly agreed by the Society and the B.M.A. (2) From the Ministry of Health stating that the request of the Society for the earlier issue of the Department's Circular as to M.O.H. Annual Reports had been noted and would be borne in mind when the revision of the current circular is undertaken. (3) From the Board of Education stating that in conformity with the request of the Society they would arrange to send copies of documents relating to the School Medical Service to the School Medical Officers "as well as to the chief officer representative of the Local Educative Authority." (4) From the British Medical Association, sending the draft of the letter addressed to the Associations representative of Local Authorities, explanatory of the Society's Scale of Salaries shortly to be considered by the A.R.M. of the Association. The draft was approved subject to minor amendments which had been suggested to the B.M.A., and the Executive Secretary was directed to inform the Association that the Society would urge the adoption of the Scale at the Portsmouth A.R.M. regardless of any negotiations that might be proceeding or pending with the bodies representing Local Authorities, as such adoption would in no way prejudice a successful issue of such negotiations.

Election of President.—The following were nominated for election as President of the Society for the session 1923-24:—By the Metropolitan, Northern, North-Western and Yorkshire Branches—Dr. T. W. Naylor Barlow, O.B.E.; by the Midland Branch—Dr. T. Ridley Bailey; by the Southern Branch—Dr. R. A. Lyster. Dr. Lyster having expressed his wish not to stand on the present occasion, a ballot was taken, Dr. Barlow receiving 15 votes and Dr. Ridley Bailey 10. It was agreed to nominate Dr. Barlow for election by the Society.

Election of Vice-Presidents.—The voting for Vice-Presidents for the session 1923-24 was as follows:—

Lt.-Col. F. E. Fremantle, O.B.E., M.P., 18; Dr. W. J. Howarth, C.B.E., 17; Dr. T. W. H. Garstang, 17; Lt.-Col. Herbert Jones, 16. The first three were declared elected.

Election of Treasurer and Editor.—Dr. G. F. Buchan and Dr. R. A. Lyster were re-elected Treasurer and Editor respectively for the session 1923-24.

Revision of Articles of Association.—Professor Kenwood, chairman of the committee appointed to revise the Society's Articles of Association, reported that the draft revision as published with the April issue of "Public Health" had been referred to all the Branches and Groups of the Society. Certain minor amendments had been suggested to the Committee and adopted by them. After a prolonged discussion the Council adopted further amendments and approved the final revision for circulation to all members of the Society with the formal notice of the requisite Statutory Meetings.

The late Sir Shirley Murphy.—On the motion of the President, the Executive Secretary was directed to convey to Lady Murphy the sincere sympathy of the Society on the death of her husband, thrice President of the Society and for several years Editor of "Public Health." The resolution was adopted in silence, the members upstanding.

Owing to the late hour, consideration of reports from the Maternity and Child Welfare Group was deferred until the next meeting of the Council.

The Council then adjourned.

METROPOLITAN BRANCH.

A meeting of this Branch took place at the Society's House in London, on Friday, 4th May, 1923, the President (Sir William H. Hamer) occupying the chair. Nineteen other members were present.

News of the death of Sir Shirley Forster Murphy, K.B.E., late M.O.H., London County Council, was received with great regret, and many members paid tribute to his work in the Public Health Service. Many references were made to the assistance he had rendered to the Society and the Metropolitan Branch in particular, with which he had been intimately associated for so many years. Directions were given for the sincere sympathy of the Branch to be conveyed to Lady Murphy.

Dr. T. W. N. Barlow, O.B.E., M.O.H., Wallasey, was nominated for the Presidency of the Society for the Session 1923-1924.

Dr. W. J. Howarth and Dr. Charles Porter tendered their resignations as representatives of the Society on the Panel Committee for the

County of London, and these being accepted with regret, Dr. E. G. Annis and Dr. G. Clark Trotter were nominated for the vacancies.

Dr. T. Shadick Higgins tendered his resignation as Hon. Treasurer of the Branch, and Dr. James Fenton was appointed to the office. The Branch took the opportunity of heartily congratulating Dr. Higgins on his appointment as M.O.H., of Capetown, and of offering their thanks for his services to the Branch for many years past.

The Draft Articles of Association were considered, and it was noted that the former practice of creating the Hon. Secretary of a Branch *ex officio* a representative on the Council of the Society was to be departed from. This was regarded by the Branch as a retrograde step, for reason that it deprived the Council of the services of a member well versed not only in the policy of the individual branch but of the Council itself. It was resolved to convey to the Executive Secretary the view of the Branch that para. 19 (b) should be amended so as to provide that Hon. Secretaries of Branches should be *ex officio* members of the Council.

A request from the Council of the Society to submit any recommendations the Branch might wish to make regarding the lines upon which a suggested Public Health Acts Amendment Bill should be drafted received full consideration. In the view of the Branch what was required at the moment was not an Act to amend the Public Health Act in one or more particulars, but a codification and consolidation of all existing health measures, and it was decided to inform the Council accordingly.

At the suggestion of Dr. A. W. J. MacFadden, C.B., of the Ministry of Health, the discussion of the Orders, etc., with regard to the grading of milk was again postponed.

Attention having been directed to the necessity for the bringing into operation at an early date of bye-laws dealing with houses let in lodgings, either on the lines of the draft byelaws of the London County Council or alternatively other byelaws containing more or less similar provisions as to registration but calling for less alterations of a structural character, it was decided that a communication drawing attention to these points should be sent to the London County Council.

Several matters in connection with the Tuberculosis Service received attention, and the following decisions were arrived at: (1) That in future all communications from the County Council on

tuberculosis and dispensary matters will be sent to the M.O.H. to whom it will be left to see that each is dealt with by the appropriate officer. (2) That in regard to the question as to whether or not some system of temporary or probationary appointments should be devised in regard to tuberculosis officers, such an arrangement could not be regarded as satisfactory, and instructions were given for the M.O.H. of the London County Council to be so informed. (3) That it would undoubtedly assist the work in connection with the prevention and treatment of tuberculosis if the Tuberculosis Officer could be appointed as consultant to the local poor law infirmary, but that if he were so appointed reasonable payment for the additional service should be made. It was left to each M.O.H. to take such steps as appeared appropriate with a view to having the arrangement put into operation in his own borough.

The Report of the Royal Commission on London Government was received, and Dr. A. Middleton Hewat promised to read before the Branch during the autumn of the present year a critical paper on the subject.

YORKSHIRE BRANCH.

A meeting of the Branch was held in Leeds at the City Education Offices, on Friday, 27th April, at 2.30 p.m.

Council Meeting.—Previous to the General Meeting a Council Meeting was held.

Nomination of President.—It was decided to recommend that Dr. Mitchell Wilson be nominated, and should he not consent to nomination that the North-Western Branches nominee, Dr. Barlow, of Wallasey, be supported.

Nomination of Branch President.—Recommended that Lt.-Col. Wear be offered the Presidential Chair.

Letter from the Executive Secretary, asking for suggestions for an Amending Public Health Act Bill to be sent to the Central Branch.

Recommended that the matter be placed on the Agenda for the next meeting and that the matter be considered in detail at the meeting in June.

Recommended that the next meeting of the Branch be held in York when Dr. Newsholme will read a paper on "Dietetics in Preventive Medicine."

Recommended that the Hon. Secretary be instructed to communicate with Dr. Eustace Hill inquiring whether the Annual Meeting of the Society is to be held in Hull during the R.S.I. Congress.

Recommended that the question of holding a meeting of the Branch in Hull during the Royal Sanitary Congress be left to the consideration of the President and the Hon. Secretary.

The General Meeting of the Branch was held at 2.30 p.m., when there were present twelve members, Drs. Gibson, Thornley, McNaught, Jervis, Mair, Holden, Williams, Pick, Lawrence, Jennings, Fernandez, Francis.

The recommendations of the Council with reference to the several matters dealt with were laid before the meeting and unanimously adopted.

The President then spoke on the new Articles of Association, copies of which had been received from the Executive Secretary, and these were formally approved.

Dr. Banks made some observations relative to Section 19 of the Articles, and the Hon. Secretary was instructed to communicate with the Executive Secretary on the point.

Dr. Moore then spoke on the necessity for all members of the Branch faithfully observing the decisions of the Society with reference to the terms of appointments in the Service, and also pointing out the extreme desirability of members obtaining the support of the professional faculty and the B.M.A. in any difficulties which might arise with their Sanitary Authorities.

Dr. Mair drew the attention of the meeting to the recent advertisements appearing in the Medical press of vacancies at Lowestoft and Lytham.

The Hon. Secretary promised to write the Executive Secretary on the matter.

The Hon. Secretary then apologized for the absence of Dr. Wynne, of Sheffield, who through entirely unforeseen circumstances was prevented from attending and reading his paper.

In Dr. Wynne's absence the Hon. Secretary read the paper on "The Utilization of Voluntary Organizations by the Public Health Department."

The paper was much appreciated by the members and a brisk and useful discussion followed.

The Hon. Secretary was instructed to write to Dr. Wynne and thank him for the paper and express the hope that he may be able to attend the meetings of the Branch.

The President, Dr. Buck, very kindly entertained the members to tea.

MATERNITY AND CHILD WELFARE GROUP.

A meeting of the Metropolitan and Home Counties Branch of the Maternity and Child Wel-

fare Group was held at 1, Upper Montague Street, London, on December 12th, 1922. Dr. Harold Waller took the chair.

Dr. Eardley Holland (Assistant Surgeon to the London Hospital) gave an address on "The Danger of Breech Presentations to Foetal Life."

He began by saying that the position of the foetus often changed in the last months of pregnancy, and that it did not become stable until the last two or three weeks. It was difficult, therefore, to get exact statistics as to the frequency of breech presentations from the case-sheets of ante-natal clinics. The statistics also from Hospital cases were also somewhat misleading as to the frequency of primary uncomplicated breech presentations amongst the in-patient cases in the maternity wards, because they generally included cases complicated by conditions like contracted pelvis or placenta praevia and also secondary breech presentations (*i.e.* breech by version).

Generally speaking about 3 or 4 per cent. of all deliveries were uncomplicated breech presentations.

Mortality rate of uncomplicated breech presentations.—This was somewhat difficult to estimate correctly because it differed so in primiparae and multiparae. Then again the rate varied according to whether the labour was conducted by a midwife or a doctor or an obstetric specialist. Consequently, there was a good deal of difference of opinion amongst experts on this point. But on the whole they seem to agree that the foetal mortality in the case of primiparae is about 12 per cent., and in the case of multiparae about 8 per cent. This would give an average of 10 per cent. Taking these figures as a basis for calculation, Mr. Holland estimated that there are about 3,000 foetal deaths per annum in England and Wales, arising from uncomplicated breech presentations, or, in other words, these cases account for about 10 per cent. of all stillbirths.

The speaker had collected statistics of 300 cases of still births, and amongst these there were 16 cases of uncomplicated breech presentations. In this series therefore only 5 per cent. of the cases could be considered as due to this cause.

Cause of foetal death in uncomplicated breech presentation.—As students we were taught that the death of the foetus in these cases was caused by (1) compression of the cord between the after-coming head and the brim of the pelvis, (2) premature separation of the placenta, (3) reflex stimulation of respiratory movements by the cold air acting on the skin of the trunk of the child, before the head is born. The speaker said that his research work on this subject has led him to

disregard these factors as causes of the death of the child.

He then explained his theory that undue stress on the membranes surrounding the brain, owing to the rapid delivery of an imperfectly-moulded head, frequently caused cerebral haemorrhage, and thus still birth.

He said that in 80 per cent. of the cases of still births following breech presentations, he had found cerebral haemorrhage on opening the child's skull, caused by a tear of the tentorium cerebri. Mr. Holland then showed a series of lantern slides to illustrate such cases. He showed us from these how the foetal brain is enclosed in a septal system of stays, viz. : the falx cerebri and the tentorium. Throughout these membranes, are strengthening bands of fibres which are placed just where they can best resist the strain caused by the moulding of the plastic skull at birth, both in vertex and breech presentations. These strong membranes have very few blood vessels in them and protect the brain most efficiently during moulding of the head.

But in this series of still births arising in uncomplicated breech cases, the lantern slides showed how even these strong membranes had given way under the strain of the tremendous pressure exerted on the after coming head in a hurried delivery of the head. The tear had not only involved the membranes, but had involved the venous sinuses causing cerebral haemorrhage and the death of the child.

Prevention of foetal mortality in uncomplicated breech cases.—The trunk of the foetus causes only moderate dilation of the vagina and perineum when it is delivered. Consequently the after-coming head has no chance of moulding itself slowly and adapting its size to the imperfectly dilated maternal passages. Thus the pressure put in it is enormous when it is dragged through in a great hurry, by the midwife or the doctor, as the case may be, Mr. Holland therefore strongly advises that the delivery of the after-coming head should *not* be hurried, but that it should be allowed time to mould. In his experience this could perfectly well be done. He considered that the old idea was quite fallacious that an interval of ten minutes between the birth of the breech and the birth of the head was fatal to the child, because of prolonged cord compression. He referred in this connection to the prolonged apnoea which often occurs in the newly-born in "twilight sleep" cases, and said that the condition passes off after a time if the child is left alone quietly.

On this analogy, therefore, and from his own

experience he strongly advises all medical practitioners and midwives not to hurry up the after-coming head but leave it to mould, for ten minutes if necessary, and then to deliver. In cases where the head is very big, he performs lateral perineotomy. He considers that *no* foetus ought to die in an uncomplicated breech case.

Prevention of breech presentations.—Mr. Holland then said that breech presentations should be rectified in the last two or three weeks of pregnancy and external version performed. An anaesthetic is sometimes necessary in these cases. He does not think that it is of much use to correct the presentation before the 37th or 38th week, as it is so apt to recur again after version in the earlier weeks, whilst the position of the foetus is still so unstable.

A discussion then followed on this subject, in which several members took part. Mr. Holland briefly replied, and the Chairman then proposed a vote of thanks to him for giving us such an interesting address.

DR. A. SCARLYN WILSON, who recently resigned his appointment as medical officer of health for the borough of Hastings after twenty-three years' service, was not allowed to retire without a very cordial expression of thanks from the town council. When it was decided to make the post a whole-time appointment, Dr. Wilson was asked to continue in office, but this invitation he felt unable to accept. The town council therefore appointed him consulting medical officer of health for a period of twelve months at a salary of £400, to show their appreciation of his long and devoted service.

PORT HEALTH OFFICER REQUIRED.

The Government of Bengal require the services of a Port Health Officer (European) for Calcutta. Pay not less than Rs. 1,200 per mensem, rising to Rs. 1,600 per mensem, with initial pay according to age and qualifications. Free passage to India. Must be fully qualified medical officer and possess Diploma in Public Health. Port Health experience essential.

Further particulars may be obtained from the Secretary to the High Commissioner for India, 42, Grosvenor Gardens, London, S.W.1, to whom detailed applications should be addressed not later than Saturday, June 9th, 1923.

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Editorial.

APPOINTMENTS TO AVOID.

In the May issue of "Public Health" we commented upon the flagrant attempt at sweating the profession which was being made by the County Council of the North Riding of Yorkshire, and we expressed the opinion that no candidate of any standing in the Public Health Service, or possessing such qualifications and experience as would render him really eligible for such a position, would be likely to offer himself for the North Riding appointment on the terms offered. We repeat this opinion and we venture to express the belief and hope that any man who has, in ignorance, made an application for this post will, when it is realised that the acceptance of such an inadequate salary is doing an injury to the whole Public Health Service, and to efficient co-operation within the Public Health Service, will at once withdraw his application. Similar remarks apply to the appointment advertised by the Borough of Hartlepool.

All members of the Service are advised to study the "Important Notices" which appear each week in the "British Medical Journal," and no application should be made for any post appearing in this list without first inquiring either of the British Medical Association or the Society of Medical Officers of Health, or both. Two adjoining areas in Kent are endeavouring to obtain medical officers of health under conditions which are unfair to the Service and against which the Service has determinedly offered opposition for many years. The Ministry of Health have also from time to time expressed disinclination to approve these conditions, but, for some mysterious reason, the Ministry does not absolutely forbid appointments to be made containing such conditions. These two districts (the South-west Kent Sanitary District and the Combined Bromley, Seven Oaks, etc., Districts) are offering a gross salary to include travelling expenses, clerical assistance, and office accommodation. This is an antiquated system of disguising the underpayment of an officer, and we trust that in the near future the Ministry of Health

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will recognise the importance of putting an absolute veto upon it. In the meantime the Public Health Service must try to work out its own salvation by abstaining from applying for appointments under Councils which persist in using these obsolete conditions.

South Shields and Plymouth both appear to be endeavouring to acquire a reputation which will effectually prevent any self-respecting medical officer making any application for appointments in those Boroughs. Both have figured in previous controversies with regard to salaries of medical officers. Recently, the Medical Officer of Health of South Shields, seeing no prospect of reasonable advancement, resigned in order to enter private practice, and the Town Council are now endeavouring to obtain a successor, and are offering a salary of £750 for a post which, under the scale, should be worth £1,100. We have no doubt that if they succeed in obtaining an applicant they will realise before long that the amount they are paying him is excessive for the services he is able to give.

The Metropolitan Borough of St. Pancras, after allowing an able Medical Officer of Health to be attracted away from the Borough by a much higher salary, is endeavouring to obtain a successor for £1,000 a year to do work which, according to the salary scale, should be paid for at the rate of £1,400. St. Pancras also is one of those boroughs which are establishing unenviable notoriety in this respect, and we wonder whether the members of the general public in those areas are aware of what this really means in connection with their public health future.

The present occasion is one of trial and difficulty in connection with the salary scale, but there is only one course clearly indicated, and that is for every member of the Public Health Service to stand loyally by the M.O.H. Society. By loyalty at the present time the future of the Public Health Service can be assured, and we believe that our members will stand the test successfully.

THE SALARIES SCALE AND THE B.M.A.

Encouraging reports are coming to hand from medical officers all over the country as to the results of the meetings of the Divisions of the British Medical Association at which the salaries scale was discussed, and when instructions were given the representatives on that vital subject. It is to be hoped that in many instances the opportunity was taken to get recorded on the minutes of the meeting definite and unequivocal instructions to the representatives. Such an ideal resolution was unanimously passed by the meeting of the Winchester Division of the British Medical Association, and it was to the

effect, "That it be an instruction to the Representative of the Winchester Division to support in every possible way the recommendations of the Council concerning the salaries scale of medical officers of health, and the proposed new inter-relationships between the M.O.H. Society and the B.M.A."

HEALTH WEEK AND BABY WEEK.

National Baby Week was first held in 1917, when an intensive propaganda campaign was concentrated into one week—the first week in July—both in London and in the Provinces. That first venture was sufficiently successful to justify a continuation of such propaganda, and therefore the National Baby Week Council became a permanent Institution. Year by year National Baby Week has been held, but gradually the tendency has evinced itself to hold local Baby Weeks at some other date different from the national celebrations, one reason for which being that local workers often desire to attend the National Conferences which are a feature of the London activity, and for a second reason that the first week in July earmarked by the National Baby Week Council for its own, has not always proved to be the most convenient week for provincial activities to take place. The result of this gradual severance is seen from the records of the National Baby Week Council, which show that during last year in nearly every month of the year some local Baby Weeks were held.

Since the celebration of Health Week was resumed after being interrupted by the War, as would more or less have been expected, there has been a tendency to combine propaganda in the interests of health with propaganda in the interests of maternity and child welfare. It is a very natural tendency, and is all to the good. The Health Week Committee and the National Baby Week Council, who always work in close co-operation and are anxious to promote still closer co-operation, have recently issued a joint memorandum on the subject, in which they advise the combination of Health Week with Baby Week. Copies of this memorandum may be had on application to the Secretary of Health Week Committee, 90, Buckingham Palace Road, London, S.W. 1, or the Secretary, National Baby Week Council, 117, Piccadilly, London, W. 1.

SUBJECTS FOR BABY WEEK.

It is customary for the National Baby Week Council, in giving advice in connection with the organisation of local Baby Weeks, to direct special attention to special aspects of the child welfare problem each year. For the present year's campaign it has selected in this way the following subjects:—

1. A children's charter of rights. Owing to the fact that two Children's Charters have been issued during the last year—one by the International Council of Women, and the other by the Save the Children Fund, the National Baby Week Council feels that such a subject could very valuably be discussed and ventilated at the present time, and it therefore advises those who are interested in this question to secure copies of both these charters, and make them the subject of careful deliberation.

2. The relief of the expectant and nursing mother from the necessity of industrial work. This subject is raised on the well-known Maternity Resolution of the Washington Convention of the International Labour Office of the League of Nations, 1919, and the resolution reads as follows:

A woman employed in industry shall, for six weeks before and six weeks after confinement, be set free from work, be paid benefits sufficient for the full and healthy maintenance of herself and her child, and be entitled to free attendance of a doctor or certified midwife, and in cases where she is nursing her child, shall on resuming work be allowed half an hour twice a day during her working hours for this purpose.

The Secretary of National Baby Week Council, 117, Piccadilly, London, W. 1, would be glad to supply copies.

3. The psychology of babyhood.

4. Housing and infant welfare.

5. The work of Jenner on vaccination and its relation to infant life.

6. The fly danger and infant life. It is of interest to note that an excellent film on the fly danger may be obtained from the Regent Film Co., at specially privileged terms through the National Baby Week Council. This film is being well taken up.

Medical Officers of Health should know that expenditure by local authorities in connection with Baby Week celebrations is eligible for maternity and child welfare grant from the Ministry of Health in respect of expenditure incurred in connection with printing, advertising, stationery and postage, literature and exhibitions, demonstrations (thrift, cookery and laundry work), lecturers' fees, hire of hall and film. Certain expenses, as for example those in connection with refreshments, prizes, certificates, judges for Baby Shows and so forth are not included in the category of those activities eligible for grant.

CLEAN MILK.

A Memorandum has just been issued by the National Clean Milk Society concerning the Milk (Special Designations) Order, 1923, which *inter alia* defines the following grades: "Certified," "Grade A (Tuberculin Tested)," "Grade A," and "Pasteurised." The real object of the Memorandum is to call special attention to the problem of pasteurised milk, but there is one paragraph in it that deserves special comment. It says, "There has been little or no opposition to the principle of classification as it has been admitted that through the educational force created it is the best means of raising the hygienic quality of the entire milk supply as well of providing higher grades of milk which had not existed previously in this country."

This statement is not correct. There is a great deal of opposition on the part of experienced administrative medical officers and also other administrative officers concerned with the protection of the food supply of the public. The classification of milk with no minimum standard below which its sale is prohibited is not likely to have any immediate appreciable effect upon the great bulk of milk produced in this country. A few producers will produce the best kind of milk and will get high prices for it. Those who have been producing such high-class milk in the past will now get large additional profits, but those who have been purchasing such high-grade milk in the past at a reasonable price will now have to pay considerably enhanced prices. People who have not the means to pay these high prices will, in all probability, have an even lower grade of milk than has been sold in the past because the higher grades are now being sold as separate commodities. Classification, in other words, has merely added a new terror and handicap to poverty, and the poor are likely to come off badly under this new legislation which, it is alleged, has been passed on their behalf.

No satisfactory solution of the milk problem is possible unless legislation starts at the bottom and makes it illegal to sell milk below certain minimum standards bacteriologically and chemically.

THE NEW D.P.H. REGULATIONS.

At the meeting of the General Medical Council held on June 1st, the cause of the Public Health Service was successfully championed by Sir George Newman. The occasion was when the opposition on the part of the Royal Colleges of Physicians and Surgeons was introduced to the General Medical Council by Sir Humphrey Rolleston, President of the Royal College of Physicians, and a member of the Council. The suggestion of the Colleges was that the curriculum, which has just been increased to two years, should remain as at present, i.e., one year. Another suggestion was that an officer of the R.A.M.C. should be allowed to obtain the practical instruction, required to be taken prior to examination, under a sanitary staff officer and not necessarily under a medical officer of health, while a further proposal was to the effect that candidates who could show that they intended practising in the Colonies or elsewhere abroad, should be allowed to enter for the final examination after a shorter period than the prescribed two years. For all these proposals very little support was forthcoming, and they were negated by large majorities. This result was largely due to the very successful opposition of Sir George Newman.

SALARIES AT LEEDS.

For some time the position with regard to the salary of the M.O.H., Leeds, has been the source of grave dissatisfaction and some danger to the Public Health Service. As in many other posts originally accepted at totally inadequate salaries, there have been very great difficulties in securing improvement, and the example set by Leeds in grossly underpaying its medical officer of health has been an extremely bad one for all local authorities who have had to appoint a medical officer of health during the past few years. It is, therefore, with considerable satisfaction that we are able to announce an improvement. Owing to prolonged negotiations in which the Yorkshire Branch of the M.O.H. Society and the Local Division of the B.M.A. have been engaged, the City Council have now raised the salary from £925 to £1,250. This is, of course, still considerably below the scale salary (£1,600) for such a town as Leeds, but it represents a substantial improvement and it illustrates the success of conjoined action between the two Associations. We hope that it is only the beginning of a recognition on the part of the Leeds City Council of the fact that an underpaid service is never satisfactory, and that in the near future they will advance the salary to the sum which is required under the scale.

REACTION IN PUBLIC HEALTH.

At the present time public health is suffering many things at the hands of its professed enemies, but the recent action of the British Government, with the support of the House of Commons, in refusing to ratify nearly all the Conventions of the International Labour Organisation which were adopted at Geneva can only be described as astonishing. The International Labour Organisation is composed of delegates made up, as to one-half of Government nominees, as to one-quarter of employers, and as to another quarter labour. The British representatives voted for the Washington Hours Convention which the British Government has refused to ratify. The rejected Conventions include one which prohibits the employment in agriculture of children under 14 years during school hours. Another forbids the use of white lead in the internal painting of buildings, and another prevents the employment of women in agriculture for certain weeks before and after childbirth. The British action in refusing to accept these and other decisions of the International Labour Organisation is likely to have a most unfortunate effect throughout Europe, as other countries are not likely to accept a standard of social legislation which has been rejected by

Great Britain. The rejection of these Conventions by the British Government is rendered all the more extraordinary by the fact that their adoption here represents no tremendous alteration of existing arrangements, or any very great raising of existing standards, whereas in many other countries who are far behind us in such matters, such an excuse will be gladly seized in order to reject what amounts there to a great social advance.

PROFESSOR MATTHEW HAY.

Professor Matthew Hay has resigned the position of Medical Officer of Health to the City of Aberdeen, which he has held for thirty-five years. It will be remembered that some months ago Professor Hay tendered his resignation on account of ill health, but the City Council, recognising his valuable services, preferred to give him leave of absence in the hope of an improvement in health. He has been M.O.H. for Aberdeen for thirty-five years, and during that time he has developed the public health administration of the city to a very high level of efficiency, and probably equal to that of any town in the world. Professor Hay is, moreover, more than anyone else the creator of Aberdeen University as it is now.

GENERAL MEDICAL COUNCIL AND PUBLIC HEALTH.

The President's address at the opening of the recent session of the General Medical Council contains a considerable amount of matter which is interesting to the Public Health Service. In his address Sir Donald Macalister said:

"A Government publication which has been issued within the last month deserves the special attention of the Council, the more because one of our members is its author. I refer to the Memorandum on 'Recent Advances in Medical Education in England' addressed by Sir George Newman to the Minister of Health. The Chief Medical Officer of the Ministry therein sets forth, with his accustomed lucidity and force, both the grounds underlying and the ideals inspiring recent movements for the improvement of professional training, in medicine, dentistry, and public hygiene. He takes occasion to explain and to justify to his readers the efforts made by the Council, in its recent pronouncements, to direct professional teaching and testing towards improved methods. With a wealth of illustration and a vividness of phrase which no official Report of our own could emulate, he provides the Council with a considered *apologia pro curriculis suis*, for which, without formally endorsing it in every point, the Council may fitly offer its appreciative acknowledgments.

"I have reason to know, from statements I have received, that Sir George's Memorandum has already been found helpful and suggestive by the teaching and examining bodies who are now engaged in studying our new curricula with a view to adopting or adapting them; and further that, as an exposition of current British ideals and ideas in medica-

education, it has aroused much interest among the professional authorities of other countries. Of one topic he discusses I desire to make mention here, inasmuch as it relates to a subject for which the Council has a special legal responsibility that is not in all quarters clearly apprehended. I refer to the statutory registrable Diploma in Sanitary Science, Public Health, or State Medicine, dealt with in Section 21 of the Medical Act, 1886. That Diploma must by law be such as 'appears to the Privy Council or to the General Council to deserve recognition in the *Medical Register*,' as a Diploma additional to one in medicine already registered. By an Act of 1888, moreover, passed in the year after the Medical Council had recognised and registered the first Diplomas in Public Health, such an additional Diploma was made a statutory qualification for the medical officers of health of certain large areas in this country. The law thus made the Privy Council and the General Council the joint guarantors that the registrable Diploma was in fact a full and sufficient technical qualification for entering on the important civil functions devolving on such Medical Officers. These functions have by successive Public Health Acts been multiplied and extended. It is thus the statutory duty of the Privy Council and the General Council, jointly or severally, to see to it that the conditions on which the statutory qualifying Diploma is recognised and registered are correspondingly extended.

"The Diploma of to-day must testify that the practitioner who holds it is not merely qualified to practise medicine, but qualified by special training to fulfil all the special professional and administrative duties that to-day are imposed by Statute on the medical officers of the largest civil communities in Great Britain. Naval hygiene, military hygiene, tropical hygiene, and the hygiene of British Possessions and foreign countries, whose laws and usages differ from ours, are most important post-graduation studies, and in the national and Imperial interest deserve every encouragement that can be afforded by the Government and by professional authorities. Special certificates of honour may properly be instituted for those practitioners who show that they have attained proficiency in these studies. But I venture to submit that the Medical Council has no statutory power to control the studies or to recognise such certificates. They concern only such medical authorities who quite properly may grant them, and they are not registrable in the *Medical Register*.

"These special studies and certificates, however, are not relevant to the purpose of the Statutes I have quoted. They do not bear on the qualification of whole-time medical officers of health to undertake responsible civil duty in the counties and large cities of this country.

"The Council is thus under statutory obligation to ensure, by its Rules, for the granting of registrable Diplomas in Public Health, that the course of training to which they bear witness shall be specifically a training for high civil responsibility in Public Health Administration at home. The application of the general principles of Preventive Medicine to medical practice, and the several special branches of collective hygiene to which I have referred, are proper subjects of study during or after the ordinary medical curriculum. But such study does not ensure the particular kinds of knowledge and experience required to qualify a practitioner for a definitely specialised career in the administrative service of a civil community in Great Britain. The course for the Diploma must therefore not be modified and diverted from its primary and essential purpose, merely in order that the same diploma may conveniently afford a creditable decoration for practitioners who contemplate

careers other than that of the professional Medical Officer of Health. The Council acted on that conviction when it unanimously adopted the new Rules under Section 21 of the Act."

OBITUARY.

SIR SHIRLEY MURPHY.

By the death of Sir Shirley Forster Murphy, K.B.E., F.R.C.S., the Society of Medical Officers of Health has lost one of its most valued and distinguished Fellows. He was associated with the Society for many years and acted as Secretary and was twice President. He worked strenuously throughout in furthering the interests of the Society.

He was born on May 21st, 1848, and during a life which extended over three-quarters of a century, he was privileged to play a notable part in connection with Public Health work in London.

He was educated at University College and Guy's Hospital, and after having acted as Assistant Director at the Animal Vaccine Station and as Medical Officer of the London Fever Hospital, and after conducting various investigations on behalf of Government Departments and others, in connection with Public Health questions, he became Medical Officer of Health for St. Pancras. Later, when the London County Council came into existence in 1889 under the Local Government Act, 1888, he was appointed the first Medical Officer of Health of that authority.

The problems which especially engaged his attention in his new office were, first and foremost, those connected with the Public Health (London) Bill, which was then under the consideration of Parliament; and when it became law it fell to him to advise on the numerous questions concerning Public Health administration which the new enactment brought to the fore. Moreover, the Council was soon actively engaged in connection with the clearance of insanitary areas in London, and its medical officer, in co-operation with the medical officers of sanitary authorities in the County, was busily employed in connection with the numerous official enquiries which were held by the Home Office and Local Government Board into housing schemes. Work of the greatest importance, moreover, devolved upon him in respect of consideration of the question of the London Water Supply and of the promotion of the London Building Act of 1894.

During the first few years of Shirley Murphy's office a notable change was effected in regard to such questions as provision of efficient means of disinfection of infected articles; removal of house refuse and trade refuse; control of dairies and

cowsheds, slaughterhouses, common lodging houses, and later, of seamen's lodging houses; nuisance abatement and the like; framing new codes of by-laws and bringing them into operation; strengthening the sanitary staffs in various parts of the county; and taxing action in connection with infectious disease prevalence, for example, in connection with the cholera of 1893, the smallpox of 1893 and 1901-02, and various milk and other outbreaks occurring from time to time.

From the outset Shirley Murphy had been specially interested in the work of the Epidemiological Society, of which he was for many years Secretary and later President; in that of the Medical Officers of Schools Association; and of the Statistical Society of which he became a Vice-President. He drew attention in a Memorandum on Diphtheria in London to the question of the altered age-incidence of that disease, and was thus led to comment upon the August depression in the curve of notifications, and to make a special study of school influence in favouring spread of diphtheria and other diseases.

As Medical Officer of Health in London he was able to accomplish much during his 22 years of office. In 1905 on the occasion of a dinner in honour of Sir Shirley and Lady Murphy, he spoke of the growing esteem in which the public was beginning to hold the work of public health. He referred to the Medical Officers of the early days, Simon, Buchanan, Ballard and others; he added that the Society of Medical Officers of Health had played an important part in increasing the influence of Medical Officers of Health. His friend, Sir Arthur Whitelegge, on the same occasion also alluded to the increasing appreciation of public health services which was so noticeable, and added that in his judgment they all owed much to Shirley Murphy for the part he had played in securing advance in Public Health matters. Sir Arthur Whitelegge referred, moreover, to the assistance which Sir Shirley received from Lady Murphy in enabling him to keep abreast of all the latest work at home and abroad, and Sir Shirley, in acknowledgment of this, remarked, "Although she has not a degree in Medicine, my wife has always taken an active interest in the work of the Medical Officer of Health." He also spoke of the assistance he had received from Government Departments and from his colleagues, the London Medical Officers, "whose friendly co-operation was something he valued very highly."

Soon after Sir Shirley's final retirement from the post of Consulting Medical Officer of Health in London, the war broke out and he at once offered his services, and was made Lt. Col. in charge of the London Sanitary Service at the Horse Guards.

This work brought him, of course, into association again with his former colleagues, the London Medical Officers of Health, and he entered into it with all his old zeal and enthusiasm. In 1921 he found further scope for his energies as one of the Ministry of Health's Managers of the Metropolitan Asylums Board. He was awarded the Bissett Hawkins medal by the Royal College of Physicians in 1908 and the Jenner medal of the Royal Society of Medicine in 1921. He was a F.R.C.S. and served in 1921 as Master of the Apothecaries Company with which he had long been associated.

A memorial service was held on May 1st at the Church of St. Martin-in-the-Fields and the interment took place at Brookwood Cemetery, where his grave is near those of his old friends, Sir George Buchanan and Sir William Power.

DR. R. J. EWART, M.O.H., BARKING.

By the death of Dr. Ewart the Public Health Service has lost the kind of member that it can least afford to spare. He belonged to the comparatively small band of ardent investigators and research workers. The average medical officer of health has few opportunities for research: he is usually an overworked official with little or no time for hobbies, but Dr. Ewart was fortunate in being able to give a good deal of time to his researches, and his publications have all of them most stimulating suggestions to make for those who succeed him. Striking evidence of the affection in which he was held in his district was forthcoming at the time of the funeral, and the high opinion in which he was held by the Barking District Council is evidenced by the resolution that was passed, "That the Council place on record its appreciation of the eminent services rendered to the district by Dr. Ewart during the eleven years that he held the office of Medical Officer of Health, etc., and that the Clerk be directed to convey to Mrs. Ewart the deep sympathy and condolences of the Council on his decease." At the meeting the Chairman of the Public Health Committee expressed the deep regret of that Committee at the untimely death of Dr. Ewart.

Many members will remember his paper given at a recent meeting of the M.O.H. Society, when convincing evidence of Ewart's wonderful assiduity was forthcoming in the wealth of information and figures which he produced. We do not know yet whether it will be possible to produce this paper as the author was at work upon its final edition for the press at the time of his death.

HEALTH WEEK DEVELOPMENTS

BY

PROFESSOR A. BOSTOCK HILL, M.D., M.Sc.

Tempora mutantur et nos mutamur in illis.

Perhaps there is no better illustration of this than in the modern conception of health work. In the early days of sanitary administration, matters dealt with were chiefly technical, now the main idea is to get the people themselves to understand that to a large extent at least, they must co-operate with the authorities and their skilled advisers if reasonably good results are to be obtained. Health work is largely associated with the home, and both parents and children must be made to appreciate how much depends on their own efforts.

This being so, it is easy to understand how "Health Week" and "Baby Week" came into being, as during the celebrations efforts are made to teach the public the importance of Self-help in Health. This phrase has been adopted as the motto of Health Week, and well expresses the ideal of its promoters. Of late, unhappily, certain difficulties have arisen owing to local troubles in having the two celebrations in one year. If the first has been successful the second has been hailed with less enthusiasm.

Efforts have been made therefore by the two Committees concerned to work harmoniously in the future, and while it is hoped that the national celebration of Baby Week in London, in July, will be maintained, it is suggested that in the Provinces, and particularly in the smaller towns and country districts joint celebrations should take place later in the year. Health Week is fixed for October, and although it is not absolutely essential that all districts should observe the same date, yet it is desirable that as far as possible the powerful effect of massed effort should be utilized. In many counties and towns the Health Committees and Officials have taken part in organizing the work, and ample testimony is available as to the value of the results achieved. In other places, little or no support has been given, probably from the mistaken idea that the work may possibly conflict in some way with the official administration. Nothing is further from the fact. Health Week and Baby Week prepare the ground for the official tilling and render easier the work which must be done before a real and ample harvest can be gathered.

ANTE-NATAL AND POST-NATAL SYPHILIS.*

BY

JOHN ADAMS, F.R.C.S.,

Medical Officer, Thavies Inn V.D. Centre for Pregnant Women and Newly-born Children; Senior Surgeon, Sheffield Street V.D. Hospital for Women; Consulting V.D. Surgeon, St. Margaret's Hospital, N.W.

Having shown you a few of the patients who have been treated so that you might better understand what can be done and what ought to be done for this hitherto terrible disease of Ante and Post-Natal Syphilis, I propose to give you details of my research, observation and treatment of this particular section of Syphilis.

History.

It will be interesting to give a short history of congenital syphilis.

It was observed as long ago as 1528 by Paracelsus, 35 years after syphilis was introduced into Europe. If one were asked if we could state when 99 out of 100 of the diseases we are familiar with were first observed, the answer would be in the negative, but we are able to establish with a certainty the year when syphilis was introduced into Europe.

History of Syphilis.

Columbus returned from his voyage of discovery to America and landed in Barcelona, 1493. The following year syphilis spread over Europe in a violent form as new diseases usually do. It has been suggested that syphilis was described by Moses in Leviticus, chap. xiii., but the loss of hair and white reddish eruption on head here mentioned, refers to a leprous man, and after reading further, it will be seen that there is no reason to disagree with the opinion of Moses who describes the case.

In Egypt bone lesions have been found in prehistoric coffins with erosions resembling syphilis, and for a time they were considered to be due to that disease, but Elliot Smith, the famous Egyptologist, has proved beyond question that the erosion was caused by a beetle.

In the Greco-Roman period, A.D. 200 years Sir Clifford Allbutt, writing in a recent work, states that there is nothing to justify the statement that syphilis existed at that period. Later, during the decline of the Roman Empire (A.D. 400) where every kind of vicious living and sensual immorality was practised, syphilis was not mentioned. Some

*Paper read before the Society of Medical Officers of Health.

record of the disease would surely have been made had it existed.

From the above it appears that the history of syphilis in Europe dates from 1493 when Columbus returned from America. Since that date it has always been in evidence.

Congenital Syphilis.

I propose to deal with syphilis particularly in its ante-natal and post-natal aspects, and its treatment. It is a remarkable fact that in large general hospitals, with all their wealth of clinical material, that comparatively a few cases of congenital syphilis are seen, the reason being that nearly all die in early life. Congenital syphilis is due to—

- (a) Both parents being infected, "Mixed syphilis,"
- (b) Father alone, Paternal infection,
- (c) Mother alone, Maternal infection.

Any of the above infections is possible and without treatment is likely to end in—

1. Abortion up to the third month.
2. Miscarriage from third to fifth month.
3. Still birth from fifth to ninth month,

or the child may be born alive with syphilitic manifestation or born with a healthy appearance, but with a positive Wasserman blood reaction.

If a mother is infected during the seventh to ninth month of pregnancy, the child probably will be born healthy and with a negative blood reaction and remain so. The explanation of this is one of great physiological interest and is probably due to some change which takes place in the placenta, and further investigations of this important fact will be of great interest. The following case bears out this particular point.

A patient was admitted into the Thavies Venereal Disease Clinic with a profuse papular syphilitic eruption. She was confined within 24 hours of admission, having had no special treatment. A history of infection within three months before the child was born was obtained, the mother's blood test gave a positive Wasserman reaction and the skin eruption showed she had a general syphilis. The child's blood was tested for syphilis on several occasions and was always negative. No special treatment was given and no signs of syphilis have ever been found in the child.

Dr. Amand Routh gave evidence before the Royal Commission on Venereal Disease in 1913, and made out a strong case that in the latter months of pregnancy, when the placenta is well developed, it has through its chorionic ferments the

power of preventing the spirochetes from infecting the child. The chorionic ferments are supposed to break up the spirochetes and cause them to granulate and thus render them free from infection. This is one of nature's many efforts to preserve life.

The same authority stated that it was estimated that 27,000 deaths in England and Wales alone occur annually during the ante-natal period, and in the week following birth, as a result of syphilis.

There is no other disease which is so destructive to infant life. To put it as an object lesson, an army in numbers to represent the mortality of infant syphilis in England and Wales in ordinary marching order, four deep, would reach from Aldgate Pump to Marble Arch, and would take an hour passing any given point.

50% of all untreated syphilitic foetuses are still born, and 78% of those born alive die within the first year, most of the deaths occurring within the first week after birth, and of the remaining 22% many die in early childhood. A few survive and are known as congenital or hereditary syphilitics.

I wish to impress on you the figures that I have just quoted were given before the Royal Commission on Venereal Diseases, 1913, and contrast remarkably with the results brought about by early intensive treatment of ante and post-natal syphilis as shown by 136 cases which have been under my care during the past 5½ years.

DIAGNOSIS.

The Newly Born Syphilitic Child.

When a syphilitic child is born it may appear perfectly healthy and show no signs of syphilis for three to six weeks or longer, but a typical newly born syphilitic child might be described as "a small, wizened, atrophied, puny, weakly, sickly creature with a senile appearance, likened to a monkey, or a little old man. The skin is flabby, wrinkled, and of a brownish colour.

Another kind of newly born syphilitic child has oedematous limbs and face, and a large abdomen with bad circulation and bluish tinge all over, and appears as if going to die in a few hours, and will do so if left untreated. I have administered salvarsan to such cases within an hour of birth and a miraculous change for the better has taken place almost at once, the children ultimately recovering with every appearance of becoming fine, healthy specimens of humanity.

Onset of Secondary Syphilis.

A syphilitic child usually shows signs of disease if untreated during the first month, 80% before the end of the second month, and practically all before they are six months old. The rash usually appears—

Palms of the hands, Soles of the feet, Buttocks, but the rash on the buttocks must not be mistaken for the very much more common napkin rash which appears as a reddish inflamed colour, and does not go into the bottom of the fold of the nates.

A syphilitic rash on that part is reddish brown and extends into the bottom folds of the nates.

The Eyes—May show iritis and choroiditis soon after birth.

Keratitis—Generally does not appear until the patient is from 10 to 18 years of age.

The Nasal Bones—Are imperfectly developed and the nose has a squat saddle-back appearance.

The Auditory Apparatus is often affected—5% of all deaf mutes are due to syphilis.

Teeth—The permanent set are usually affected, but sometimes the milk teeth show changes, especially the upper central incisor and laterals, although the molars at times have a specially dome shape due to syphilis. These teeth bear the name of that great surgeon, Sir Jonathan Hutchinson.

It is important to avoid mistaking for syphilitic teeth, the central and lateral incisors, which have a transverse ridging. This is due to some infantile illness probably from the first to the sixth year, such as measles or scarlet fever, which has caused an arrest in the laying down of enamel on the dentine.

The time when syphilis would affect the permanent teeth is from 1st to 6th year when they are in their developmental state.

The Mouth—often has cracks radiating from the corners which, if the child survives, are followed by scars.

The Internal organs chiefly affected are Liver, Lungs, Spleen, Supra renals. These organs become enlarged owing to syphilitic inflammation and infiltration followed by fibrosis.

The above are the commonest manifestations in congenital syphilis but there is scarcely an organ of the body that may not be affected by the disease.

TREATMENT.

Following this short outline of the history and symptoms of syphilis in the ante-natal and post-natal period, I will now give the details of treat-

ment carried out at Thavies Inn V.D. Centre for pregnant women.

Hospital opened 1917.

The Hospital was established 1917, by the Local Government Board, which is now merged into the Ministry of Health, for the treatment of pregnant women suffering from venereal disease. It is the first Hospital opened for the purpose. The patients are admitted from any public institution within the Metropolitan area which has charge of sick patients or on the written recommendation of any medical man who certifies that the patient is suffering from venereal disease and is pregnant. The Hospital accommodates 25 patients, who are usually admitted from the 5th to 6th month of pregnancy up to the day of their confinement.

A blood test is made as soon as the patient is admitted and treatment commenced at once if patient be found suffering from syphilis.

The reason why blood tests are made in all cases on admission is—that on several occasions patients who have been admitted for gonorrhea with no symptoms or history of syphilis have been confined of syphilitic babies. Here I should mention that some pregnant women although suffering from syphilis give a negative Wasserman reaction; the precise cause of this is not fully understood; it does not often occur—probably in about 2 to 3% of the patients. I have now sent to this Hospital considerably over 1,000 specimens of blood, and as every patient is tested whether suffering from syphilis or gonorrhea, I have a considerable clinical check on the results.

Soon after the Centre was opened I asked myself what could be done for these unfortunate syphilitic babies, who though born alive have a mortality of 50% within the first few weeks. I was placed in a most favoured position to do any research work for these cases, having them entirely under my control. I found Galyl in Glucose a suitable substitute for Salvarsan, the dose given in proportion to the weight of the child. The average dose is from 20 to 30 c. gm. for an adult, and as the average weight of a child is about 1/17th that of the mother the initial dose would be 1.25 c. g.m.

1st case of Salvarsan treatment.

An opportunity soon offered itself; it might be almost called a forlorn hope, a week old child born of a syphilitic mother was in extremis—convulsed and evidently dying. An intra muscular-injection of

Galyl in Glucose was given and within 12 hours that baby showed marked signs of improvement and eventually made a good recovery, and, as far as I know, is alive and well to-day.

Similar cases in extremis I could now multiply. I will call your attention to case 130, born 25.4.22. It was apparently a healthy child, but developed within 24 hours a pemphigoid eruption of a severe type.

In the first four days this child lost 14 ozs. and was rapidly going to the bad, and without doubt within another few days would have died. Salvarsan substitute was administered, and from that date the disease was arrested. The child made steady improvement, and put on weight regularly, although the blood reaction was strongly positive.

The mother of this baby was admitted for gonorrhœa, there was no history or symptoms of syphilis, the blood reaction was negative, consequently there was no indication for treatment before confinement. This was an example of a pregnant syphilitic woman giving a negative blood reaction, but directly after confinement, becoming strongly positive. The reason of this is not easy to explain.

Time to Commence Treatment.

It might be asked when is the best time to commence treatment of a syphilitic baby. My answer is the best time to treat all cases of syphilis, whether ante-natal, post-natal or acquired, is at the earliest possible opportunity.

By far the majority of cases are under my care some months or weeks before confinement, and the tables show how much better they do than those who have no ante-natal treatment. The majority of cases admitted at Thavies Inn are women with secondary syphilis, only about one in ten having evidence of primary sores. The cases one has to deal with are those in an acute form and consequently more destructive to child life.

Routine Treatment.

The routine treatment is that as soon as a child is born a specimen of blood is taken from the umbilical cord and another from the mother's blood, which are sent for a Wasserman test. The results of the examination are shown in the appended tables. In the case, however, of a child of a syphilitic mother the baby is treated forthwith.

The instruments used are few and simple and the carrying out of the treatment quite easy, the

table of doses and dates of administration given on the printed sheet are as nearly correct as possible.

Instruments Used.

The instruments are (i) 1 c.c. Syringe for the Galyl. (ii) For Mercurial Treatment, a special syringe marked with fifteen divisions, each of which is one-fortieth of a cubic centimetre for the 20% mercurial cream. Each division contains one-twelfth grain of mercury. (iii) A needle specially made for obtaining blood from child's heel.

The place to give Intra-muscular Injections.

It is important that the intra-muscular injection should be given in the right place. This is found by taking a line from the anterior superior spine of ilium to the top of the natal cleft. This line is divided into three parts, and any point in the middle third may be selected. The intra-muscular Galyl and mercury injections may be given on the same day on opposite sides.

The Galyl in Glucose causes no pain or swelling, but the Mercurial Cream is liable to do both. I am not much in favour of giving intra-muscular mercurial injections as I used to be, on account of the discomfort which not infrequently is caused. Moreover, a $\frac{1}{2}$ gr. tablet of Gray powder broken up in a spoon and put in the child's mouth, before giving the breast or bottle night or morning, answers equally well. The dose must be gradually increased from $\frac{1}{4}$ gr. to 1 gr. Babies tolerate mercury much better than is usually supposed, but its effects must be carefully watched. In adults, overdoses usually set up mercurial stomatitis and salivation, whilst in babies, intestinal disturbances present themselves. We welcome the new drug (Salvarsan or its substitutes) as an almost miraculous life saver, but mercury is as essential as ever for the treatment of syphilis.

The combination of the two enables one to speak with no uncertain voice and confidence in the treatment of ante-natal and post-natal syphilis. The babies should have a blood test once every six weeks. From $\frac{1}{4}$ to 1 c.c. of blood as sufficient for the purpose. This is taken from the most prominent part of the heel, using a special needle made by Maw, Sons & Sons. The foot and leg up to the knee should have been previously kept in hot water for five minutes. The taking of blood from, or the injecting of drugs into the superior longitudinal sinus, as I have seen done, is, in my opinion, dangerous and perfectly unjustifiable.

Breast feedings.

When possible the child should be fed by the breast, both mother and child being under treatment, but after a few weeks it is often found necessary to supplement the mother's milk with artificial food, for the milk of the syphilitic mother is frequently deficient both in quality and quantity.

Results of Treatment.

Let me read an extract from the *Lancet* giving the experience of one of our most distinguished specialists on the subject:—"There is no doubt that congenital syphilis is a more serious affection than primary syphilis, and that the treatment of congenital syphilis is less satisfactory than in those infected primary, and I have never known a positive reaction in a congenital syphilitic child become negative by treatment." Now gentlemen, I will call your attention to the tables of the cases I have treated which gives my reply to the above statement. I have never known a case which came under treatment soon after birth with a positive Wasserman reaction which did not become negative. A negative Wasserman reaction does not necessarily mean that the patient is cured, it is an indication to continue the treatment for some time longer, in order to keep the patient permanently cured.

The average number of doses of Galyl to bring about a negative blood reaction has been ten. I am giving a list of 136 consecutive cases, all of which have had their blood examined and the mothers reported positive except one, which became so directly after confinement, and the baby was born and developed an acute syphilitic pemphigoid eruption within twenty-four hours after birth. As a rule, mothers and children are kept in hospital two to three months after the confinement, the period when over 50% of untreated syphilitic children die.

Mortality of Syphilitics.

Now during the past three years not a syphilitic child has died in the Hospital, and, as touch is kept with all patients as far as possible, no case can be traced as having died from syphilis during that period.

In 1917-18 three cases died from syphilis, and 1918-19 one death occurred, making four in all out of 136; less than 4% against 75% before special treatment was given. Out of the four deaths three occurred in the first year of the new

treatment; before the correct dosage was able to be properly worked out.

I look forward, with the greatest confidence, in the future to see the wastage of infant life from syphilis come almost to a vanishing point.

By adopting the treatment described, the deaths from syphilis of newly-born children will practically cease to exist. The babies thrive well, and compare in physique and good health favourably with the average children of their own age.

At present it is doubtful whether any disease, even tuberculosis, is so destructive to infant life, or so disastrous to child health as syphilis, and I would urge all Public Health Authorities to establish in every large town in the Kingdom clinics for the treatment of ante and post-natal syphilis.

CONCLUSIONS.

1. Syphilitic pregnant women can be treated by Salvarsan substitute up to the day of their confinement with safety and every advantage.
2. A mother whose blood yields a positive Wassermann reaction, may be delivered of a child whose blood gives a negative reaction. The child may continue to thrive and maintain a negative blood test.
3. Syphilitic children can safely be treated by Salvarsan substitute immediately after birth.
4. Salvarsan substitute combined with treatment by mercury has a more certain and quicker action in producing a negative Wassermann in the child, than in the mother.
5. Treatment can, in syphilitic children born alive, convert a positive Wassermann reaction into a negative, and such children appear to become healthy, and show a regular weekly gain in weight.

Result to be aimed at.

The perfect victory is a live and undamaged mother, and a living child, who is likely to continue living and well, and that is what can be done in these cases of ante and post-natal syphilis.

I shall be pleased to welcome any gentleman who would like to come to the clinic at Thavies Inn, on Sunday at 11 a.m. to see, and take part, in carrying out the treatment I have described.

THAVIES INN VENEREAL CENTRE FOR PREGNANT WOMEN.

Result of Treatment of Women during Pregnancy and of the Newly-born Children.

Years Sept. 1 to Aug. 21	Mothers admitted with Syphilis	Babies born alive		Babies dying of Syphilis	Foetus stillborn from Syphilis
		Wassermann reaction			
		Posi- tive	Nega- tive		
1917-1918	28	17	6	Three at the ages of 3, 14, 36 days respectively	Five
1918-1919	30	8	21	One 2 months	One
1919-1920	37	1	36	None	None
1920-1921	23	5	16	None	Two. Neither of the mothers had treatment before admis- sion and both were confined of macerated babies soon after
1921-1922	18	7	9	None	Two. One ad- mitted in labour, deliver- ed of a 7 months macer- ated child. The other confined of a dead child 3 days after admis- sion. Neither of the mothers had treatment before admis- sion

Treatment of Babies.

Treatment ...	...	Wassermann test of Mother Placenta Baby.		
		+	+	+
No Treatment.	...	+	+	+
		+	+	+
Intramuscular Galyl in Glucose**	Intra- muscular Hg.***	or	Oral Hg.	
1st day ...	1.25 c.g.	—	—	—
8th ..	1.5 c.g.	1/6 gr.	1/2 gr. daily	Hyd. c. creta
15th ..	—	—	—	—
22nd ..	2 c.g.	1/2 gr.	—	—
29th ..	—	—	—	—
36th ..	2.5 c.g.	1/2 gr.	—	—

*Do not usually require the full course of treatment.

**To be obtained in 2.5 and 5 cg. ampoules from the Anglo-French Drug Co. Ltd., 288a, Gray's Inn Road, London, W.C.1.

***Mercurial cream for adults, 40 per cent.; for babies 20 per cent. Can be obtained from Squire, 413, Oxford St., W. A special syringe, which can be obtained from Montague, 69, New Bond St., W., marked with fifteen divisions, each of which is one fortieth of a cubic centimetre, is recommended. With 40 per cent. mercurial cream, each division contains 1 cg. or 1/6 gr. of mercury.

Wassermann test.

43rd day ...	...	2.5 c.g.	1/3 gr.	1/2 gr. twice daily
50th ..	...	...	...	...
57th ..	...	3 c.g.	1/3 gr.	...
64th ..	...	...	...	...
71st ..	...	3 c.g.	1/3 gr.	...
78th ..	...	...	...	...

Wassermann test: Nearly all babies become negative before or at this period.

120th day ...	...	3.5 c.g.	1/3 gr.	Intermediate treatment.
134th ..	...	3.5 c.g.	1/3 gr.	
176th ..	...	Wassermann test.	...	

At the ninth and twelfth months courses of three injections of 4 to 5 cg. galyl and 1/2 gr. mercury should be given, and gr. 1 hyd. c. cret. daily for a month. Further treatment is governed by the progress of the case. Should the Wassermann test become positive at any future date intensive treatment should be begun immediately.

These doses are calculated for babies of normal weight for their age.

SYPHILIS IN THE EXPECTANT MOTHER.

BY

J. H. SEQUEIRA, M.D., F.R.C.P., F.R.C.S.,
Physician to the Skin Dept. and Lecturer on
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It is unnecessary at this time and in the columns of "Public Health" to dilate upon the gravity of congenital syphilis, but it must not be forgotten that a large section of the public is still in ignorance of this menace to infant life and well-being. Every measure which diminishes the spread of syphilis in the community must, of necessity, lower the incidence of congenital disease. Such measures may be moral or medical, and the medical measure may be directed (1) to the prevention of infection, (2) to rendering non-effective by appropriate treatment those who have had the misfortune to contract the disease. Work on these lines has already, we believe, played an important part in lowering the incidence of congenital syphilis. But, fortunately, we have learnt during the past few years that by attacking the disease in the expectant mother we are able, not only to prevent the death of the embryo in utero, but to permit its birth at full term sound and healthy.

Congenital syphilis is the result of the development of an embryo in an environment infected by the spirochaeta pallida. For practical purposes, therefore, we have to devote our attention to the expectant mother. Many women contract syphilis without being aware of the fact and without showing recognisable evidence thereof. The primary manifestation, if external, may be inconspicuous; it may be at the mouth of the womb and, therefore,

only visible by speculum examination. The possibility of extra-genital infection, e.g. of the lips or finger, must not be forgotten. There may be no secondary symptoms. And yet a woman may be so gravely infected that she has a series of miscarriages or still-births, or may bring into the world an infant which in the course of days, weeks, or even after several years develops skin eruptions, affections of the nose, eyes, ears, bones or brain, which are due to infection with spirochaetes derived from the mother before birth.

It cannot be urged too strongly that this can and should be prevented in the majority of cases. By treating the mother during her pregnancy we can nearly always secure a healthy offspring even though we may be unable to cure her, and to ensure a healthy family we may find it necessary to treat the mother during each of her pregnancies.

The problem, therefore, is how to recognise syphilis in the expectant mother. We have to deal with three classes of patients: (1) The pregnant woman who has had one or more miscarriages or still-births. Her history may be known or may be elicited when she comes to the Ante-natal Clinic, or to consult her doctor when she finds she is to become a mother. We know that about fifteen per cent. of intra-uterine deaths are due to syphilis and it is our duty to have the blood examined by the Wassermann test. Should the result be positive we must start treatment without delay.

(2) A pregnant woman may come to a Venereal Clinic with evidence of active syphilis upon her. In such a case the treatment will, of course, be begun at once.

(3) The pregnant woman may come to the Ante-natal Clinic or to her doctor with no history or evidence of disease. She may be a primi-gravida. What should be done at the clinic or by the family doctor? It has been suggested that the blood of every pregnant woman should be examined by the Wassermann test, and this has been carried out in some clinics. I am of opinion that this measure is of great value but the results obtained by examining the blood require careful consideration. It is certain that in a small number, possibly less than one per cent., of gravid women not suffering from syphilis the blood will give, at any rate temporarily, a positive Wassermann reaction. It might be said that the risk of treating such a case by the intravenous injection of Salvarsan compounds is so small that it would be

right to take that risk in all cases where the blood gives a positive reaction. I, however, do not hold this opinion and would not, myself, take even this small risk. The proper line I take to be is to see the husband and have an examination made of his blood, and in the case of a woman who has borne children I should endeavour to see them and examine the Wassermann reaction in them. If in the husband or in one of the children I obtained clinical or serological evidence of syphilis I should treat the expectant mother.

It has been alleged that it is difficult to get the expectant mother to have the blood examined and still more difficult to get treatment carried out, but from our experience at the London Hospital we have not found these objections to obtain in practice. The prospective mother is usually only too keen to have healthy offspring. She would not have come to the Ante-natal clinic if this were not so, and tact and kindly interest usually overcome any difficulties. As a rule treatment is free from any untoward symptoms, and if the foetus is alive when the injections are started it will go on to full time.

I can only once again urge the importance of co-ordinated effort. The Ante-natal Clinic, the Infant Welfare Centre, the Children's Clinic and the Venereal Clinic must work in co-operation, and then we can hope to see the passing of congenital syphilis.

I cannot do better than conclude with this quotation from the Report of Lord Trevethin's Committee on Venereal Disease:—

"It has been shown that if syphilis is detected in the pregnant woman treatment during pregnancy is remarkably successful in securing healthy offspring. . . .

Increasing facilities for the medical supervision of women during pregnancy are desirable and may in part be obtained by an extension of the system of ante-natal clinics and by the instruction of midwives who would refer suspicious cases to a doctor. In this connection we would also call attention to the importance of including instruction in venereal diseases in the general training of midwives and nurses."

DR. T. SHADICK-HIGGINS, medical officer of health for the metropolitan borough of St. Pancras, has been appointed medical officer of health for the city of Capetown, South Africa.

UTILISATION OF VOLUNTARY ORGANIZATION BY THE PUBLIC HEALTH DEPARTMENT.*

BY

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The very number of lay persons who now interest themselves in endeavours to promote the public health has made their existence something of a problem to the public health officer. In considering the question we must distinguish between voluntary organization and voluntary workers.

The function of the latter is presumably to co-operate with the paid professional worker, acting under the same control by the head of the department. Such untrained or partially trained workers cannot, and should not, be allowed to substitute trained workers in such direction as the work generally carried out by school nurses, health visitors, or tuberculosis nurses.

They may, however, especially in rural or small urban districts, when the paid staff is necessarily limited, perform several useful functions which liberate the trained worker for the work which she alone is qualified to do. I have at one time been most grateful for the regular and devoted work of such a voluntary worker in filling up the cards and particulars in a crowded infant clinic, thus enabling the nurses to get on with weighing, advising and the treatment of any minor ailments which might be prescribed.

Such people can also render useful aid as almoners where required, in visiting and reporting on cripples, blind and defective children, etc., when the conditions have been previously ascertained by some regular member of the staff. In some places voluntary workers may be utilised in the distribution of milk, milk powder or other articles which may be issued from the centre, in the explanation of model designs for clothing, and so on.

Difficulties, of course, often arise because such tasks are extremely monotonous, and the restricted responsibility is apt to be distasteful to people who probably consider themselves better educated and in many ways more competent than the trained nurse. It is, of course, impossible to exercise the same, or indeed any, discipline over such assistants, and it is of course embarrassing to have the work even of a branch clinic disorganised as the result of a bazaar or a tennis-party. It should be a condition of employment

that absence from any duty undertaken, without reasonable notice or adequate cause, should automatically terminate the connection. Such a rule weeds out all but the very few who are willing to make real sacrifices from a desire to help other people. Women who are capable of this will as a rule have no friction with their paid and qualified colleagues, and can of course be a valuable asset to the department. It should also be recognised that such an experience constitutes in an educated woman a very real training, and such a worker may become more capable of assuming real responsibility than a stupid woman with every available "certificate."

The functions of the voluntary organisation are of course quite different and vary as the number of organisations, which are now as the sands of the sea.

These functions may include the provision of such workers as I have been discussing, but this of course is not the rule. Many, especially the more old-fashioned, exist solely for the supply of material things to the necessitous. These are generally useful, if the selection of the goods supplied is in accordance with the real need of the people.

Most of the modern crop of organisations, however, exist for the purpose of what is called "creating public opinion" by education or by that dreadful process which we have learned to describe as "propaganda."

For all these purposes, of course, the "raising of funds" is a prime necessity, and this generally becomes apparently the principal object of the "committee" or the "National Council," which is now the favourite style adopted by way of title.

All successful public health work, of course, depends on public opinion. It is absolutely essential that public opinion on these matters should be instructed and, if necessary, aroused. The very existence of the public health service and more of our public health legislation is due to the agitation which was organised by voluntary societies far back in the nineteenth century. I thus fully and gratefully recognise the debt that society owes to such organizations, and agree that there are still the same important functions for them to perform.

There is a need for continual pressure on public opinion to maintain what we have gained, especially in these days when a mere withholding of funds is so frequently mistaken for economy. But over-stimulation will only produce fatigue—in public opinion as in a tissue. The individual who is continually thinking about his health can

never be healthy, and in this as in other matters both the physiology and psychology of the community differs but little from that of the individual.

The Committee habit is something that has always affected certain persons just as the drug habit or the alcoholic habit affects others. It is not a new disease. Dickens says of it, "They threw themselves into committees in the most impassioned manner, and collected subscriptions with a vehemence quite extraordinary. They took a multitude of titles. They were the Women of England, the Daughters of Britain, the Sisters of all the Cardinal Virtues separately, the Females of America, the ladies of a hundred denominations. It made our heads ache to think, on the whole, what feverish lives they must lead." In these days Mrs. Jellyby and Mrs. Partridge have largely turned their attention from the souls to the bodies of their fellow-citizens, and the result is the amazing outburst of voluntary organizations which flood our desks with unwanted stationery. The number of societies, councils, and committees now competing with each other to promote the welfare of infants, to take only one instance, is either comic or scandalous according to our point of view. The waste of effort and especially the waste of money involved is pitiable.

Some attempt has been made to co-ordinate these agencies, but it was specially stated that this was to be done "without interfering with their individuality." What a timorous policy! Surely it would be better to have one organization and have it *really organized*, with a properly-thought-out policy?

What is even more serious is the power such well-intentioned organizations give to the faddist and the sentimentalist, with its consequent misdirection of policy.

We can see now that the money spent in the last twenty years on the treatment of tuberculosis would re-house the population and abolish almost every slum in our cities. It would make the people's homes their sanatorium—the only permanently effective one.

We are now spending some millions annually in the treatment of venereal diseases on lines which are questioned by at least half the medical profession, and we are about to introduce one milk for the rich and another for the poor.

For any craze that becomes fashionable it is now always possible to collect a few uneducated members of Parliament and a lady of title to form a "National Council" for its promotion.

It is difficult for medical officers and others concerned with the real administration of the public health to resist influences of this description, but while I expect the majority of those present to disagree with me as to some or all of the instances I have chosen as representing mistaken policies, I think we can agree that we who claim to be experts should not take our policy ready-made from any lay body however distinguished. That it is our duty not only to arouse public opinion to its own needs but also to restrain and guide it into paths which we are quite certain will lead to a higher standard of civilization and happier if not longer lives.

DEFECTIVE DIET AS A CONTRIBUTORY CAUSE OF CERTAIN COMPLAINTS IN CHILDREN.

BY

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There are many people who believe that if we exclude certain specific micro- and macro-organisms, the causation of all other ills of the human flesh can in large measure be attributed to dietetic errors, such errors including overfeeding, underfeeding and wrong feeding. No doubt, instinct, reason, and past experience should, but does not, guide us to that which is right and proper, but that path is difficult and narrow, and more often with the feeling of "Let us eat, drink, and be merry," etc., we choose the easier, less restricted path and eventually suffer for our ignorance, indiscretion or indifference as the case may be.

I want to consider a few common complaints met with in school children, the direct or indirect causation of which may wholly or partly be attributed to dietetic errors, and of these errors, the chief, especially in elementary school children, is due to an unbalanced dietary with a large excess of carbohydrate foodstuffs.

Carbohydrate foods are relatively cheap, children like bread, potatoes, jam, sugar, sweets, pastry and cakes, and consume far more than is needed for the generation of heat and energy or the maintenance and repair of the tissues. It is this excess amount which either overtaxes the digestive organs, or cannot be dealt with, which is incompletely combusted and whose bye-products cause trouble in many ways, by lowering tissue tone or body resistance so that organisms can enter and play their part.

* Read at the Yorkshire Branch, 27th April, 1923.

We are rather too apt to assign certain diseases to a specific micro-organism, as much as to say that this particular organism was floating about, happened to land on such and such an individual and caused his disease.

Ought we not more often to go a little further back and consider the soil? Would that organism flourish, thrive and multiply if the medium on which it finds itself is an adverse one? The antibody or immunity mechanism is in delicate adjustment with biochemical conditions in the body generally, and it is when these biochemical conditions are upset or out of order that the immunity mechanism may be thrown out of gear or be functioning only feebly, and thus give a poor resistance to foreign antigens.

Seed will grow in suitable soil when other factors are favourable and the science of bacteriology has shown us that an optimum medium is necessary for the active growth of certain bacterial flora, the relative acidity or hydrogen ion concentration, and sugar content being of considerable importance. In what ways, then, is an excessive amount of carbohydrate food likely to interfere with normal healthy processes?

The metabolism of carbohydrate is essentially an oxidation process, the complete combustion producing carbon dioxide and water, but when the body is unable to deal with large amounts, there is a preponderance of intermediate breakdown substances in the forms of organic acids which accumulate, are absorbed, and may be excreted as such. It is these acids which are harmful.

Now I think that one may consider three ways by which excessive ingestion of carbohydrate may derange metabolism and be a potential factor in the causation of ill-health.

Firstly.—Excess of carbohydrate upsets the proper balance which is so necessary in a diet conducive to good health. McCarrison¹ has pointed out that "a diet that is unbalanced, and which contains a deficiency of suitable proteins, a deficiency of vitamins and an excess of carbohydrates leads to changes in the intestinal mucosa."

The resultant stasis from these changes in the intestinal mucosa leads to constipation and fermentation of the dammed-back carbohydrates, the impoverished epithelium becoming permeable so that acid products of incomplete combustion bring about a state of auto-intoxication, with a consequent drain on the alkaline resources of the body.

Secondly.—The presence and circulation of these organic acid intermediary products gives rise to what I have described elsewhere² as a state of alkalipenia of varying degree. The intake of

mineral salts may be insufficient for neutralising purposes, and the result is a relative acidosis, in which abnormal state the subject is more liable to be attacked by pathogenic organisms or to succumb easily to infection.

Thirdly.—The constant ingestion of excess of carbohydrates will tend to raise the level of blood sugar when there will be a more favourable opportunity for certain organisms to flourish and bring about a more or less chronic infection.

Summing up these three postulates, one may propound that a constant intake of excessive carbohydrate conjoined as it is with an upset of proper balance may produce a state of auto-intoxication, accompanied by a raised level of the blood sugar, together with some degree of alkalipenia, and in such a state of things there is resultant ill health manifested in various ways, as follows:—

A.—SKIN CONDITIONS.

(1) *The Seborrhæic State.*—I feel in agreement with Barber³ who believes that "the chief underlying cause of this condition is faulty digestion and metabolism of carbohydrate, whereby an excess of organic acid by-products is produced, which are secreted through the sebaceous and sweat glands, causing an alteration in the composition of the sebum and sweat." He also suggests that there is presumably an alteration in the chemical composition of the epidermal cells which diminishes their resistance to bacterial infection, probably by affording the bacteria a more suitable medium for active growth." There is a moderate degree of alkalipenia in this condition brought about (a) by deficient intake of alkaline salts such as occur in fresh vegetables and fruit, and (b) the using up of the body alkali reserve to neutralise the excess of acid by-products of incomplete combustion.

(2) *Furunculosis.*—Persistent and repeated crops of boils all over the body are commonly met with in some children which are difficult to cure.

The primary cause is undoubtedly metabolic, and the chemical composition of superficial cells among others is so altered that skin cocci can gain entrance and become established after producing sensitization. In these cases also the blood sugar is often raised, and a similar picture to that of Diabetes is presented, in which boils and carbuncles may occur as complications owing to the hyperglycaemia.

(3) *Impetigo* may be considered as an almost parallel condition, and our method of treatment by local application is successful because the type of lesion is more open and superficial, but it might

perhaps be reinforced by a cutting down of carbohydrates and administration of alkalies.

(4) *Blepharitis.*—Two types of this common condition are generally met with in children:

- (1) Squamous blepharitis, which is a form of seborrhœa and therefore can be considered under that heading.
- (2) Ulcerative blepharitis in which yellow crusts are formed as a result of infection of the hair follicles.

In both these states, though they are usually associated with errors of refraction, there is an underlying debility brought about most probably by an unconsidered dyspepsia due to faulty diet.

(5) *Hordoleum* is only a name given to a boil occurring in a certain situation, and it can be cured by restriction of carbohydrates and by alkali therapy.

B.—CARIES OF TEETH.

No one can deny that the diet of modern civilisation is a very large factor in the production of caries. Lack of sufficient cleansing foods, and excess of soft glutinous substances which stick to the teeth and ferment with acid formation may be considered as one cause of enamel destruction. If also there is a degree of alkalipenia which may be induced by drawing on the body alkali reserve either for the neutralisation of excess metabolic acid by-products, or the acid toxins of acute infections, the alkalinity of the saliva will be diminished, as has been shown experimentally⁴, and the combination of these two factors, i.e., hypoalkalinity of the saliva and acid fermentation products is sufficient to initiate caries.

C.—RICKETS.

Insufficient sunlight, fresh air and exercise, avitaminosis, defective calcium metabolism, errors of diet and micro-organisms—these are some of the theories wholly or partly held to-day concerning this disease.

Without disputing any of them, I wish to draw particular attention to the diet side of the question. It is common knowledge that among infants and children, if the diet is an unbalanced one it is more than likely—nay, it is almost certain—that it will be one in which carbohydrates predominate and fats are deficient. Cory Mann⁵ with regard to the etiology of rickets concluded that "of the conditions which predispose to the occurrence of rachitic deformities in children under the age of 2 years, the continual use of an unbalanced diet, characterized by deficiency of fat and excess of carbohydrate, will be found to have antedated the appearance of symptoms in about 45 per cent. of the total cases." All the

common etiological factors of rickets lead to the defective oxidation of the food consumed and to the production of acids, and Barr⁶ has shown that excessive amounts of acids, whether taken by mouth or generated by the fermentation of carbohydrates in the stomach would extract the lime salts from the bones, cartilages, fibrous tissues and nerves; and Hodgson⁷ by further experimental evidence deduced that a compensated acidosis or what I have termed alkalipenia, was present in active rickets, as demonstrated by a reduction of the alkaline reserve.

D.—THE EXUDATIVE DIATHESIS.

Under this heading, I wish to include chronic gastro-intestinal catarrh, Pharyngitis, Enlarged Tonsils and Adenoids and certain cases of Bronchial Catarrh.

Among elementary school children one often comes across a child who is said to be wasting and has a cough. Too often is the case referred to the Tuberculosis Officer as a suspect case of Pulmonary Tuberculosis, whereas a more thorough examination of the patient, and a more detailed inquiry of the mother for symptoms would in many cases clinch the diagnosis of chronic intestinal indigestion.

This condition may be due to congenital inability to digest and assimilate a proper diet, but it is more often an acquired condition brought about by improper feeding in which excess of carbohydrates is a prominent factor. It is characterised by a catarrh of the intestinal tract, but the catarrh may occur in other regions of the body, at the same time. For example, there is often chronic pharyngitis, more or less enlargement of the tonsils, and very frequently adenoids. French authors say that such children have the "arthritic diathesis."

I notice that Sir George Newman⁸ states that the principal defect of the nose and throat in school children is that of enlarged tonsils and adenoids caused by a combination of factors, which include improper diet, intestinal indigestion, toxæmia and infection.

As an illustration of the curious sympathy which exists between the respiratory and alimentary tracts, I will describe the clinical picture of three cases that I observed and treated at a children's hospital some time ago.

Case C.G.: Girl, aged 7. A sister was in hospital a year ago with asthma. Been quite well lately. Got up in the morning with a pain in the chest. Vomited, but no cough. Admitted in evening; P. 150, T. 98.4, R. 50. No cyanosis, but laboured breathing and a smell of acetone. Lungs: Generalised bubbling rales. Abdomen nil

abnormal. Tongue dry and slightly furred. Urine acid +, acetone ++, aceto-acetic acid ++. She was given 80 grains of sodium bicarbonate immediately, and in two hours' time the hyperpnœa had disappeared. On alkaline treatment the acetone bodies departed after 3 days and the child made a perfect recovery.

Case N. H.: Girl, aged 4½. Grandmother suffers from asthma. Was sent to hospital as a case of bad bronchitis. Has had four similar attacks, one of which was diagnosed as Laryngeal Diphtheria, but the condition was not present. Attacks usually last about 10 days and consist of wheezing and laboured respiration. Has never vomited in her life. Quite well and running about day before admission, and at 9 p.m. became restless and breathing became bad. Not unconscious, but won't answer and won't eat. On first observation looks like a case of Laryngeal Diphtheria, with apparent obstructed breathing and rattling of mucus in throat, but no cyanosis. Lies as if in coma at times. P. 160, T. 98, R. 60. Lips and cheeks red. No smell of acetone in breath. Lungs, no dulness, moist rales and occasional expiratory rhonchi. Abdomen and heart, nil found. Urine by catheter acid + + +, acetone + + +, aceto-acetic acid + +. Next day child still in semi-comatose state, but sits up at times and can be roused easily. Sodium bicarbonate given per rectum as well as by mouth. During evening became comatose and was given 80 grains of sodium bicarbonate by mouth and six ounces of 2 per cent. sod. bicarb. in saline subcutaneously.

The following day much better, chest less wheezy. Four days later the child was well and happy.

Case E. C.: Boy, aged 2½ years. Admitted for old infantile paralysis. Has had whooping-cough and eczema which lasted for one year. Normal on admission. The next day he became drowsy with increased respiration rate, red lips and cheeks, strong smell of acetone, and large amount in urine. The temperature was 100° and there was generalised coarse rales in the chest.

He was given sod. bicarb. until the urine became alkaline and the amount ingested was 590 grains. He then sat up in bed and played with toys, though comatose the day before; the temperature dropped to normal on the fourth day and the lungs became absolutely normal and the urine free of acetone bodies. Marked constipation and oliguria were prominent features in the case.

The first two cases might be regarded as asthmatic seizures, but they were by no means typical, and I feel that these respiratory manifestations in children, connected as they are with alimentary disturbances, constitute a definite symptom complex of one form of ketosis. Instead of a constriction of bronchioles as in true asthma, there is an outpouring of mucus, and the therapeutic action of sodium bicarbonate in checking the mucus secretion, dissolving that already secreted, in neutralizing the acidity, and in transporting CO₂ is well illustrated in the above cases.

In passing I should like to mention that I have found that Ketonuria, Alkalipenia, Leucopenia, and Eosinophilia are common factors in the following metabolic complaints: Asthma, Eczema, Urticaria, Migraine, Eclampsia and some forms of Epilepsy.

What was the cause of the sudden outbursts in the three cases mentioned above? Bacterial invasion does not seem likely; is it not probable that this catarrh was activated by some chemical agent of an acid nature, derived from food, and if correlated with the catarrhs already mentioned, can be ascribed to faulty carbohydrate metabolism?

In summing up these varied complaints, for which an unbalanced diet with excess of carbohydrates has been blamed, it is argued that there may arise a toxæmia of such a nature that the body alkali reserve is being constantly drained, and that the toxæmia is produced by the circulation of some chemical irritant to which the tissues respond in some cases by pouring out protective mucus, and finally the whole tone of the body is so lowered that micro-organisms can play their part, with less resistance from their host than they would meet with in a healthy individual.

Undoubtedly very many children and adults exceed the recognised ration of carbohydrate and do not suffer, but it is to those whose tolerance has been broken down by the excess that this paper chiefly refers.

Among the poorer classes the problem of a suitably balanced diet is largely an economic one, among the rich it is a matter of lack of knowledge, but education can be applied to all alike, to the former especially at Infant Welfare Centres, and if the babies of the future are brought up from the beginning on right lines, their panel doctors in after life may not have so many of those tiresome cases to deal with, who describe in their own words their complaints such as "gastric stomach" or "rheumatics."

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NOTES FROM BRANCHES.

NORTH WESTERN BRANCH.

MILK PROSECUTION.

Two charges of selling milk containing added water were brought against Albert Garner, of Holly Cottage, Helsby, by the Cheshire County Council at the Frodsham Petty Sessions on May 16th.

Inspector Hallard stated that at 8.30 on the morning of April 23rd, he was at the Cheshire Creamery, Helsby, when the defendant brought a supply of milk there. Witness took a sample and the Public Analyst's certificate showed that the milk contained 20.7 per cent. of added water.

The defendant denied that the milk had been watered. He stated that he had six cows which gave about 12 gallons of milk a day. He milked the cows on the evening of April 22nd, when the weather was cold, and in his opinion the weather had affected the quality of milk the cows gave. He had been feeding them on potatoes and cabbage and the grass they had had was not of very good quality, and he had noticed the falling off in the quality of the milk produced but he could not help that.

In his defence the Solicitor for the defendant stated that Mr. Garner had a clean record and drew attention to the circular No. 325 issued by the Ministry of Health last year, stating that if a person charged had a good record, and if any special circumstances existed to account for the milk being deficient, consideration should be given to these points. He submitted Mr. Garner had, beyond all doubt, been doing his best to supply good milk.

The second charge was of selling milk containing

11.2 per cent. of added water. The sample was taken on the same day from a tankard in the defendant's cart outside the Creamery, which he was retailing.

The manager of the Creamery was called forward to answer a question from the Bench as to whether the milk was sold by measure or by weight. He was also asked by the Chairman of the Bench if the defendant's milk received at the Creamery had been satisfactory before, whereupon the Solicitor for the defence asked for a dismissal of the case on the ground that a question had been asked of an unsworn witness before the Bench had heard the defence.

The Bench, after deliberation in private, dismissed both cases.

THE SCOTTISH BRANCH.

ENTERIC FEVER FROM MILK.

Arising out of the widespread epidemic of Enteric Fever in the Burgh of Campbeltown, an interesting decision has been given in the Sheriff's Court at that Burgh regarding the duty of the farmer in respect of the health of the milkers employed by him. The salient points in the case were as follows:—

One of the female workers had been feeling out of sorts for three days, but had continued her work. On the evening of the fourth day, the milker sent him a message that she was unable to carry on her duties, and provided a substitute. On the fifth day, however, the milker was able to resume work and completed the day's milking that day. On the following day, however, she was much worse, and was not employed on the farm again. Four days later it was discovered by the Medical Officer of Health that she had symptoms of Enteric Fever, which was corroborated two days later by examinations of the patient's blood.

It was proved, or admitted, in court that the patient was suffering from Enteric Fever, and the onset was probably twelve days before diagnosis was made. The farmer had no suspicion that the patient was suffering from Enteric Fever, but he allowed her to resume work, after having reported sick, without a medical certificate that she was not suffering from any infectious disease.

The proper thing for the farmer to have done when the patient sought to resume work was to request a certificate from her medical attendant that she did not suffer from an infectious disease,

and was otherwise in a fit state to undertake milking. The fault of the farmer was that he omitted a general supervision of the condition in respect of health of his workers before they commenced work.

In summing up, the Sheriff remarked "it may well be that many dairymen neglect their duty in respect of the supervision of the health of their workers," and said that he had not been able to discover any previous case of the kind in Scotland. He kept that fact in view in dealing with the question of penalty. The degree of fault on the Respondent's part, his Lordship thought, would be met by the imposition of a modified penalty of One Pound, the alternative being seven days' imprisonment.

EFFECTS OF BAD VENTILATION SIMULATING FOOD POISONING.

The following Notes have been received from Dr. Johnston, Deputy Medical Officer of Health, County of Dumbarton.

A suspected out-break of Food Poisoning was reported from a House Boat on the River Leven, at Balloch, on the 9th April, 1923, involving five persons, four adults and a boy of ten years.

A visit was made by the Medical Officer of Health, and the following facts elicited.

1. The symptoms, which began about 5.30 a.m., consisted of severe general headache, nausea and bilious vomiting. These were severe in one case, moderate in three cases and slight in one case. There was no abdominal pain or diarrhoea.

2. At 11.30 a.m. the only signs made out were marked congestion of the face in all patients except the one with the severe symptoms, whose face was pale. Slight tachycardia in all cases and marked somnolence in the moderate cases, who were recovering. The slight case, who, alone of the five, had been outside, was quite recovered.

3. The only article of diet open to suspicion was some boiled ham which had been eaten by the five patients and two guests about 5 p.m. on the previous evening. The ham appeared to be perfectly fresh and wholesome.

4. The atmosphere within the houseboat was stifling; all windows had been tightly closed (because of rain) during the night, and in the central apartment of the boat a cast-iron stove had been burning coal all night through.

The two guests of the evening before were at once visited and were found to have had no

symptoms whatever. All the patients had completely recovered by the evening, and there seems no doubt that the symptoms were due to the effect of bad, or rather, non-existent ventilation.

THE METROPOLITAN BRANCH.

DATE OF ANNUAL MEETING.

The Annual Meeting of the Branch will be held at the Society's house on Friday, July 6th, 1923, the Council at 3.30 p.m. and the Branch at 4 p.m. Agenda papers will be circulated separately.

ROYAL SANITARY INSTITUTE CONGRESS.

The programme of the Sanitary Science Section of this Congress—the thirty-fourth of the series—to be held at Hull, is now completed and includes the following papers:—For the first session, Tuesday, July 31st.—"The Detection and Prevention of Tuberculosis amongst Workers over 16 years," by Dr. James A. Raeburn, Tuberculosis Sanatorium, Cottingham, East Yorks.; "Some Observations upon the Training and Employment of Tuberculosis Persons," by Dr. Noel Bardswell, M.V.O., London County Council; and "The Use of Diathermy in Pulmonary Tuberculosis," by Dr. Percy Hall, Hull. For the second session, Wednesday, August 1st.—Papers on "The Prevention of Cancer," by Dr. W. Allen Daley, M.O.H., Blackburn, and Dr. Alex. Theodore Brand, Driffield Poor Law Infirmary, East Yorks, and one on "Diphtheria, with special reference to the Schick Test and Active Immunisation," by Dr. R. A. O'Brien, Wellcome Physiological Research Laboratories. Sir William Hamer and Dr. Charles Porter, President and Hon. Secretary respectively of the Section, extend to all members who propose going to Hull a cordial invitation to take part in the discussions which will follow the reading of the various papers.

WEST OF ENGLAND BRANCH.

THE SOCIETY AND THE ASSOCIATION.

Another step along the road which is leading towards a complete and effective co-operation between the Society and the British Medical Association was taken at Exeter on June 1st. A joint meeting of the West of England Branch and the local Division was held at the Devon and County Hospital immediately after the business meeting of the Branch at the same place. The

President of the Division gave a very interesting historical retrospect of the growth and relationship of the two bodies concerned. A discussion then took place on the recommendations affecting the Public Health Services which are to be put before the Annual Representative Meeting of the Association at Portsmouth in July, and the representative of the Division was instructed to support them.

THE NEXT MEETING.

The next meeting of the Branch has been provisionally arranged to take place at Bristol on July 12th. This will be the Annual General Meeting at which Officers for the ensuing Session must be elected. In addition to this there are other matters of considerable interest, the discussion of which will make the gathering an important one. The suggestion that meetings should be held on Saturdays did not find favour with members present at Exeter, and was not adopted.

SMALL-POX.

Medical Officers in the West of England must have watched with growing concern how small-pox has been creeping nearer and nearer, by way apparently of Staffordshire and Herefordshire. The Branch area had been free for a long period until February, when a single case occurred in the latter county. By March it was in Gloucestershire, where some scores of fresh cases have since been notified. There seems to be difficulties in checking the outbreak in Gloucestershire, which is one of the few counties where the precautions taken have so far failed to have the desired effect of cutting it short. This is, no doubt, accounted for in part by the mild nature of most of the attacks and their resemblance to Chicken Pox. The association of Gloucester with small-pox, however, has an interest which is not confined to events which were occurring there rather more than a hundred years ago, and we shall look forward to reports and statistics of the present outbreak which it is to be hoped will be issued in due course.

HULL MEDICAL OFFICER OF HEALTH. Dr. J. Wright Mason, for forty-two years Medical Officer of Health and Police Surgeon for the City of Hull, has been presented with a rose-bowl by the Chief Constable of Hull (Captain A. Woods), on behalf of 500 present and past members of the police force. Mrs. Wright Mason was presented with a wristlet watch. Dr. Wright Mason, who is also Port Medical Officer to the Hull and Goole Port Sanitary Authority, is retiring in the near future.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.

ORDINARY MEETING.

An ordinary meeting was held at the house of the Society on Friday, May 11th, 1923. In the unavoidable absence of the President, Dr. W. J. Howarth took the chair.

The minutes of the last meeting were approved and signed.

The following candidates having been duly nominated were elected as members of the Society:—

Blackburn, Wm. Howard, M.A., M.B., B.Ch., Cantab., M.R.C.S., L.R.C.P., D.P.H.; Bonar, Thos. Mitchell, M.B., C.M., Glasg., D.P.H.; Druitt, Arthur Edward, M.R.C.S., L.R.C.P., D.P.H.; Falconer, Kinloch, M.B., Ch.B., Glasg., D.P.H.; Munro, David, C.I.E., Air-Commodore, D.M.S., R.A.F.M.S., M.A., St. And., M.B. Edin., F.R.C.S., Ed.; Painton, George Richard, M.R.C.S. L.R.C.P., D.P.H.; Spencer, Walter, L.R.C.P. and S. Ed. L.M.; Sullivan, John, M.B., Ch.B., Edin.

A number of candidates were nominated for election at the next meeting.

Dr. G. F. Buchan, on behalf of the Home Counties' Branch, asked the chairman to accept a portrait of Lt.-Col. F. E. Fremantle, O.B.E., M.P., President of the Society, 1920-21, for inclusion in the gallery of past-presidents. Dr. Buchan said that the Society had reason to be grateful to Col. Fremantle, not only for his active share in their work during his long membership of the Society, but also for the fact that in spite of his Parliamentary duties he continued to be a regular attendant at their meetings. They believed that Col. Fremantle was destined to reach exalted positions in the service of the State, and it was well that his portrait should hang in the house of the Society where his abilities had been quickly realised and so long appreciated.

In accepting the portrait, Dr. Howarth expressed regret that the President could not be there to receive a gift that would always be valued by the Society.

Election of President.—The chairman reported that the Council had nominated Dr. Thomas William Naylor Barlow, O.B.E., for election by that meeting as President of the Society for the Session 1923-24. Dr. Howarth said that no words of his were necessary to commend to their acceptance one who had for so many years rendered conspicuous service as Honorary Secretary and councillor of the Society. Dr. Barlow's election was carried by acclamation.

Dr. S. H. Daukes, O.B.E., then read a paper on "The Bearing of Preventive Medicine in the Tropics on Home Problems." The paper with a report of the discussion will be published in an early issue of "Public Health." After a vote of thanks to Dr. Daukes the meeting adjourned.

MIDLAND BRANCH.

Meeting held in the Council House, Birmingham, May 3rd, 1923. Present: the President (Dr. H. Gibbons Ward) and 11 Members.

The Hon. Secretary reported certain further action that had been taken in respect of those members of the Midland Branch who had not replied to the enquiry *re* their membership of the B.M.A., and submitted revised figures now available as to membership of the Society and the Association.

Suggestions were made for varying the meeting place of the Branch, and it was decided to try and arrange for one or two of the meetings to be held in towns other than Birmingham.

A letter was read from the Executive Secretary with reference to the recent appointment of a Medical Officer of Health to an Urban District Council in the Midlands.

A further letter was read inviting suggestions for a Public Health Act (Amendment) Bill. Dr. Snell having reported, it was resolved that the consideration of any proposals on these lines be deferred until the next session.

Consideration was next given to the Draft Articles of the Association. The Hon. Secretary was instructed to forward to the Council of the Society suggested amendments proposed by the Midland Branch.

The meeting concluded with a discussion on the Milk and Dairies (Amendment) Act, 1922. Nearly all those present took part in this discussion, but no resolution was passed.

YORKSHIRE BRANCH.

A meeting was held in York on May 25th, 1923. There were present 18 Members.

The Members visited the Royal Sanatorium at Fairfield and were shown round by Dr. McNaught and the Matron. They then returned by motor to the Mansion House, where the General Meeting was held.

The Hon. Secretary laid several matters before the meeting and the President then called upon Dr. Newsholme to read his paper—"Dietetics in relation to Preventive Medicine." The paper was greatly appreciated by the Members and it is hoped that it will appear *in extenso* in Public Health.

At five p.m. the Lord Mayor and Lady Mayoress entered the room and after mutual greetings had

been exchanged invited the Members to take tea with them. The City Plate was on view and the Lord Mayor kindly explained the origin and history of some of the more particular pieces.

Dr. Buck then proposed a hearty vote of thanks to the Lord Mayor for his courteous hospitality, the seconder being Dr. Jefferson.

EASTERN BRANCH.

Meeting held on Saturday, the 21st inst. The Draft Articles of the Association of the Society of Medical Officers of Health were unanimously approved.

PRIVIES FOR RURAL DISTRICTS.

At a previous meeting, Dr. Back (M.O.H. of the Rural Districts of Aylsham and Blofield, Norfolk) opened a discussion as to the best form of Privy Accommodation in Rural Areas; favouring a separate privy for each cottage; also a bin privy where there is a large garden—contents of which to be dug in twice a year. He considers this better than a pail. When a public scavenger is provided he prefers pails.

As regards construction of privy, he thought it was of no use pressing for ideal when the rent is only 2s. or thereabouts. He considered a wood roof covered with asphalt should be required, and that ventilation could be secured by cutting off the top (and bottom) of the door. An important point is the flooring and seat. The floor should be non-absorbent and the seat made to allow easy removal of pail. The floor should be of concrete and sloping towards the door: the floor sloped laterally and grooved for pail. The seat should be of wood about 1-in. thick, cut with an egg-shaped opening, 12-ins. by 9-ins. The height of seat board should be low—less than the usual 22-ins. The most suitable height is 17 ins.

Dr. Back shewed illustrations illustrating his points, and summed up the main points as being (1) seat correct height, viz., 17 in.; (2) no space between top of pail and seat; (3) large oval opening in seat; (4) heavy hinges to strengthen seat; (5) easy access to pail for removal—hinged seat and no riser; (6) no corners in space below seat; (7) concrete floor with channel to screw pail in position below opening in seat; (8) clear view of any filth that may accumulate round pail (no riser) (9) cheapness of construction.

The main object of the cover is an anti-fly measure. Dr. Shepherd thought the ordinary

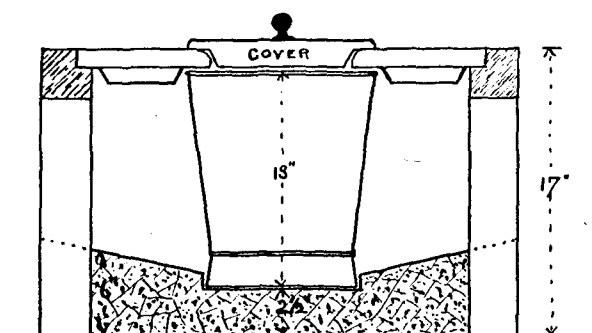
pail the only possible solution in crowded areas and small towns. Dirtiness of the inhabitants an element to be reckoned with.

Dr. Lack (President) eulogised Dr. Back's privy because of its cheapness (cost about £7.)—no receptacle for dry earth—no riser.

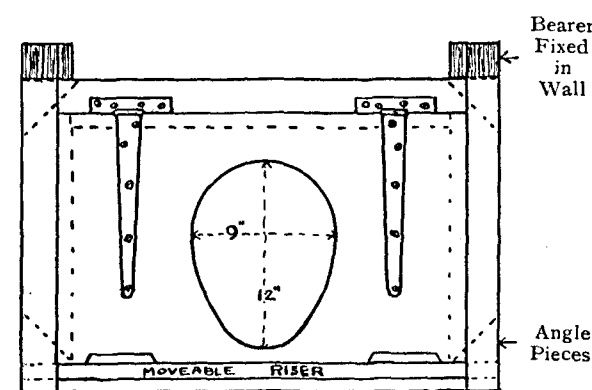
Dr. Nash suggested that in small towns, and in the larger villages, where houses were congregated on small areas with insufficient curtilage for each house, the present generation were suffering for the sins of their forefathers. It would be difficult to deal satisfactorily with such areas unless action was taken under Part 2 of the H.W.C. Act, 1890, for the removal of obstructing dwellings which interfere with the amenities of neighbouring houses.

AYLSHAM. R. D. C.

E. G. SEAT. Scale $\frac{1}{12}$.



ELEVATION.



PLAN

Provide Hinged Seat 1" thick
.. Cover to Seat
.. No Riser
.. Concrete Base for Pail

As regards the type of privy suggested by Dr. Back; he thought the less woodwork the better, and would prefer two simple flaps—a few inches

wide—just sufficient to enable the user to sit comfortably.

In sparsely rural areas Dr. Nash thought no better method could be devised than the method adopted in the Mosaic dispensation, and to this day used in military hygiene. Short shallow trenches measuring 1-ft. in length, and 9-ins. wide, and 9-ins. in depth, for each day's excreta of five persons. The daily excreta of five persons would be equivalent to about eight ounces of dry solids and about five imperial pints of fluids, which could easily be absorbed in such a trench—especially if care was taken that each user covered his own excreta at each visit. If a plot of suitable ground 15-ft. square was reserved for the disposal of excreta, it would take six months or more to cover the area, and by then, the first used trench could be utilised again. In the intervals crops could be grown. Alternatively to a moveable screen for privacy—the excreta could be passed into a pail under cover and emptied daily into a trench; but he thought people should be re-educated to the natural open-air method in quite rural areas.

Dr. Back, in reply, agreed that it would be better to have no risers. As regards scavenging he had found little or no difficulty. After having bins converted to pail closets in a village he estimated the number of pails, and sanitary bins; advertisement was then made for a scavenger at so much per pail and bin per year—the pails to be emptied once (in some cases twice) a week. (In his district the cost averaged 8s. per year per receptacle, and the scavenger might make £100 a year). The Sanitary Authority provided the cart, and the scavenger the horse. In the "contract" the disposal of the refuse must be to the satisfaction of the Medical Officer of Health. The usual method of disposal was on a farmer's muck heap, the human excreta being covered over with manure, and in due time digged in. The scavenger has to keep a list of the receptacles he is responsible for.

He recommended persons who did their own scavenging to dig a celery trench about 15 yards long, empty the pail contents into the trench, replace the soil and then plant broad beans.

SOUTHERN BRANCH.

A meeting of the Branch was held at the Lord Mayor Cripple's Hospital, Alton, on May 4th, 1923. After the formal business was gone through the members were taken round the Hospital by Sir

Henry Gauvain, who explained in some detail the various method of treatment employed in the care of the patients. At the end of an interesting afternoon members were entertained to tea by Sir Henry and Lady Gauvain.

The June meeting was held in Southampton on the 1st June, when the election of officers was held. Dr. Lockhart Stephens, of Emsworth, was President-elect for the next session.

The next meeting of the Branch will be a combined meeting with the Naval, Military and R.A.F. Hygiene Group of the Society, held at the Army School of Hygiene, Aldershot, in the afternoon of July 13th.

NORTH-WESTERN BRANCH.

Meeting held at the Union of Lancashire and Cheshire Institutes, Manchester, on Friday, the 11th May, 1923.

Present: Dr. Barlow (chair) and 17 members.

Dr. Barlow mentioned that the Branch had been invited to hold its Annual Meeting at Blackpool during Carnival Week. The members expressed their gratitude to Dr. Rees Jones for the invitation but hoped he would fix some other time.

A communication was read from the Executive Secretary to the effect that the resignation from membership of the Society of Dr. G. Charles Walker, Medical Officer of Health for the Borough of Lytham-St. Anne's, had been accepted.

A communication was read from the Executive Secretary stating that the Council had been asked to submit suggestions for a Public Health Acts (Amendment) Bill for the consideration of members of the Opposition who wish to stimulate Government action in this direction. The communication asked the Branches to discuss the proposal.

A discussion took place and the following resolution was passed unanimously:

"The North-Western Branch is of opinion that while there is great need for the modification and amendment of the Public Health Acts, it considers that any proposals for the purpose made by the Society should be submitted to the Ministry of Health and published generally.

"The Branch considers that it would be unwise of the Society to prepare proposals for any political or other organisation. The Society should, however, express its willingness to offer suggestions and criticism with regard to any Bill prepared by a

Member of Parliament, or group of Members, for submission to Parliament."

Dr. C. O. Stallybrass then read a paper on "Encephalitis Lethargica," the salient points of which are as under:—

Since 1917 the disease has spread pandemically throughout the world. It has become as common as enteric fever and as fatal as unmodified small-pox. Its clinical manifestations are protean. The sequelae and residua are frequent and severe, and render the individuals affected useless to the community. The problem of its prevention is as yet unsolved. There have been recrudescences this winter in our two principal Western seaports, Glasgow and Liverpool, as well as in New York. The paper is mainly based on 127 Liverpool cases. The numbers of cases notified in Liverpool in successive years from 1919 onwards have been 2, 17, 27 and 5. Up to the end of April this year 76 cases have been reported: this is more than the total for the antecedent four years.

Within the last twelve months there has been a change in the type of the disease which has become more severe and fatal, the fatality rates for the years 1920 onwards having been 12%, 22%, 5%, 40%, and 39% respectively. The clinical type has somewhat altered. In 1921 the majority of cases occurring in Liverpool (81%) could still be classified as "oculo-lethargic" in type, but this year less than half the cases, that is, 45%, can be classified as "oculo-lethargic." The remainder have been frankly myoclonic (14%), choriform (25%) or psycho-motor (16%) in type. Instead of lethargy there was often extreme restlessness and excitement; sometimes delirium of a wild and unrestrainable type, frequently of an occupational form. Instead of somnolence there was prolonged sleeplessness: instead of or in addition to paresis, there was myoclonus (80 to 100 contractions per minute) or other form of hypermotility, often associated with severe pains. It is often a feature of the delirium, as of the lethargy, that the patient can be aroused to reason for a brief period by a sharply put question or command. The whole aspect of the disease has developed in the direction of hyper-activity of the brain rather than depression. Even the cases classed as "oculo-lethargic" more often than formerly present at some stage of the disease the features of sleeplessness, excitement, delirium or hyper-motility. The variable fever, occurrence of myotatic irritability, of exophthalmos,

of vertigo, or of waxy flexibility and the occasional scarlatiniform or purpuric rashes were also mentioned.

In speaking of diagnosis Dr. Stallybrass referred to the difficulty of distinguishing between these cases and those of tumour or abscess of a "blind" area of the brain. In those cases the ophthalmoscope often assists, but optic neuritis may be present in Encephalitic Lethargics and absent in cerebral tumour. Examination of the cerebro-spinal fluid often assists. The normal sugar content is 80 milligrammes per 100 c.c. In Encephalitis he had not found it lower than 68 milligrammes and the average was about 75. In meningitis it was always below 80 milligrammes. In Encephalitis Lethargica the cells present in the cerebro-spinal fluid are lymphocytes and few in number. The grave sequelae were described. The commonest is "Parkinsonianism" or symptomatic paralysis agitans. Other residua are myoclonic and also slow rhythmic movements and psychoses, especially dementia precox.

Another serious feature is liability to relapse, the acute symptoms being reproduced. The recurrence is usually at the time of year when the disease is most prevalent, namely October to February: or in one case it was noticed on return from a warm climate to a cold one. The Derby and Mulheim outbreaks were described and particulars were given of multiple cases which had occurred in the experience of Dr. Stallybrass. The susceptible age is especially the decade from 10 to 20 years, and the disease differs from all other notifiable diseases in that it is least fatal at the most susceptible ages. Previous injury to the brain appears strongly to predispose. Dr. Stallybrass stated that he could find no support for the suggestion that Encephalitis had some shadowy connection with influenza. The disease has great interest for epidemiologists in that we are witnessing an epidemic apparently affecting a virgin population, and it further appears to be in course of evolution.

Dr. Wilkinson proposed a very hearty vote of thanks to Dr. Stallybrass for his most valuable paper and suggested that probably there were a large number of "carriers" of Encephalitis.

Dr. Wood seconded and referred to the importance of the disease in view of the recent increase in incidence and the serious mental sequelae.

Dr. McClure stated that the recent increase had not been noted in Manchester. He had recently followed up fifty cases which had occurred in 1920-21. Twenty-eight were dead, eleven had recovered perfectly, and eleven were chronic invalids. These included four with "Parkinsonianism" and three with paresis, one of the eyes and two of the limbs.

Dr. Lissant Cox referred to his experiences at the Loch Maree outbreak of botulism and stated that there Encephalitis had been ruled out because of the absence of temperature and lethargy.

Dr. Barlow referred to the extreme value of appointments such as those which Dr. Stallybrass held in enabling one man to collect epidemiological material from a large area.

The resolution was put to the meeting and carried unanimously.

Dr. Stallybrass, in replying to the vote of thanks, stated that in his opinion many cases were missed. It was not sufficiently realised that in many there might be no lethargy at all. He suggested that the disease should be called Epidemic Encephalitis and not Encephalitis Lethargica.

NORTHERN BRANCH.

The Annual Summer Meeting, held at the Golf Club House, Dinsdale, on the 15th June, 1923.

The President, Dr. T. Horne, presided, and there were 15 members also present.

The minutes of the last meeting having appeared in PUBLIC HEALTH for May, were taken as read.

The Honorary Secretary was instructed to write to Dr. J. W. Smith conveying the sympathy of the Branch with him in his indisposition, and wishing him a speedy recovery.

A letter of thanks for the support of the Branch to his candidature for the Presidency was received from Dr. T. W. N. Barlow.

A letter was read from the Honorary Secretary, Metropolitan Branch, asking for support in opposition to the provision in the new Draft Articles of Association whereby the Honorary Secretary of a Branch is no longer to be a representative on the Council *ex officio*.

The general opinion of the meeting was that obviously the Honorary Secretary would be the most appropriate representative of the Branch, but as the Branch was still at liberty to elect him as such, there appeared to be no need for further action.

A letter from the Executive Secretary regarding the proposed Public Health Acts Amendment Bill was presented and left in the hands of the Honorary Secretary to deal with.

The Honorary Secretary asked for sanction to arrange for the usual presentation to the Society of a portrait of the President, who this year comes from the Northern Branch, and this was granted.

Appreciative reference was made to the imminent departure of Dr. S. J. Clegg, one of the senior members of the Branch, to take up the appointment of Medical Officer of Health, Durban, which he will assume with the hearty good wishes of all his old colleagues in the Branch.

Branch President, 1923-1924.—On the motion of Dr. Mostyn, seconded by Dr. A. Smith (senior), Dr. A. G. R. Cameron, Deputy Medical Officer of Health for Durban County Council, was elected *nemine contradicente*.

Honorary Secretary and Treasurer.—On the resolution of Dr. Hill, seconded by Dr. Brodie, Dr. H. Kerr was re-elected Honorary Secretary and Treasurer, representative on the Council, additional to the Honorary Secretary, *ex officio*. The usual procedure was followed, and the President-Elect of the year (Dr. A. G. R. Cameron) was elected.

Medico-Political.—The Honorary Secretary detailed progress in the furthering of relations with the B.M.A., and reported his recent issue to each member of the Branch of information as to the B.M.A. representatives appointed to the Annual Representative Meeting at the May elections. Other members also reported very satisfactory work done in their respective divisions.

Whickham and Ryton.—The Honorary Secretary reported that an appeal by the Whickham U.D.C. against the refusal of the Ministry to sanction a reduction in the salaries of the M.O.H. and Sanitary Inspector had been rejected by the Ministry with an emphatic expression of disapproval of the proposal.

The neighbouring U.D.C. of Ryton had in the meanwhile attempted to follow a like course, and in this instance sanction had also been withheld with similar emphasis.

Arlecdon—Frizington.—Reference was made to the recent incident in connection with the appointment of M.O.H. (part time) of Arlecdon-Frizington, referred to in the Parliamentary Notes in the public health journals, and it was decided that the Honorary Secretary should continue to take such steps as he thought advisable in conjunction with the Executive Secretary of the Society and the Medical Secretary of the B.M.A.

Hartlepool.—The sequence of events at Hartlepool was recounted by the Honorary Secretary, who informed the meeting of the acceptance, in spite of warning, of the appointment which had been so definitely proscribed by the Society and the B.M.A. The following resolution, moved by Dr. Hill, seconded by Dr. Morison, was adopted, and the Honorary Secretary was instructed to forward copies of it to the young practitioner who had accepted the Hartlepool appointment, to the Executive Secretary of the Society, and to the Medical Secretary of the B.M.A.

The Northern Branch of the Society of Medical Officers of Health desire to record their extreme regret that at so critical a time as the present, when every effort is being made by the medical profession to prevent a reduction of the

already inadequate salaries paid to public health officers, a member of the profession should have been so disloyal to the interests of his colleagues as to apply for and accept the post of Medical Officer of Health for Hartlepool, knowing that this appointment was at the time definitely and prominently black-listed in the British Medical and other medical journals.

South Shields.—The Honorary Secretary reported that the Medical Officer of Health, South Shields, had resigned his appointment, with a view to taking up general practice, and that this sequence to prolonged service was becoming an only too common necessity among our members, thereby emphasising more than ever the vital importance of loyal and concerted action.

The previous history of public health appointments in South Shields was recalled, and satisfaction was expressed that at this particular juncture this Authority found itself without even subordinate officers to whom the senior post could be offered on the usual niggardly terms. The decision of the Corporation to advertise at £750 was mentioned, and the refusal of the advertisement by the medical press.

Cumberland C.C.—Information was given as to the conditions of an appointment of an Assistant Medical Officer of Health by the Cumberland County Council, in which the salary was stated to commence at £500, or possibly higher, rising to a maximum of £700, but to carry with it the condition that the incumbent should himself provide and maintain a four-seater car. The advertisement, having been refused by the medical Press, had appeared in the "Times" and other lay journals. The Honorary Secretary was instructed to satisfy himself that the Executive Secretary of the Society was fully informed regarding this appointment also.

General approval was expressed of the action of the Honorary Secretary in each of the foregoing cases.

North Riding (Yorks).—The outcome of the appointment of Medical Officer of Health, North Riding, was reported, and reference was made to the active part taken by the Darlington Division of the B.M.A. in support of the Society's endeavours to obtain salary according to the recently evolved scale, and the Honorary Secretary was instructed to write a letter of thanks to the Darlington Division for their greatly appreciated help.

This completed the business of the meeting, after which an adjournment was made for lunch, and favoured by fine weather the rest of the day was spent profitably and most enjoyably upon

the very charming and excellent golf course.

A stroke sweep had been organised by Dr. Brodie, and this was won by Dr. Kenneth Fraser with a net score of 72.

SCHOOL MEDICAL GROUP.

The Nineteenth General Meeting of the School Medical Group of the Society was held at the Society's Offices on Saturday, the 16th June, 1923. The minutes were approved and signed. After reading of correspondence, Dr. Slowan gave a report of the first meeting of the Metropolitan and Home Counties Sub-Group. Although there was a fair attendance the election of permanent officers was postponed, as it was hoped that Dr. C. J. Thomas, the Group President, would accept the Chairmanship. A keen discussion took place on the resolutions of the North-Western Sub-Group. The following resolutions were passed unanimously: (1) "That in all areas vacancies in the School Medical service should be advertised in the medical journals." (2) "That a warning notice be sent by the Society of M.O.H. to the Deans of all Medical Schools pointing out the inadequate remuneration and the poor prospect of promotion in the School Medical service, and that these notices should be prominently displayed on the school notice boards yearly."

The resolution "that all Medical Officers of Health should be asked to advise their committees to advertise vacancies in medical journals only" was considered as not necessary, as it was felt that it was covered by resolution No. 1 above.

TUBERCULOSIS GROUP.

METROPOLITAN SUB-GROUP.

A meeting of the Metropolitan Tuberculosis Sub-Group was held at the House of the Society on June 1st. Dr. H. Wilson was elected Chairman and Dr. G. Macdonald (179, Battersea Bridge Road, S.W.), Honorary Secretary for the Session 1923-1924.

Dr. Noel Bardswell, M.V.O., gave a very interesting address on "The selection of cases of Pulmonary Tuberculosis for treatment in sanatoria." He said that in spite of all failures and disappointments, the best treatment for pulmonary cases of all types, was that given in sanatoria, to reach our ideal we should be able to offer this to every case, but at present, owing to the limitation of beds, selection became necessary. He then dealt with each type of the disease separately, taking the Ministry of Health classification. The "A" cases without symptoms do well at home,

but when symptoms are present sanatorium treatment is strongly indicated. For the small group classed as "Bi." a year under sanatorium conditions is desirable, these are very hopeful cases for treatment, and in some it is possible to get the sputum free from bacilli, which greatly improves the patient's outlook. Dr. Bardswell considered "Bii." cases as the ones most open to difference of opinion, but advised sanatorium when the constitution was not impaired and the patient possessed "character." For the "Biii." group, he recommended homes for advanced cases or Poor Law institutions; he believed that they were less danger to the community than "Bii." patients, owing to the fact that they were more confined to their homes.

A discussion followed in which all present took part. After Dr. Bardswell had replied to questions a hearty vote of thanks to him terminated a very useful meeting.

CORRESPONDENCE.

The Editor does not accept responsibility for the opinions of correspondents.

THE DANGERS OF BIRTH CONTROL

Sir,—As two articles in the April number of Public Health dealt with the subject of Birth Control, it seems fair that the readers of that journal should have the other side of the question brought before them, besides that emphasized in these articles.

The writers seem to assume that the so-called contraceptive methods are entirely to the *physical advantage* of those who practice them and especially do they lay stress on the fact that they consider that the habitual practice of such methods spares the married women's health and strength.

The writer of one of these articles (Dr. Meredith Young) is an experienced medical officer of health, and he quotes the writings of another of his colleagues, Dr. Killick Millard, to enforce his contentions.

No doubt, these writers speak from their own point of view, but surely the last word on this question should be with the gynaecologists. We will now quote the considered opinion of some of the leading ones of our day.

At a recent discussion on Sterility by the obstetric section of the Royal Society of Medicine,* several of the chief London gynaecologists expressed themselves as strongly against contraceptive methods.

Dr. Gibbons said that in his opinion it was of great importance that newly-married couples who

*See proceedings of Royal Society of Medicine for August, 1921.

sought advice should be told that they took precautions against conception at their own risk and that they could not break physiological laws with impunity. He had known women who had started married life with a determination to avoid conception, who had years afterwards given up preventives and had done everything in their power to cause conception, but had failed; and he had known women who, having had one child after marriage, had determined to have no more. These had subsequently changed their minds and had been bitterly disappointed that all their efforts to produce a second child had had no result. In these women, he had been satisfied that pelvic examination revealed nothing abnormal and that their husbands were sexually sound.

He was certain that the majority of men did not know the harm which might follow the use of these preventives, especially to the nervous system of women who had normal sexual feelings, and he therefore considered it of the highest importance that they should be told.

Dr. Herbert Spencer said that he could corroborate Dr. Gibbon's statement as to the frequent use of preventives and their effect in causing permanent sterility. In the case of quinine pessaries, especially, he had found a thickening of the epithelium of the external os which probably extended to the endometrium and explained the permanent sterility when patients who had used the pessaries in early married life had later left off their use in the hope of having a child.

Dr. Giles endorsed Dr. Gibbon's remarks as to the great unhappiness resulting from deliberating childless marriages, and said he had always warned patients of this. He believed that the use of quinine pessaries had a permanently bad effect. Those who waited for a convenient season to have a child, often laid up trouble for themselves. On the question of fibroids, he had come to the conclusion that these were not a cause, but in a sense a consequence of, sterility. Women who were subjected to sexual excitement, with no physiological outlet, appeared to have a tendency to develop fibroids. He would like the opinion to go forth from the Section that the use of contraceptives was a bad thing.

Dr. Mary Scharlieb, in the course of her evidence before the National Birth-Rate Commission, said that a long professional life, devoted to the service of women had led her to the conclusion that contraceptive practices are injurious in their effects on many who use them. These injuries occur almost entirely through their influence on the nervous system. The use of the sheath, of germicidal pessaries and of rubber caps is not productive of dramatic and immediately evident injury, but the women who have habitually used such contra-

ceptives are apparently liable to increased nervous instability, especially in later middle life when the third great test of womanly soundness is at hand.*

At a meeting of the Medico-Legal Society in July, 1921, a paper on "Some factors in the control of the birth-rate" was read by Professor Louise McIlroy. She said that she considered that contraceptive methods lead to local pathological conditions and to general neurosis—and in some cases cause the retention of secretions in the uterine canal.

Professor Amaud Routh, in opening the discussion on this subject at the same meeting, said that he believed that all such contraceptive methods were harmful. He said that individuals of either sex who habitually override physiological limits by truncation of the complete function, or by the use of mechanical or chemical contrivances soon suffer from nervous exhaustion, inability to concentrate mentally, or become so irritable and "touchy" that marriage ceases to be the satisfied bond of union. Women may develop pelvic trouble which may prevent conception when it is desired later on.

Lady Barrett in her book, *Conception Control*, recently published, says of contraceptive methods: "Most of the methods so widely advertised are productive of diseased conditions, whether from the nature of the method itself or from the way in which it is used, and all of those recommended to women, interfere with normal physiological processes." These quotations can be allowed to speak for themselves.

Dr. Meredith Young in his article referred to above, speaks of the number of gynaecological cripples arising from perennial child-bearing. But the experience of those of us who work at obstetrics and gynaecology would seem to show, on the other hand, that a large number of these "gynaecological cripples" have been rendered so through lack of antenatal care and by mismanagement at the time of and after delivery of a child.

The opinions of the distinguished gynaecologists quoted above, as to the bad physical effects of contraceptive methods on the women who practice them, cannot be lightly disregarded.

Therefore, apart from moral considerations on this question, we should as health workers consider seriously what the result of the use of these contraceptive methods on the minds and bodies of the women of England will be, if the present broadcasting of such methods continues. We may be very sure that Nature will not allow herself to be cheated, without exacting a very heavy penalty.

We are, Sir,

Yours faithfully,

X. & Y.

*See pp. 247, 269 and 271 of "The Declining Birth-Rate," published by Chapman & Hall.

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Editorial.

THE SALARIES SCALE.

Every member of the public health service will learn with satisfaction that the representative meeting of the British Medical Association held at Portsmouth has approved the salaries scale, and thereby constituted it as one of the defined policies of the Association. Such a step unites the medical officer more than ever with the great bulk of the profession and the union will undoubtedly result in the benefit of the practitioner as well as the medical official. To many distinguished members of the B.M.A. Council, but particularly to Dr. Bolam, Chairman of the Council, belongs the credit of securing this important step which, we believe, will be recognised in the future to constitute the most vital advance ever made by the Association on behalf of professional remuneration.

Recent events have proved satisfactorily that the public health service as a whole is well organised and thoroughly loyal, and the Society of Medical Officers of Health was in a position to fight the battle on behalf of the scale on its own account if necessary, but it will be a matter of great relief and infinite satisfaction to every member to know that the issue will now be joined by a united profession as a whole. We look forward with confidence to a long period of mutual helpfulness between the Society of Medical Officers of Health and the British Medical Association.

The avowed hostility of the County Councils Association and possibly other bodies must not be taken too seriously. Every public body can now be prevented from securing satisfactory medical officers until suitable salaries according to the scale are offered, and that fact constitutes the final reply to all opposition. County Councils have recently succeeded (in Herefordshire, Staffordshire, Isle of

Ely, and North Riding of Yorkshire) in filling vacancies at completely inadequate salaries, although only by sacrificing all choice among candidates, and presumably the County Councils Association think that these "successes" can be continued in defiance of professional unity, but we believe that they will soon realise their error.

We have repeatedly urged that the pay of panel practitioners must depend largely upon the pay of the whole-time medical officer. So long as the public is led to believe that the whole-time services of a *specialist* can be secured for about £700 a year, it is not likely to agree to a scale of panel pay which starts any and every medical practitioner on the panel earning an income at the rate of about £1,750. It is for this reason that we believe that the adoption of the salaries scale by the British Medical Association is a step which will be found to be at least as much in the interest of the panel practitioner as it is on behalf of the public health service. Our interests are so bound up, one with the other, that inadequate pay to one branch constitutes serious danger to the others. It seems necessary to state again this fact clearly as our previous remarks have been misrepresented in certain quarters.

The way the subject strikes business men and politicians was clearly expressed by Dr. A. Salter, M.P., at a recent meeting. Dr. Salter said that on the question of remuneration he had had the advantage of listening to the opinions of representatives of approved societies. He had had the opinions dinned in his ears for months past at repeated conferences, and also the views of presumably impartial persons who represented the great public outside. As far as he could see it was assumed that a panel practitioner in an industrial district had from 2,000 to 2,500 patients on his list, and if the capitation fee was 13s. 6d., that meant an annual income from panel practice alone of £1,750 per annum. The representatives of the great general public said "If that is a fair market rate, all right. We desire to pay the full market rate and get a satisfied service, but the State has no right to pay something considerably above that rate." Then it was said that the £1,750 was only part of the doctor's income. Even assuming that he had no private practice whatever, the remuneration had to be compared with the remuneration of a Medical Officer of Health and other expert medical men occupying public positions. Nobody could deny that a panel doctor with from 2,000 to

2,500 people on his list was receiving a very much higher sum than such men. He could see the force of the argument, and could not get away from it. In his own district, and it was so in other industrial districts, almost every panel practitioner was receiving far higher payment than the Medical Officer of Health, and more than double the salary of the Tuberculosis Officer. Whatever members might think amongst themselves, regard had to be paid to the opinion held by the public as a whole, who, he thought, would never consent to a figure for panel doctors greatly in excess of the salaries paid to recognised experts in the profession who held public appointments. That fact must be faced. He was stating the generally accepted view of the great British Public.

THE SALARIES CAMPAIGN.

In our July issue we expressed confidence that no candidate would be forthcoming for the grossly underpaid post at St. Pancras. As a matter of fact there was ONE candidate (Dr. Frederick Leonard Keith, M.O.H., Rowley Regis, Staffs) and he, after having been interviewed and solemnly appointed, has declined to accept the post. Success such as this, following upon the victories obtained at Manchester and Croydon, should be sufficient to give confidence and satisfaction to every member of the Society of Medical Officers of Health and at the same time convince local authorities of the determination of the medical profession as a whole to resist all efforts to secure medical services at an inadequate rate of remuneration.

Similar success has been achieved at South Shields where, after lavishly advertising the posts of Medical Officer of Health and Assistant School Medical Officer (for which the minimum salaries should be £1,200 and £500 respectively) at £750 and £400, the Council failed to secure any applicants.

It is true that against these successes there must be set the failure to prevent appointments at inadequate salaries by the County Councils of Herefordshire, Staffordshire and the Isle of Ely. More recently the County Council of the North Riding County Council, having failed to secure any choice of applicants, has filled the vacancy by promoting Dr. Harry Mason. The acceptance of such posts by assistants constitutes, it must be realised, a severe blow to the prospects of every

assistant on the staff of every local authority in the country, as it is obviously impossible to secure proper salaries for assistants unless the level of the senior posts is maintained.

Kent is acquiring an unenviable notoriety for underpayment. Some little time ago the Urban District of Sittingbourne was able to secure the services of Dr. A. J. Wernet (late Royal Navy), in spite of the fact that the remuneration offered was grossly inadequate. More recently the two areas into which the West Kent combined districts had been divided offered unsatisfactory terms and consequently secured no choice of applicants. In the one case Dr. P. N. Cave was appointed but subsequently resigned, while in the South West Kent area Dr. Samuel Nicol Galbraith, formerly M.O.H. for Newark, was appointed.

One aspect of this campaign needs special attention from the public and the Ministry of Health. Very large sums have undoubtedly been spent by Birmingham, South Shields and other authorities upon prolonged advertising of underpaid posts in their efforts to secure candidates. Hundreds of pounds of public money have been wasted in this way.

The special attention of every member of the Society is directed to the "Important Notices" which appear each week in the "British Medical Journal" and no vacancies referred to therein should be answered without consulting the Society. Glaring instances exist at the present time at Walsall, South Shields, Wrexham, and other areas.

Senior men are specially asked to be alive to the possibility of the improper use of testimonials in connection with applications for these underpaid posts.

VACCINATION FACILITIES.

Having expressed the hope that the Chief Constable would see that police-constables in Worcestershire were vaccinated, Mr. Willis Bund, presiding at a meeting of the Standing Joint Committee at Worcester on Saturday, said he wished to speak about the great difficulties in having vaccination properly carried out at the present moment. He had been in communication with the Ministry of Health, and he hoped that what he had to say would help to "shame" the Ministry into doing something. It was believed that no case of small-pox had occurred in the county, but there was

considerable alarm. Mr. Bund said that, when he was in London recently, his attention was called to the very large number of children in the county who were unvaccinated. He wanted to see what could be done in the matter, and spoke to the school medical officers; they said that if they could only be appointed assistant vaccination officers they would carry out the work, and the fees should go to the ordinary vaccination officer. He put this before the Ministry, and while they were not encouraging, they agreed that something ought to be done, as the present state of things was very bad. The Ministry forwarded a copy of a letter which was addressed to Boards of Guardians. In this letter the Ministry said it was desirable that arrangements should be made for the vaccination of the children, subject to the consent of the parents being obtained; the Ministry asked to be informed whether the public vaccinators were willing and able to undertake the work, and whether the Guardians were prepared to appoint temporarily suitable deputies from among the registered medical practitioners of the area to undertake vaccination work.

Mr. Bund said that the latter was discouraging, as he had told them that the school medical officers would carry out the vaccinations. He was informed that a suspected case of small-pox had occurred in the county, and he wrote again to the Ministry saying that at this time of the year, when fruit and pea pickers in large numbers came from outside districts and were herded together like pigs, the necessity for action was greatly increased. The Ministry must see the necessity of appointing the school medical officers as assistant vaccinators at once, or taking some other means for securing vaccination. He would have to state publicly in Worcester what was being done, and, if there was any delay, the responsibility would rest entirely with the Ministry. In another letter Mr. Bund said he wanted the school medical officers to begin work on Monday, if possible, and he was afraid, unless this could be done, that they were running a very grave risk. In the country, said Mr. Bund, there was considerable alarm, and instead of helping in every way, all sorts of impediments were put in their way, and it was only by the facts being made public that they could hope to stir up the Ministry to get the work properly carried out.

Similarly the County Council of Derbyshire has taken the course of urging the Ministry of

Health to give power to its school medical officers in districts attacked by small-pox to act as public vaccinators.

THE PRACTITIONER AND THE M.O.H.

In many areas there are most encouraging signs of increasing co-operation and friendliness between the practitioners and medical officers, and nowhere is there more entire sympathy and friendly co-operation between these two branches of the medical profession than there is in the area of the Winchester Division of the British Medical Association. The friendly relationship existing in that area is illustrated by the following extract taken from the presidential address given recently to the Winchester Division by Dr. G. Fuller England, President of the Winchester Division of the British Medical Association. Dr. England gave a most interesting address upon the changes and developments in medical life during the past 30 years. After alluding to the subject of notification of diseases, Dr. England said, "So many diseases due to bacterial origin are now notifiable that we must refer here to another subject which barely called for notice in the old days: I allude to the relations of the general practitioner to the Medical Officer of Health. A few months ago I had the pleasure of hearing a most instructive address from Colonel McNaught, the President of the Southern Branch of the M.O.H. Society, and he placed before us in a most lucid and understanding manner several matters of urgent importance to us as members of our profession.

He laid great stress on the interest taken nowadays by the public through the newspapers in all matters connected with the health of the community, and impressed most strongly upon us the necessity of unity and concord between the public health officer and the general practitioner.

In early days there was danger that the latter might consider the former to be somewhat antagonistic, in that if the precautions against disease were carried to their logical conclusion, they might tend to deprive him of his means of livelihood. There is no doubt, however, that pathological organisms are sufficiently active and numerous to enable both to live and find scope for their efforts, on one part towards prevention and the other towards effective treatment and cure. Again Colonel McNaught stresses the necessity of "team work" and the co-operation of the specialist and

the clinical pathologist with the general practitioner.

One of the chief fears of the general practitioner has been that a great deal of his work, with the resulting emolument, would pass out of his hands and Col. McNaught therefore dwelt in some detail on the various departments which in recent years have been instituted by the Public Health Authorities, under the following headings:—

(1). Tuberculosis.—As regards this important matter he rightly says that the Tuberculosis Dispensary is the "only item of the scheme which would seem to invade the general practitioner's province," but I think I may say from experience that the general practitioner is discovering, and that Colonel McNaught is right in stating, that the department is "chiefly if not entirely, an auxiliary," since by the exercise of ordinary courtesy and common sense the dispensaries can assist the practitioner by selecting those cases requiring early institutional treatment, and at the same time relieve him from the frequent attendance on unremunerative cases.

Speaking from the point of view of an assistant Tuberculosis Officer the difficulty is to prevent the dispensary from being crowded out with cases in which the physical signs may or may not be due to or associated with tubercle, *e.g.*, chronic catarrhal bronchitis, especially in children, unresolved pneumonia, &c. A certain number of these cases undoubtedly are tuberculous, but it is no easy matter to discriminate, although we can now derive much assistance from radiography, which can demonstrate masses of tubercular glands pressing on root bronchi.

(2). School Inspection. — Notwithstanding opinions which may be expressed to the contrary, I cannot but think that inspection of schools is a matter best undertaken by the M.O.H. A busy practitioner would find it very irksome to carry out this procedure thoroughly in the course of a busy day, and in all probability the fee offered by the Public Health Authorities would not be in his view adequate to the necessary expenditure of time in searching for verminous heads, sight testing, and other tedious examinations which now form essential parts of the medical inspection of schools.

(3). With regard to mental deficiency, Colonel McNaught says (and as an old general practitioner I entirely agree with him) he cannot imagine any general practitioner being anxious for any fee which a public authority might conceivably offer to take

on this work. The same applies to the generality of cases in the venereal diseases department, and in this matter undoubtedly there are few cases which can afford the services of a medical practitioner nor (speaking again as a general practitioner) was I at any time anxious to carry out the minute technique and the unpleasant work entailed in the efficient treatment of these diseases. I think my dislike is shared by the majority of men in general practice.

I have gone rather fully with these matters in order to demonstrate the very great difference existing now and in times gone by in the general opinion regarding such questions."

CAUSE AND EFFECT.

If there remains anyone who doubts the efficacy of organised action we suggest that he should consider the steps which were taken by the Society of Medical Officers to secure the withdrawal by the Ministry of Health of Circular 325 (England and Wales). It will be remembered that this notorious circular—which has been well termed the Magna Charter of Adulterators—expressed the opinion that proceedings should not be instituted against persons selling adulterated milk unless a series of tests had shewn repeated default. It did not require much experience in the administration of the Sale of Food and Drugs Acts to know that if the suggestion in the circular was followed the conviction of offenders under these Acts would be almost impossible.

Immediately the circular was issued the Council of the Society authorised the preparation and distribution to all Local Authorities of a carefully considered criticism, and urged Medical Officers of Health to advise their Councils to pass resolutions of protest. The campaign proceeded apace and Members of Parliament were soon alive to the outburst of disapproval of the circular. It was expected that the autumn session of Parliament would provide an appropriate opportunity for a series of nicely chosen questions to the Minister responsible for 325, but the Minister resigned, and his successor was unable to obtain a constituency to return him to the House. As the Society desired only the withdrawal of the offending circular and had no wish to embarrass the Government the matter was left in abeyance until Mr. Neville Chamberlain had accepted office and had an opportunity of gauging public feeling. We did

not doubt that his wide experience in public administration would convince Mr. Chamberlain that the protest of the Society was reasonable and in the interest of public health. Circular 325 (England and Wales) was withdrawn on the 16th May, 1923. Although we had no anxiety concerning the outcome of the attack we were curious to see how the withdrawal would be worded. As a study in gymnastic dexterity, Circular 399—the Order for Burial—is worthy of a place of honour.

UNSUPERVISED PRACTICE OF MIDWIVES.

A case of considerable importance from the point of view of general public welfare engaged the attention of the Central Midwives Board at a recent meeting. The facts divulged at the hearing were of an astonishing nature. The midwife concerned was employed at a nursing home where cases were admitted for confinement. She was apparently in sole residential charge of the obstetrical work, but a medical practitioner was associated also with the home on the general understanding that he would be called in if anything abnormal occurred. The midwife gave no notice of her intention to practice, kept no register of cases, and obviously regarded herself as entirely outside the rules of the Central Midwives Board. This is entirely in keeping with what one has every reason to believe to be a widespread practice. All over the country midwives are practicing, as they allege, as monthly nurses, and in connection with such alleged practice, they are undertaking entire charge of confinements in connection with which there is some vague understanding with the local practitioner that he is engaged, but who does not put in any appearance unless something untoward happens. These midwives have up to the present claimed, and have successfully obtained, immunity from the rules of the Central Midwives Board on the ground that they are monthly nurses, and it is this weakness in the administration of the Midwives Acts that constitutes the most serious danger to the general public at the present time in connection with the practice of midwifery. The public will never be safe unless and until every midwife on the Midwives' Roll is compelled to observe all the rules of the Central Midwives Board in connection with every case of confinement with which she is associated professionally. In the past such midwives have on numerous occasions had charges

brought against them, but as soon as they have established the fact that a doctor has been, even remotely, connected with the case, it has been regarded as a successful defence.

In the recent case before the Central Midwives Board this entirely unsupervised and unknown practice by a midwife might, and probably would, have gone on indefinitely if a death in suspicious circumstances had not occurred, leading to an inquest. As the result of the inquest an investigation was made, and the following facts were discovered. A patient was admitted to the home for the purpose of confinement. The midwife was informed by the patient that she had a weak heart and that she had seen two doctors, one of whom said that her heart was bad, and the other said it was all right. Apparently the midwife decided to act as consultant expert in this matter and, deciding that the second doctor was correct, determined to take the responsibility of administering hyoscin. The practice in this institution appeared to be that the midwife admitted patients to the home, and took sole responsibility of the cases, including, if she thought it desirable, two injections of hyoscin, and no medical supervision was thought necessary unless something happened which the midwife considered to be an emergency, in which case she sent for the medical man associated with the home. In this case the patient was given two injections of hyoscin, and death took place shortly after the second dose. The verdict of the coroner's court, the wording of which is extraordinary even for a coroner's verdict, was to the effect that "Death was due to heart failure due to the strain of confinement and diseased and fatty heart whilst under the influence of hyoscin: natural causes." The doctor had never seen the patient alive, but saw the body shortly after death. The death was not notified by the midwife as she regarded herself as a monthly nurse, and therefore did not carry out any of the rules of the Central Midwives Board.

Unfortunately, there is every reason to believe that practice of this kind is being carried on all over the country, and that registered midwives are carrying on midwifery practice, under more or less imaginary medical supervision, secure in the knowledge that if they can prove themselves to be acting as what the Central Midwives Board define as monthly nurses, they may safely disregard those rules which apply to practising midwives.

CONSCIENTIOUS OBJECTORS.

We congratulate our contemporary "London Mail" upon the forcible way in which the case of the conscientious objector is dealt with in the following paragraph:—"It may be very forbearing and magnanimous, and all that, to impose silly little fines upon the criminal lunatics at Gloucester who are flatly refusing to take ordinary precautions against the small-pox outbreak which, thanks to the anti-vaccinators, is raging in that city. But if they succeed in distributing the disease all over the country, we may wake up too late to the fact that they are rather expensive idiots to pamper. The ordinary sane citizen, by the way, has a conscientious objection to being put in peril of a loathsome scourge by the selfish obstinacy of a gang of fanatical fools."

THE WALSALL VACANCY.

At a recent meeting of the Walsall Town Council a recommendation was submitted that the vacant office of Medical Officer of Health, School Medical Officer, Chief Administrative Officer for Tuberculosis, and Police Surgeon, should be advertised as a joint appointment at £900 per annum. An amendment to reduce the amount in the recommendation from £900 to £800 was eventually passed. The scale salary for the position is £1,100. The report of the discussion of the Town Council makes interesting reading. The essential argument in favour of the unsatisfactory salary of £800 a year appears to be that any higher salary would make the other town officials jealous, but, as Councillor Thickett pointed out, that was merely a proof that they were not paying other officials properly. The same Councillor pointed out also that even if they could obtain a man at the unsatisfactorily low salary he would be a "non-unionist," and, in his opinion, "non-unionists are the worst type of men." He went on to say that the Council could not prevent medical men withholding their services, and if the best men did so then the Council would get the worst.

Opposition to the payment of an adequate salary was given by Dr. Lynch, a Member of the Town Council. Strong arguments in favour of an adequate salary were brought forward by Councillors O'Meara and Abbotts and others, and the Council were told frankly that they would only get a

second-rate man for £800, whereas the general local desire was said to be for a medical officer with qualifications second to none in the town. Of course no self-respecting medical officer is likely to become an applicant for the vacancy on these terms, and we have every confidence that the Walsall offer will not put any severe strain upon the loyalty of the public health service.

CHILD WELFARE ECONOMY.

Whatever criticism may be offered to the action of the four recently suspended Scottish M.P.'s on the grounds of general behaviour, good taste, or tactful political manoeuvring, nothing but sound public health advantages are likely to follow from their action. Nothing short of a bombshell was likely to break through the apathy which seems to have fallen upon public health affairs since the inauguration of the economy campaign and its apparent whole-hearted acceptance by the Government departments. The necessary bombshell was provided by the four Scottish M.P.'s, and people are now to some extent reviewing the situation without regard to party politics. In April, 1921, Circular 185 was issued by the Ministry of Health, cutting down the powers of local authorities, and limiting to the last three months of pregnancy the supply of free milk, or milk under cost, to necessitous expectant mothers. The same Circular introduced many restrictions into the supply of milk by local authorities, and limited such supply in the case of children over three and under five to those whose actual ill-health necessitated such extra nourishment. As the direct result of this circular the public provision of milk was in many areas entirely abandoned.

This Circular was followed by Circular 267 which appeared towards the end of 1921, and which ruled that milk was only to be supplied to children under twelve months of age not being nursed by their mothers, and that expectant and nursing mothers should have a midday meal, at a cost to the local authority not exceeding 6d. per head per meal, at some dining centre. This Circular caused such an outburst of indignation throughout the country that the Ministry of Health yielded, and the Circular was not put into operation.

We should welcome further bombshells in the realm of public health. Local authorities have been encouraged by Government departments to all kinds of reactionary measures in public health,

and health subjects have suffered infinitely more in proportion than any other department of public work. In many areas, for instance, the expenditure upon education is between 15 and 20 times the expenditure upon public health, while the expenditure upon roads is commonly 10 or 12 times that upon health matters. All the reactionaries of the country have joyfully joined in the attack upon public health expenditure, and the deplorable part of the whole crusade is that these attacks are to some extent based upon circulars which have been issued by the Ministry of Health.

SENDING FOR DOCTORS BY MIDWIVES.

Recent expressions of opinion by the Central Midwives Board have indicated the need of alterations of the rules, and in connection with this subject there are three important decisions the result of which have been prominently brought before certain sections of the midwifery profession, but concerning which undoubtedly the great majority of practising midwives are still in ignorance. It is only fair to the whole profession that these decisions should be incorporated in the new rules, so that everyone should know exactly what the views of the Board are. Two cases have occurred recently in connection with the administration of drugs, and midwives have been severely censured for administering chloroform and hyoscin. A rule should be drafted making the position with regard to the administration of drugs quite clear in accordance with the expressed opinion of a large number of important local supervising authorities. Severe censure has also been given in a case where forceps have been used by a midwife, and also in cases where the midwife has taken upon herself the responsibility of suturing the perineum without medical assistance. Inasmuch as the Board has recently expressed the opinion that any rupture of the perineum which requires any suture is a serious rupture within the meaning of the rule, there should be no difficulty in so amplifying the rule as to make this new definition obvious to everyone.

MIDWIFERY TRAINING IN POOR LAW INSTITUTIONS.

No woman is admitted to the examination of the Central Midwives Board unless she produces certificates that she has, under supervision approved by the Central Midwives Board, undergone

a course of training in midwifery extending over a period of not less than six months. These certificates must be in the form prescribed by the Central Midwives Board and must be filled up and signed by (a) a registered medical practitioner approved by the Central Midwives Board, or (b) the chief midwife of an institution approved by the Central Midwives Board, or (c) the chief medical officer of a poor law institution, or (d) a midwife approved by the Board. It will be seen from the above that certificates can only be granted by approved persons except in the case of poor law institutions. It is not clear why this exception was made originally, but whatever the reasons may have been, they have certainly ceased to operate now, and the specially favoured position granted to poor law institutions to be able to certify candidates for the Central Midwives Board examination, without having to become approved institutions, and irrespective of any competency or otherwise, is undoubtedly against the public interest, and all training schools should be put upon an absolute equality in this respect. There is no doubt that the average poor law institution is an extremely unsatisfactory training ground for a midwife. There are certain exceptions which would of course have not the slightest difficulty in obtaining recognition by the Board, and we trust that in the next revision of the rules the necessary alteration will be made.

SMOKE ABATEMENT AND CHILD WELFARE.

A deputation consisting of representatives of practically all the bodies interested in infant welfare was received recently by Lord Onslow on behalf of the Minister of Health. The deputation was introduced by Lieutenant-Colonel F. E. Fremantle, M.P., who pointed out that all are agreed as to the unhealthiness of the smoke evil and the need to get rid of it. Professor H. Kenwood spoke of the strong feeling among medical officers of health and teachers of hygiene that something should be done. He referred to the smoke pall which restricted ventilation, lessened light, lowered the health of the community, and reduced the standard of cleanliness in the home, and suggested that if County Authorities could be stimulated to carry out their powers it would be a very positive gain. This point was also emphasised by Dr. Woolsey Stocks who urged that the recommendations of the Committee on Smoke Abatement which transferred to County Authorities

the duty of enforcing the law, and made possible the formation of joint committees for that purpose, be carried out.

CIRCULAR 325 (ENGLAND AND WALES).

ISSUED 17TH JULY, 1922.
WITHDRAWN 16TH MAY, 1923.

A Correspondent writes:—"The birth of Circular 325 was mysterious enough to whet the curiosity of gossips. It is true that notification was duly made according to the requirements of the law, and inspection of the register showed that the place of birth was Whitehall, and the name of the mother was as respectable as that of any assistant secretary of the Ministry, but there was a remarkable reticence concerning the father. Enquiries through the usual channels failed to reveal his identity. Smith vigorously denied the parentage, Jones proved an alibi, Robinson in horror disclaimed any relationship to the brat, and as for Brown, the possibility that anyone could suspect him nearly broke the poor old fellow up. It is true there was always a little difficulty over the marriage certificate, in point of fact it was never forthcoming, and unkind people said—but that is another story. Anyway if the infant was illegitimate no one could call it a love child. We do not make a practice of betting, but we would not mind staking a round sum that if the truth could be known it was an imp of hate. A wise man who came from the East used to say that one could tell a tree by its fruit. If there is any reliance to be placed in the words of the prophet there was a touch too of the East in the wind when the fruit was setting. It was a sour child, a puny marasmic waster, but now that it is dead we will confine ourselves to the remark that it lacked decency to die respectably. Even the death certificate seems to try to throw the blame for its demise on persons other than the parents, for in Circular 399 we read that 325 was 'widely misunderstood and to some extent misrepresented.'"

SOUTHWARK MEDICAL OFFICER OF HEALTH.
Dr. G. B. Millson, O.B.E., Medical Officer of Health for Southwark, retired at the end of June after holding office in Southwark for 35 years. He retires on a pension of £600.

THE FAILURE OF THE ISOLATION HOSPITAL TO DIMINISH THE INCIDENCE OF SCARLET FEVER. A POSSIBLE EXPLANATION AND REMEDY.

BY

W. J. J. STEWART, M.D., Medical Superintendent,
Municipal Hospital, Willesden.

Preventive medicine has reached a stage when I consider that those responsible for the administration of isolation hospitals should not rest content with the mere treatment of notifiable infectious disease, but, should extend the field of their operations outside the hospital with a view to searching out those conditions which favour the origin and spread of these diseases, and, to devising means for their prevention.

I make this suggestion, for everyone must have felt that the time has arrived when other preventive measures than those ordinarily in force must be adopted, if those infectious diseases which to-day are occurring in undiminished numbers are to be brought under effective control.

Obviously no one is better fitted for such a task than the medical staff of these hospitals, for it has long been recognised that if preventive measures against infectious disease are to be of any avail, they must be based upon a complete and thorough knowledge of the actual disease with which it is proposed to deal.

So far the medical staff of isolation hospitals have confined their attention solely to the clinical aspect of infectious disease. They have no duties outside the hospital. There is little or no co-operation with the Public Health Department or the medical officer of health of the district in which their hospital is situated, and, from which it draws its patients; moreover, in the Metropolitan area of London the hospital and the medical officer of health are under two separate public authorities. It is no wonder then that the medical staff of these hospitals overlook the fact that they belong to a great service of preventive medicine, and although primarily engaged in curative treatment, that the original intention was that the preventive side of their work should be kept well in view. It has been their habit to rest content with the thought that that aspect of infectious disease is in other hands, but, as the Chief Medical Officer of the Ministry of Health says in speaking of the practice of preventive medicine, "the acquisition of new knowledge by research and investigation is not alone the function of a central department." That is a statement applicable, it seems to me, to the medical staff of isolation hospitals, and it is one we might well consider.

The isolation of notifiable infectious disease has now been systematically in force for a period of not

less than 30 years, although Local Authorities were first empowered to adopt this measure by the introduction of the Public Health Act of 1875.

I use the word isolation in its broader sense, so as to include not only the segregation and remedial treatment of cases admitted to hospital, but also such other preventive measures as notification, disinfection of premises, etc., which, of course, are invariably used in conjunction with it.

In discussing the effect of these isolation measures, as one might term them, it is advisable to bear in mind the effect of those other preventive or health measures ordinarily enforced by Local Authorities. I refer to improved housing conditions, prevention of overcrowding, improved drainage, purification of food and water supplies, etc., which, inasmuch as they have undoubtedly effected an improvement in the general health or sanitary environment of the community, must necessarily have influenced the incidence of infectious disease.

Having been in force for the above period and a fair trial given to the isolation measures, it may serve a useful purpose, if, at this point, we enquire into the results which have been obtained by their adoption, more particularly with a view of finding out where, and in which, infectious diseases they have been more successful, and, where they seemingly have failed.

A perusal of the registrars' general returns for the last 50 years clearly shows that certain diseases, and as examples, I would take typhus and typhoid fever, are rapidly becoming less prevalent, if they are not actually disappearing, and it is no exaggeration to say that that circumstance seems to be co-incident with, it may be consequent upon, the introduction, and, as the years went on, the more rigid application of those measures to which I have alluded.

On the other hand, it is equally noticeable that certain other infectious diseases, chief amongst which is scarlet fever, remain as prevalent as before. It would indeed be strange if all had been affected alike, for one can hardly conceive that a series of infections so diverse in nature and manifestations would to an equal extent be influenced by the application in all cases of the exact same list of preventive measures.

It is not a difficult matter, I imagine, to explain why these measures have been so successful in the case of typhoid fever, for it has long been recognised that the origin and spread of this disease is very intimately connected with those insanitary home conditions which the majority of the preventive and health measures I have just mentioned set out to correct.

There are other reasons for the diminished incidence of this disease, and they are as follows:—First of all, we all know its true cause: it is a disease mainly of adults, who are more easy to control than children; the infection does not leave the patient in

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the earliest days of the attack; in practically all cases the attacks are long continued and well defined and there is no danger of their being overlooked. Should it be an atypical case, which is unlikely, any doubt is cleared up by the Widal reaction. Again, as it is an intestinal infection the specific organism leaves the patient by the dejecta, and it is safe to say that even with the most uneducated of householders, especially in these days of perfect house drainage, these dejecta will be carefully and effectively disposed of. Finally, there is the carrier of this disease, but recent experience suggests that it is not particularly active as such.

Turning now to the case of scarlet fever, one would have imagined at first sight it would have shown some reduction in numbers, for there are certain encouraging features about this disease, and perhaps I may be allowed to state them, which indicate that with a little extra pressure it would yield to preventive measures and the fight for control be turned in our favour.

First of all, an experience of this disease suggests that although we know nothing of its causal agent, its infection, if I may so call it, is not so difficult to control as some. In this direction cubicle treatment and bed isolation have taught us much, so that the beliefs of 20 or 30 years ago with regard to its activity and spread no longer prevail. It is practically certain that infection is spread by direct contact with a patient or carrier, or discharges are carried by persons and things, there being no question, I think, of aerial convection as in measles and varicella, which undoubtedly do strike, as one might term it, for short distances through the air.

Another encouraging circumstance in connection with scarlet fever is that there is a natural immunity to the disease which is possessed by a predominance of the child members of the community amongst which this disease is more prone to occur. The evidence that this is no uncommon thing is to be found in the fact that if one refers to the public health and hospital reports to the age incidence tables of this disease, and compares the number of attacks so obtained with the number of children in the district, it will be found that only a very small percentage are attacked.

From figures which have been kindly given me by the Medical Officer of Health for Willesden, to the Public Health Service of which district I am also attached, it would appear that amongst a gross population of just under 170,000 in the district, the average annual number of scarlet fever notifications for the years 1911 to 1921 inclusive was 526, and it is safe to say that 95 per cent. of these notifications referred to children under 15 years of age, of which there were in the district each year approximately 46,000.

Compare this with measles where the average number of cases that came under the notice of the Public Health Department of the district for the same period was approximately 3,348.

These figures in respect of notification of scarlet fever are, of course, gross, for I have not deducted wrong diagnoses, which, probably, would reduce the number by 10 per cent.

I have selected these figures from the Willesden district, for I consider it a representative urban community, having a dense population, mainly artisan class, amongst which scarlet fever is recognised as being more prevalent.

If further evidence that children possess a natural resistance to scarlet fever is required, it is to be found in the fact that scarlet fever rarely spreads in a house in which it has broken out. Removal of the patient is only infrequently followed by the occurrence of a second case, even although there are a number of other children in the family, none of whom have previously had the disease. This is well shown in the Medical Officer of Health's reports of Willesden, where a table shows that in 550 houses in which outbreaks occurred in one year:—

1 single case occurred in	444 houses
2 cases	" " 69 "
3 "	" " 29 "
4 " and over	" " 8 "

But against all these points in favour of its not spreading, there are, unfortunately, other features in connection with scarlet fever which account for the persistence of the disease.

There is first the fact that its true cause is unknown; secondly, it is a disease of children; thirdly, it belongs, unfortunately, to the group of nasopharyngeal infections, and in these two latter connections compulsory attendance at school is an important factor. Again, the duration of the acute stages of attack in most cases is of the shortest, symptoms are ill-defined and transient, and in many cases are atypical and simulate other conditions. There is nothing of the nature of a Widal's reaction to clear up any doubt. The result is that many cases are wrongly diagnosed or completely overlooked. Further, infection leaves the patient in the earliest days of the attack, and is carried in the mucous discharges from the nose and throat, and about the careful disposal of these discharges in small class households, no one particularly cares.

Now of all these facts, the most important in my mind, that is as regards spreading of the disease, is the possibility of cases being overlooked because they are so mild or so atypical or because they simulate other conditions. Next to these cases, I believe carriers are a very good second in spreading infection.

Of the cases that are overlooked because of their

mildness, what evidence is there that they occur? Everyone will agree that it is a matter of common occurrence to admit cases of scarlet fever to hospital in an advanced stage of desquamation with a history of a slight attack of feverishness some three weeks before, but of so slight a character that no doctor was called in, the mother, overlooking the rash on the next day, possibly in consequence of the child being completely recovered. In this connection it is well to remember that in the class of house in which scarlet fever is most common, children do not remove all their day clothes on retiring to bed. Mild rashes, in consequence, escape notice very easily.

Again with regard to the atypical cases just mentioned, it is a common experience to learn of these being missed. Usually they are mistaken for some other sore throat and rash conditions, and the following come readily to mind:—Where scarlet fever has been treated as measles, as rotheln, as tonsillitis, as simple fever, as septic rash, drug or food rash; and I have even known of cases where scarlet fever was ruled out of court because the temperature was not raised above the normal.

In all these cases that I quote, that is, those which are overlooked, and those which are confused with some other ailment, their real nature would not have been recognised but for the characteristic nature of the desquamation or the development of some complication such as nephritis, which subsequently occurred. But some cases of scarlet fever desquamate only in the slightest degree, requiring the most careful and skilled inspection, and some do not desquamate at all, neither do they develop complications. It follows, therefore, that there must be in every district a number of undetected cases, and, I believe, they occur in much greater numbers than is generally recognised.

Now, with reference to the atypical cases, the exact nature of which is misconstrued, I think we who are stationed in fever hospitals can appreciate the great difficulties which these cases present to the general practitioner.

We all know that scarlet fever presents difficulties in diagnosis equalled perhaps, but not exceeded by those of any other infectious disease. Everyone can recall the first year or so of his hospital experience of this disease, the confidence with which one dealt with all cases, and the delightful assurance with which all and sundry cases were despatched to the wards; the subsequent years of doubt as we realised for the first time the number of atypical and aberrant forms that exist, or the fact that cases which, up till then, we had considered to be scarlet fever were not of that nature at all, and, finally, the belief that one could recognise with a fair amount of success all

these types which are such an interesting feature of the disease.

If that be the experience of those who are stationed in hospitals, what must be the difficulty of the practitioner who has had no such experience when he is called to atypical cases of this character. I think it is probable (and it is no blame to him, for all cases of scarlet fever are at once removed from his care) that in many instances he misinterprets them.

Necessarily, unless the practitioner has been in a fever hospital, or in a practice for a long period of years, he has not realised the existence of the atypical forms, for his idea of scarlet fever is limited solely, at any rate, when he is starting in practice, to the graphic descriptions in text books of straight-forward cases, which make little or no mention of the atypical forms under consideration.

Turning now to the other spreaders of infection (I refer to carriers), one has to admit with regret, that with the exception of a few which occur amongst home-treated cases, these are patients recently discharged from hospital, and there is no doubt but that they spread the disease.

We are now arrived at that point where you will gather that I consider the persistence of scarlet fever at the present time is due:—

- (1) To the occurrence of cases of the mildest character which are undetected,
- (2) To the fact that atypical cases are wrongly diagnosed, and
- (3) To carriers.

It is these three factors, I believe, which explain the failure of the isolation hospital to diminish the incidence of scarlet fever.

It seems to me, if there is any truth in them, that these are very important points and that therein lies an indication of how this disease (one which costs the community an enormous annual expenditure) might be controlled to a much greater degree at least than so far has been the case. It is obvious how that control can best be accomplished.

As regards the first two classes of cases, it must be along the lines of a more thorough search for these as they arise in the district, and it is clear if this search is to be successful it must be undertaken by those who realise exactly what they are looking for. The services of those who are intimately acquainted not only with the typical attacks of the disease, but with all its modifications and variants, must be enlisted. Up to the present the detection of cases has depended upon the unaided efforts of the general practitioner, and to his credit in that direction he has achieved a great deal, but it is now clear that other help must be obtained. How is this to be accomplished? I am of opinion that this help can be had

by engaging the services of the senior medical staff of the various isolation hospitals.

At the present time it is the custom for these medical officers and principally the medical superintendent to occupy such time as is not taken up with clinical work with the intricacies of administration, to the neglect of the work outside the hospital for which, above all, I believe, he is particularly fitted. No doubt efficient hospital administration is a commendable thing in these days of urgent economy, but it is quite certain that the greater portion of this work could be carried out just as well by other members of the staff. At any rate, in large general hospitals none of the medical staff engage in administration, and certainly there are no signs there that these hospitals suffer in consequence.

Be that as it may, there is no doubt in my mind that if the surplus time of the medical superintendent from the wards was not taken up with administration, he would be available for this special investigation in the district to which his hospital is attached, for an appreciable portion of the afternoon of each day. He would, of course, work under the direction of the medical officer of health of his district and his special duties would be arranged for by him very much as follows:—

General practitioners would be advised that the medical superintendent and his assistants were available for consultation free of charge in all questionable cases, especially in cases of sore-throat, or of sudden fever, or of rash amongst children, and they would be urged to use his services on every possible occasion. Similarly, his services would be called upon by the medical officer of health himself, who, it is important to note, is frequently school medical officer as well, for the investigation of such cases as he considered suspicious from amongst those cases reported to him by his lady health visitors or his municipal nurses, which they had got into touch with in the course of their routine visiting of the district, and especially of those houses in which there was sickness but no doctor in attendance. Being school medical officer, the medical officer of health would also have complete record of all cases of sudden illness necessitating absence from school, and of these and the other cases I have just mentioned there can be no doubt but that the medical officer of health has daily knowledge of a large number.

By these means I feel sure that many suspects would be brought up for inspection, and that, in consequence, few infecting cases would escape detection.

Now as to carriers.

As these are mainly a product of the hospital and occur amongst patients who have been recently

discharged from hospital, it is plain, no matter the scheme for the prevention of scarlet fever that may be adopted, that all must end in failure if these cases are allowed to continue.

It is a peculiar fact that although the medical staff of fever hospitals have undertaken important investigations in connection with infectious diseases, that the prevention of carriers of scarlet fever has never engaged their attention, and yet it is a question which threatens the reputation of isolation hospitals to-day more profoundly than any other.

The fact that carriers occur is a grave indictment of our method of treatment, which obviously is seriously wrong. It is no use boggling at that fact, for there is something radically amiss when a hospital primarily founded for the purpose of preventing the spread of infection is forced to admit it is a fruitful source of infectious disease.

It has been urged that nothing can be done towards the prevention of carriers of scarlet fever as we do not know the true cause of the disease, but, if diphtheria is taken as a guide, I cannot see what the advantage in knowing it would be.

Personally, I believe that carriers are the result of massing a large number of patients together in the same ward, neglecting the prime importance of bacteriological examination of the throats of all cases on admission, thereby treating mixed infections with pure, treating acute cases with convalescents, paying insufficient attention to floor space and ventilation, the last two being more important in scarlet fever, and possibly in diphtheria, in my opinion, than in any other infectious disease. These are, I believe, a few of the more obvious causes of carriers. There are, of course, others, the nature of which is unknown, but the sooner we attempt their discovery with a view to the prevention of carriers, the better it must be for the health of the community, and for the reputation of the isolation hospital over which we preside.

I have now described the nature of the scheme I would recommend for adoption in order to control and diminish the incidence of scarlet fever. It is simply that the hospital medical staff, who tend to occupy a larger portion of their time with administrative work, should be available for service outside the hospital, and that they, by co-operating with the medical officer of health of their district and with the general practitioners, should help in the search for infectious cases as they arise. In a district with a well-organised public health department, experience teaches me that it should be no difficult matter for the hospital medical officer to get into touch with a large number of suspected infectious cases, information with regard to which would be forthcoming daily in the way I have indicated.

I claim no originality for the scheme, for something of the kind has been put in practice in connection with small-pox in London. The great point in its favour is that it means very little, if any, additional staff and, therefore, little extra expenditure, and that it interferes very little with the existing routine work of the day of all concerned. It is rather a re-arrangement of the work of hospital medical officers. In any case, I believe that the scheme I suggest is worthy of trial—should it fail in accomplishing that for which it is intended, it cannot fail to teach us a great deal—we will see scarlet fever at its source and from a different point of view: more important still, we will learn of those conditions in the homes of the patients which favour the origin and spread of the disease, all of which must assuredly, in the long run, indicate to us the real way to contend with, if not to stamp out, what we all must remember, is still a very serious and fatal disease.

DISCUSSION.

The Chairman (Dr. F. H. Thomson, N.E. Hospital, M.A.B.) expressed the indebtedness of the group to Dr. Stewart for his valuable and suggestive paper, and agreed that it would be a very excellent thing if some such system as that outlined could be instituted, but with a vast population like London it was going to be a big proposition if the general practitioner was to call in the services of an experienced officer in these cases. It was not a problem that could very well be checked by the medical officer of health, who, as a general rule, had no greater knowledge of infectious disease than the general practitioner. It would be interesting to have the views of the members on this very large administrative question.

Dr. William Butler (London County Council) regretted that he did not find himself in agreement with the views expressed by the reader, who evidently was no longer a disciple of his. He had gone very fully into the question some ten or twelve years ago, and the conclusions arrived at were that scarlet fever was a disease of very low infectivity but of very prolonged infectivity, and the recognition of that fact went a long way to explain why the hospital had failed to effect as much as one would have liked it to have done. Far from being a failure as a preventive measure, the isolation hospital had most materially reduced the mortality from scarlet fever. So far as the prevalence of the disease was concerned, it was most difficult on statistical grounds to say that it had not declined during recent years. Scarlet fever was certainly now a very much less fatal disease, apparently due to the fact that we were all very much more alive to the condition and anxious to get it diagnosed and removed. The incidence of the infection was one of the things that the hospital could not, of course,

be expected to reduce. Dr. Butler did not believe that return cases of scarlet fever were in any way things for which the hospital was responsible. During the time he was at Willesden the incidence of return cases was as great in cases nursed at home as in those receiving hospital treatment, and it was entirely a wrong view to think that the hospital made the patient more responsible for the recurrence of cases than was otherwise the case. At that time an experiment had been made with a view to reducing the number of return cases. A small-pox hospital had been set aside for the reception of simple, uncomplicated cases of scarlet fever, from which no returns would be expected, and after treatment the children had been removed to the country for convalescence. He was particularly struck by the fact that the incidence of returns in regard to those patients was very much higher than in the case of those from the ordinary fever hospitals. The explanation was twofold. Some of the children had probably caught cold whilst taking long rides in the country, and then there was the other fact that children were taken from a hospital where they lived under hygienic conditions and subjected to just those conditions which aroused the activity of the infection within them, and upon which further knowledge was necessary before the control of scarlet fever could be fully hoped for.

Dr. D. W. McKay (West Ham Fever Hospital), though in sympathy with the paper, doubted very much if the scheme was a very practical one. For instance, in London where there was so much unemployment at present and where many children were ill with no doctor in attendance, he did not quite see where the arrangement for obtaining expert advice for this type of case would fit in.

Dr. A. E. A. Pearson (Leeds City Hospital) agreed with the views expressed by Dr. Stewart to a very large extent, and considered that if some scheme could be formulated whereby the expert's opinion could be added to the general practitioner's diagnosis it would be of advantage to the community. It was a question of diagnosis, and Dr. Stewart's paper could not be discussed apart from that. Experience showed that mortality was going down very considerably—from 5 to 7 per cent. to under 1 per cent. During the last two years a good many cases in Leeds had had to remain at home, and it had been found that notwithstanding return cases, which could not be avoided, the case incidence in the houses had been multiplied three or four fold, there having been up to nine cases in one dwelling. The increased number of scarlet fever cases seemed to have arisen as a result of the Notification Act. He believed that many medical practitioners made a diagnosis in panic, and it would be better on some occasions if

they could refrain from notifying. Then the altered conditions of life had to be borne in mind. With crowded tramcars and crowded houses there were bound to be more cases of scarlet fever. Dr. Ker's book on return cases had shown that in crowded houses the incidence rate and return incidence rate had increased.

Dr. A. F. Cameron (Joyce Green Hospital, M.A.B.) remarked that the subject was one he had tried to deal with some time ago. He was glad to hear that Dr. Stewart had set off with the assumption that the isolation hospital had *per se* failed to reduce the incidence of scarlet fever. Some time ago Dr. Turner had given a paper before the Metropolitan Branch of the Society in which an endeavour had been made to show that the incidence of the disease had been reduced by the isolation hospital, but he had not been quite satisfied with the figures. He did not believe that *per se* the isolation hospital had had an appreciable influence on the incidence; whether it had influenced to any degree the mortality rate was a matter that required a good deal of proof. The patient who was taken into hospital undoubtedly might be saved from death, but taking the gross mortality of the whole country he had been unable to find proof that the fever hospital was reducing that mortality. Dr. Stewart's remedy was simply an extension of the present system and as such was not likely to produce the results which he expected. The position at which we had arrived now with regard to infectious disease was that unless we had some definite prophylactic or remedial measure applicable to the disease it was doubtful if isolation in itself had any effect except in those diseases where there were some other means. The important point in reference to the isolation of infectious disease was that it was time we got away from the wholesale isolation of disease simply because it was called scarlet fever or because it was called small-pox or measles, and we should now deal more definitely with the disease from the point of view of the patient. Use the isolation hospital more as a remedial institution and rather tend to put in a secondary place the incidence it was supposed to have upon the community. In London the wholesale warehousing—as it had been termed—of scarlet fever should be avoided, and there should be opportunity to deal with cases of measles, whooping cough and other infections which were disturbing the community, perhaps not altogether in an equal way, but which certainly gave rise to mortality.

Dr. P. N. Randall (Bromley and Beckenham Joint Isolation Hospital) did not find the paper at all convincing. Scarlet fever itself had changed in type during the last thirty years till the mortality rate was now very low indeed, and he did not think it was anything

at all to do with the isolation hospital. We were dealing with a thing that we did not know anything about, and it was a most difficult matter. In the case of diphtheria we did know what we were dealing with, and his board had insisted that no patient left the hospital until two negative swabs had been obtained, but return cases occurred just as much as with scarlet fever. On the Continent several children were deliberately exposed to scarlet fever patients for varying lengths of time, and it was found that the infection died out in the third week after the rash had appeared. That seemed to be borne out largely in practice, and 28 days was now considered quite sufficient for a case in hospital, provided there were no ear or nasal discharges. He had at last persuaded his board that the hospital was not responsible for return cases and that it was a thing that had to be put up with. Ninety-five per cent. of scarlet fever patients sent out were quite clear, but allowance had to be made for up to 5 per cent. who might be carriers. Nothing could be done, and it did not really seem that improved methods or expert assistance would be of avail. Possibly with the exception of small-pox and chicken-pox there was no disease which did not produce carriers. He did not think Dr. Stewart's scheme would cut the Gordian knot of the carrier problem and the return case.

Dr. F. M. Turner (South-eastern Fever Hospital, M.A.B.) was grateful to Dr. Stewart for bringing the subject forward, and whilst admitting that the present position was not satisfactory, did not agree very much with the practical suggestions contained in the paper. If it was a question of improvement of diagnosis the scheme sounded both feasible and likely to produce good results, but speaking from experience of one's own practice he was rather doubtful as to how far success could be expected. In hospital occasionally infection was actually bred on the place. It seemed to him that some cases were so doubtful that anyone might be in doubt. He could not draw the line in some instances and if this were so, where the cases were under his own eye, it was unlikely that he would be very much better off seeing the patient with the general practitioner. He would, however, wish well if the experiment were tried. Dr. Cameron had put it into his mouth that the incidence of scarlet fever had been reduced by the isolation hospital. The gist of his paper read before the Metropolitan Branch in March, 1922, was, he thought, rather the contrary. The evidence of scarlet fever decreasing was rather thin; if there was a diminution it was rather at an infinitesimal rate. There was probably less scarlet fever now than 50 or a 100 years ago, and the deaths from the disease had certainly decreased. Many people had hoped

it was the work of the hospitals, but it had been shown that there was an all-round reduction, and that in some cases the town that had no isolation hospital showed a larger decline than the town that had. Dr. Turner disagreed with Dr. Butler's theory that the diminished mortality was largely due to the watering down effect of mild cases. It was possible in some degree, but he denied that it could have a very great influence or that it could have brought the death-rate down from 6 per cent. to 1 per cent. Undoubtedly the factor that Dr. Butler alluded to had a great effect in diphtheria where a part of the decline in the death-rate was due to a watering of cases.

Dr. Stewart, invited by the Chairman to reply, thanked the meeting for the way in which the paper had been received, and was afraid there was a general impression that the fever hospital had not been credited with a great amount of good. It had accomplished an enormous amount of remedial work, and as the isolation of scarlet fever cases had become more and more complete, so there had been a decided fall in the mortality. He was convinced that the disease had altered in type. Scarlet fever to-day was a very mild infection, and to see malignant cases was a matter of great rarity. In 1891 the latter were prevalent and accounted for the majority of the deaths. He was, therefore, of opinion that the diminution of scarlet fever deaths was due to complete isolation and the fact that the child came early for treatment and was carefully looked after during the stages of convalescence. Dr. Butler had said that fever hospitals were not responsible for carriers. He (Dr. Stewart) used to like to think so, but cited cases which showed that the hospital without doubt was at fault. To carry out the suggested scheme in the Metropolitan area there would need to be a considerable re-arrangement, as it was recognised that the fever hospital service in London was not in very direct communication with the authority of the district in which the patient resided, but in other districts it would not be a difficult matter to put the proposals into practice. It was admitted that there were a large number of cases which were misconstrued, and it was not easy to see how the trouble was to be overcome if use were not made of experts. In Willesden the Medical Officer of Health was in very intimate touch with the district through his health visitors, inspectors and school officials, who were constantly in the houses of the poorer districts and must hear of cases of illness amongst the children. No doubt some of these cases were of an infectious character. The general practitioner called in might not recognise them, but the medical officer of the fever hospital with his experience would no doubt be able to sift out these

cases, which would be keeping up the infection of the district.

Dr. Stewart added that he had been obliged to ask to be allowed to delete from the title of his paper, as set out on the agenda paper, the last five words, viz., "with a Note on Diagnosis," as it had been found that such a note could not very well be included in the present paper. It might, however, possibly be made the subject of a separate paper on a future occasion.

DIETETICS FROM THE STANDPOINT OF PREVENTIVE MEDICINE.*

BY

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It is a commonplace to say that preventive medicine, which half a century ago was concerned very largely with the improvement of the grossly unhealthy circumstances of the environment has now, after mastering to a large extent its problems in that sphere, advanced towards a more intimate concern in the conditions of health as they affect the individual. In doing so, preventive medicine has spread itself beyond what were formerly looked on as its proper limits; it has, as we all know, taken over some of the functions of curative medicine, regarding cure itself as a form of prevention; it has, particularly of late, expanded into the domain formerly regarded peculiarly as that of physiology, the question of diet in relation to health. The steadily expanding interest in questions of dietetics, and the growing appreciation of the far-reaching influence of diet on the national health, depend, I think, on two distinct phenomena, one of which has become evident within the past few decades, while the other is of even more recent development. The first of these is the extraordinary revolution which has taken place in the national diet—one might almost say in the diet of the western and a considerable part of the eastern world; the second is the equally remarkable change in the knowledge of the factors underlying diet, as a result of experiments dating back perhaps for some fifteen years, but fruitful chiefly during the latter half of that period, in large part owing to the stimulus of the war.

Let me refer first to the revolution in habits of diet which has accompanied the modern commercial methods of preparing and of preserving foodstuffs, associated with the corresponding growth in the facilities for their transport. These

* Read before the Yorkshire Branch, Society of Medical Officers of Health, 25th May, 1923.

developments in their turn have been in large part due to the aggregation in cities of an increasing population, incapable of producing its own food, and clamoring for supplies from outside. Modern big business has in a fashion met these needs, and with its genius for advertisement has gone further in almost compelling the general public to alter its diet from one of fresh meat in moderate amount, dairy produce and eggs, green vegetables, fruits, and bread made from flour ground roughly in stonemills and retaining its coarser constituents, to one in which there is an increasing preponderance of meat, much of which is chilled or frozen or tinned, of tinned cereals and pulses, tinned milk and milk products, bread from flour ground fine and bereft of husk and germ, and cakes and pastry made from similar white flour. The change was encouraged at one stage by the apparent economy of this latter diet as compared with the so-called wasteful expenditure on the relatively expensive produce of the dairy. It is necessary to emphasise the fact that this material change in diet is a comparatively recent complication, arising directly out of the growth in population of towns associated with the commercial control of food supplies. Accompanying this change, though halting behind it, we have had a revolution in our views of foods values. In the latter half of last century the work of physiologists concentrated attention on the relative proportions of proteins, carbohydrates, fats and mineral matter needed for a balanced diet, that is for a diet capable of yielding the proper amount of energy and food material for the individual's physical needs, without a waste of effort through overfeeding of the bodily mechanism. A great part of the principles then established remain true to-day, and it is important that the light thrown more recently on nutrition should not blind us to the continuing need for analysing the diet in respect of its energy value, its proper balance in respect both of organic and of inorganic constituents, and its balance in essential foodstuffs. Recent work has in particular confirmed the views long held as to the importance of an adequate and balanced supply of such inorganic components as calcium and phosphorus. It is desirable clearly to emphasise this aspect at the present stage, in order that the old and the new knowledge may be kept in proper perspective. The new work has in general amplified and not overthrown the older views. But nevertheless the extension of our knowledge resulting from the proof, in the first place, of the presence in foods of imponderable quantities of essential materials, the vitamins or accessory food factors, and in the

second, of the differences in food value of various proteins at one time thought to be equivalent in effect, has made clear the alarming defects which accompany the diet to which the western nations have imperceptibly and yet rapidly habituated themselves of recent years.

Let me at this stage briefly summarise the present position in regard to the vitamins which are now accepted as so vital an element in a satisfactory diet.

Vitamins cannot be manufactured within the human body. They are derived entirely from foodstuffs, though they are capable of some degree of storage within the body, the degree varying with the type of vitamin. The vitamins are obtained from the following chief sources, some sources producing one, some another vitamin:—

1. The green leaves of plants, whence they reach man—
 - (a) through the milk and milk products or fat of herbivora; to some extent through organs such as heart-muscle or liver; to only a small extent through muscle meat other than that of heart.
 - (b) through the flesh or fat of fish which feed on green sea-algae.
2. Green vegetables—the less specialised the leaf, the richer in vitamin; bleached leaves or stems are deficient in vitamin.
3. The seeds of cereals, such as rice, wheat, maize, in which they occur chiefly in the embryo and to a less extent in the layer immediately underlying the husk.
4. The seeds of pulses, such as peas and beans, in which they are distributed throughout the seed.
5. In actively growing cells (apart from the embryos of seeds): e.g. in egg yolk, and in yeast.
6. In tubers and fruits—to a varying extent according to the vitamin and to the tuber or fruit in question.

The three vitamins hitherto clearly recognised are:—

1.—*Fat-soluble A*, the absence of which is associated with faulty growth, and with rickets—though it is only one of several factors at work in each case—with dental caries, xerophthalmia and war œdema. It is more necessary to the growing child than to the adult, except when the adult is a mother feeding her child.

Fat-soluble A is usually associated with the fats in foodstuffs, and occurs abundantly in green

leaves and grass, in milk, butter and cream (of grass-fed cows), in egg-yolk, dripping, cod-liver oil, green vegetables and salads, in wheat germ and liver. Such foods as white bread, muscle meat, potato, margarine are deficient in this vitamin.

Fat-soluble A is resistant to heat, in the absence of oxygen. For this reason, to prevent destruction of this and of the antiscorbutic vitamin from the same cause, air should be excluded during the pasteurising of milk.

2.—*Water-soluble B*, the absence of which produces beri-beri in man and polyneuritis in birds and dogs, while fat soluble A and water soluble B are together concerned in stimulating normal growth. Water soluble B is widely distributed among foodstuffs, so that with a mixed diet there is no great likelihood of a dangerous deficiency; where, however, the diet is limited to a few articles, danger arises, as was proved in our experience in the Dardanelles and in Mesopotamia during the war.

Water-soluble B is found particularly in the seeds of cereals (in the embryo and to a less extent in the aleuron layer under the husk); in the seeds of pulses (peas, beans, lentils); in eggs; and in yeast. It is not injured by drying, and is present in dried pulses and in dried eggs. It is not found to any great extent in muscle-meat, though in fair amount in liver. The steelmilling of rice, which removes its germ and husk, including the "silverskin," gives a product which leads to beri-beri unless compensated for by some other ingredient in the diet. Similarly the steelmilling of wheat to produce white flour, from which the germ and husk have been excluded, gives bread deficient in this vitamin. Water soluble B is moderately resistant to heat.

3.—*Water-soluble C*, the absence of which results in scurvy. It is found chiefly in fresh fruit (orange, lemon, swede; to a less extent in apple and grape; not much in lime); green vegetables, especially if uncooked—chiefly in cabbage, which is fairly potent even after ordinary cooking; in potato to a moderate extent; in the germinating seeds, e.g. of mustard and cress or of cereals (oats, barley) or of pulses (lentils, peas, beans), although these do not contain the vitamin before germination.

Water-soluble C is not found in any great amount in cow's milk, meat (especially tinned meat) eggs, dry cereals, yeast, or dried milk.

It is easily destroyed by heat, especially so in the presence of oxygen.

It is clear from a consideration of the distribution of vitamins and their reaction to heat and

desiccation, that an infant's diet of diluted cow's milk (in which the fat is also diluted) is low in fat-soluble A; if of dried milk, it is deficient in anti-scorbutic vitamin; a child's diet of potato and gravy is deficient in fat-soluble A and anti-scorbutic factor, and its soft consistency discourages mastication and prevents the balanced growth of jaws and teeth; while the average working-class diet, consisting predominantly of fresh or tinned meat, white bread, or cake or pastry of white flour, margarine, and potato, with relishes and tea, is likely to be poorly supplied with all three vitamins.

Besides the advance due to recent knowledge of the part played by vitamins, I have referred to another important question—the appreciation of the differing food value of proteins which formerly were regarded as equivalent in value. It has, of course, been recognised for years past that such proteins as gelatine or as zein, from maize, are not capable of fully replacing ordinary protein in the diet. The food-proteins, split up during digestion into their constituent amino-acids, are built up again into the tissue-proteins with their differing proportions of the same amino-acids. These amino-acids cannot, with few exceptions, be synthesised in the body, which has therefore to rely on the supply yielded by the food. If the food protein does not contain all the essential amino-acids, it is defective as a foodstuff. Gelatine, for example, lacks tryptophane, tyrosin and cystin, and the maize-protein zein lacks tryptophane and lysin; hence the inadequacy of these proteins to maintain health. But it is now known that if the food protein differs in less degree from the normal harm may still follow. If it contains particular essential amino-acids in too small amount, either excessive amounts of the foodstuffs have to be taken and wasteful expenditure is thereby involved, or if the food taken is not increased and the deficiency is not made good by other foods, the body is in risk of being protein-starved. This point is of importance, seeing that the proteins of cereals, which are taking an increasing part in modern diet, are poor in quality, in that the proportion of their several constituent amino-acids varies very markedly from that of the body tissues. Rice protein is the least defective in this sense, maize the most defective; pulses such as beans and peas show considerable defect, wheat shows still more. It is now fairly certain that the deficient protein constitution of the diet is the prime factor in the production of pellagra, a disease of grave economic importance in a number of countries.

When one considers the prevalence in this country of diets thus deficient in vitamins and

faulty in protein constituents, one is led to speculate on the degree in which the general low standard of physique revealed during the war was due to faulty as apart from insufficient diet. The lack, for example, of fat-soluble A leads in the growing young child or animal to rickets; no doubt lack of exercise, of sunlight, and of fresh air all contribute to the production of the disease, but their part seems very probably to be merely accessory, in depressing the digestive functions, and thus rendering an inadequate diet still more ineffective. The recent work of Hess and others, showing that light may prevent rickets in a diet which ordinarily would result in rickets, does not impair the conclusion that diet is a fundamental factor in the disease. Moreover, diet can be more easily regulated than sunlight. Rickets probably affects some 50 per cent. of the children of our industrial towns; in the east end of London, on the basis of dental examination, a history of rickets has been ascertained in 80 per cent. of the children attending public elementary schools. Such prevalence must mean a vast amount of disability spread throughout the population, for the after-effects of rickets continue for many years. As I have lately verified in the North Riding, the children showing evidence of rickets, in the shape of bony deformities, are below the average in height and in weight and are at least one year behind their school fellows in mentality throughout the whole course of their school life; and no doubt the handicap is effective for a considerably longer period. In this one disease, therefore, a dietetic deficiency is responsible for an enormous volume of ill-health, of deformity, of wasted educational effort, and of hampered social advancement throughout the population at large.

But it is reasonable to suppose that a deficiency in the diet stopping short of the production of actual disease may rise to ill-defined indisposition of a more or less severe and more or less prolonged character, leading in the mass to a vast amount of incapacity. The data in this connection are in the consulting room and the surgery and not in statistical records. Nevertheless there can be no real doubt as to the effect of modern diet in that direction.

It is very probable that in this country the mixed diet taken usually prevents absolute lack of a particular vitamin, except in the young and others where the diet is not sufficiently varied to avoid danger; but that the modern diet nevertheless is in grave danger of a shortage of all the vitamins. This danger is likely to be greatest during the winter months, when greenstuffs are not so readily available.

One illustration of the influence of such relative poverty of diet which comes at once to mind is that of dental caries. While this is no doubt on the one hand related to the lack of development of the jaw and the crowding of the teeth from the lazy habit of insufficient mastication resulting from modern diets, and on another dependent on the fermentation of carbohydrates from the food between these crowded teeth, it is very probable that underlying the dental caries is the fact of the teeth themselves being of poor quality and of low resisting power owing to the lack of fat-soluble A factor in the food—such lack being very possibly not severe enough to result in frank rickets. Moreover that defect may in onset very well date back to stages before the child's birth, seeing that the crowns of the deciduous teeth are formed during the first few months of intra-uterine life.

Perhaps I may be allowed to refer to another illustration, taken from the North Riding, of a section of the population below the standard of the remainder in nutrition and in physique, owing conceivably, among other factors, to a faulty diet. I have recently been comparing the heights and weights at each succeeding year of age, and for a series of years (1914-1922), of elementary school children in the industrial area of Cleveland with that of children in the remainder of the North Riding education area. Roughly speaking, the children are equally divided between the two groups; in the Cleveland area they are much more aggregated in towns, though these are not in general large, devoted to such industries as mining, steel and iron works, shipyards, etc.; while the children in the rest of the Riding are very largely under rural conditions. The physique of the Cleveland children from the earliest age of admission to school, 3 years onwards, is somewhat poorer than that of the children in the remainder of the Riding as judged by height and weight, and this deficiency increases with increasing age; a slight inferiority at the ages of 3, 4, and 5 becomes more marked at 12 and 13. This applies to both sexes; it is shown markedly in the case of weight, somewhat less obviously, in the case of height. Corresponding with this, medical inspection shows an excess of malnutrition, both of slight and of severe grade, year by year in the Cleveland area, this excess being most marked among the leavers, least marked among the entrants. There is therefore some factor which hinders the free growth of the Cleveland child, and that factor operates more and more as the child grows older. No doubt there are a variety of influences at work, such as overcrowding, the prevalence of ordinary infectious diseases, and of catarrhal conditions hindering development; the

stagnation of air and the obstruction to sunlight in towns; and the relative lack of facilities for play in the open air. But may it not be that, as is probably the case in rickets, all these are influences potent through their action in re-inforcing a still more fundamental factor, that of a diet inadequate for normal growth? It is at any rate significant that the young school-child, receiving its modicum of milk and probably of eggs, suffers least in Cleveland on the basis of these data, while as the child passes more and more completely, with advancing age, on to the ordinary working-class diet of cereals, meat and potatoes—a diet deficient in lime salts and in the vitamins encouraging growth—so *pari passu* does he show himself a laggard in physical development by comparison with his fellow in the rural area.

What is the solution of this problem of defective diet in which the civilised nations are in particular involved?

The position is to a large extent an inevitable one, resulting from the increasing aggregation in large cities and the consequent dependence on foods brought in from outside, with the natural result that the traders lean towards the forms of foodstuffs most readily transported, least perishable, least subject to damage by transport, and with the greatest appeal to the aesthetic views of the customer. It is useless to expect a return to the position as it existed before the world's markets were filled with largely artificial foodstuffs. The commercial interests are too huge for any such direct remedy, while modern life is so organised as to make retreat impracticable. Moreover, so long as the necessary vitamins and mineral matter are provided by the inclusion in the diet of dairy produce, eggs, and greenstuffs, there is no reason for banning the relatively cheap basis to the diet afforded by the cereal type of meal now so much in evidence.

The alternative lies in two directions:—on the one hand the steady education of the general public to a knowledge, first, that they are in danger of living in a condition of partial starvation, and secondly, of the simple means of avoiding that danger; and on the other hand the encouragement by all practicable means of dairy-farming, market gardening and workmen's allotments, of facilities for the collection and transport of the produce, so that these activities may yield cheaper fresh foods and may recapture some of the trade lost to the more artificial products of the factory. With the problem of providing cheaper dairy products and greenstuffs we have not direct concern except as private citizens. In the education of the people

in questions of dietetics, however, we are very directly interested. What possibilities of effective action present themselves in this direction?

(1) *The School*.—The elementary school is obviously one way of reaching a large proportion of the population. Instruction in the principles underlying feeding, and in the preparation of foods, should be established as a routine in connection with hygiene lessons in all the senior classes of the school, so that each boy and girl, and not merely those girls who pass through a course of instruction in cookery, may get some elementary knowledge on the subject. The way is pointed clearly in the Board of Education's admirable circular on "Food and Drink." The cookery classes, again, might with great benefit be extended to serve a larger proportion of the children than is often the case at present.

It may perhaps be mentioned that in some American schools nutrition classes are held at which children below the proper standards of nutrition, and their parents, are instructed in the types of food which should be taken or avoided. The results have been extremely satisfactory, the instruction being based largely on a social investigation by a skilled visitor into the circumstances of life of each badly nourished child.

To all such education is likely to be raised the objections of the business element, first that there is already insufficient time for the ordinary curriculum, and second that little of the teaching is retained by the child. To my mind such knowledge as this, underlying the physical well-being of the next generation, is at least as important as the knowledge generally imparted at schools; while even if much of the teaching fails to be utilised it does not differ in this respect from that of the rest of the curriculum.

For such instruction to be effective, it must be given by teachers thoroughly versed in modern views on the physiology of diet. Teachers during the course of their training are required to study food values and diet as a part of their instruction in physiology and hygiene. I have had some opportunity of experience as to the results, and have come to the conclusion that although in many instances the teachers do acquire a conscientious knowledge of the subject within certain limits, yet in a considerable proportion either the text book or the instructor has not been up to date, so that their knowledge is of little value for such an educational campaign. The syllabus of instruction of teachers in that section of hygiene dealing with dietetics appears, to judge by the results, to require overhauling.

(2) *The Home*.—To turn from instruction in the school to that given in the home, we are concerned first with the teaching of the mother by the health visitor. The Health Visitor must, therefore, herself be trained and kept up to date in the principles of dietetics. Here is only another instance of the real economy, in terms of the public health, in obtaining a health visitor who has taken one of the courses which specifically study this and other questions of preventive medicine. I do not think that anything impresses more vividly the real advantage of a fully-trained health visitor than contemplation of the subject of dietetics, bristling with technical difficulties which are insurmountable to one of the older school.

But we have to go one step further back than the health visitor, to the medical officer of health, who must himself keep abreast of modern views if he is to stimulate his staff. Is there not scope for improvement in the instruction of medical men in the public health service, both before and after qualification, in this large branch of their work? It is true that we do from time to time get real help in that direction—for example, by the valuable pamphlet on "Diet in relation to normal nutrition," prepared by Dr. Hamill and issued by the Ministry of Health in 1921. I am convinced that members of the public health service must realise to a growing extent the fundamental importance of this question of dietetics, as underlying the physical well-being of the people.

To go back to the health visitor, her method of teaching in the home will be partly oral, and partly by leaflets left for the mother's consideration at leisure. I wish to refer for a moment to these leaflets. There are, of course, innumerable such leaflets issued throughout the country. Each district is a law unto itself, and the views expressed and the standards adopted are almost equally varied. The variation in large part depends on the precise point of view of the writer when preparing the leaflet. If it is desired only to prevent scurvy, no attention being paid to other needs, the ideal diet may quite readily differ, at any rate in details, from that needed to prevent rickets, or dental caries, or stunted growth, or a well-developed jaw. The leaflets on diet, at present issued by many individual medical officers of health, while many of them admirable, are frequently lessened in value by this concentration on one point of view. What is needed is a statement combining the various points of view, and setting out in authoritative fashion the ideal diet from the earliest infancy onwards. Having provided that statement, the Public Health Service can see to it that through its health visitors, its

welfare centres, schools and teachers, and through every possible channel of publicity, the facts are brought to the notice of those who choose and prepare the people's food.

The statement must, however, be authoritative, if it is to command the confidence of medical practitioners and of the general public. By whom should it be prepared? I do not forget the pamphlets issued either by the Board of Education or the Ministry of Health; these are, however, not adapted to serve the purpose of the busy working-class mother in her home. In my opinion the needs could best be met by the Society of Medical Officers of Health, through its Maternity and Child Welfare Section, itself preparing a concise—but not too concise—memorandum on the practical aspects of dietetics.

One difficulty must at once beset any standardised memorandum prepared by an official body, rather than by an individual: that of losing force by seeking the highest common factor between opposing opinions, or of playing for safety where a given view is still, even though probable, not proved to the point of demonstration. On this latter point I think that a frank but bold policy is desirable; it is always possible to indicate the probable as distinct from the proven, and yet not lose the advantage of bringing the most recent information to the notice of the public.

(3) *Other Channels*.—Having referred to education through the school and the home, I need only mention, without comment, the possibilities of further education, already in part explored, through Ante-natal and Infant Welfare Centres, Women's Institutes and similar organisations. A large amount of useful educational work in connection with the hygiene of food is of course already being carried out in these directions.

Having concentrated thus on the present risks through inadequate diet, we must not forget the triumphs, many of them of recent date, of preventive medicine in this sphere of its influence. We can record the control of scurvy in the adult or in the artificially fed infant by fruit juices, or under war conditions of transport the prevention of scurvy among troops by means of germinating grain; the prevention of beri-beri by the substitution of red rice for the modern steelmilled product, or again under war conditions the replacement of fine white flour by coarse whole meal wheat; the prevention of the excessively prevalent infantile beri-beri in the Philippines, affecting breast-fed infants through their mothers, by feeding the infant with an extract of rice polishings or the mother with under-milled rice; the changed out-

look on the prevention of rickets as a result of the investigations of the past few years; the corresponding appreciation of the factors underlying xerophthalmia and some forms of oedema; the prevention and the cure of pellagra by dietetic means; the cure of marasmic infants in a number of cases by the administration of extracts rich in vitamins; in another sphere, the value of vitamins in rearing cattle of large growth and specially resistant to disease.

These are striking triumphs; a larger victory, though a less obviously spectacular one, still has to be won. There is sufficient indication for us to feel certain that a considerable section of the population suffers physically from the effects of partial starvation in essential elements on the modern diet. Preventive medicine can, and no doubt will, succeed in dealing with this larger problem; and in improving the physique and the health of the people it will multiply their happiness to an incalculable degree.

CONSTIPATION IN INFANCY.

(Three Papers read before the London Sub-Group for Maternity and Child Welfare on April 17th, 1923.)

(1) By DR. ALICE HUTCHINSON (Assistant Physician, South London Hospital for Women, and Medical Officer for Child Welfare, Peckham.)

The first point to be ascertained in dealing with a case of constipation in infancy is whether the motion is hard or soft. In order to do this, it may be necessary to slip the stalled finger into the anus, when the motion is at once passed.

If the motion is soft, the causes of the constipation may be:—

(a) A tight anus. The slipping in of the finger will then dilate this and effect treatment of the condition.

(b) Indolence of rectum. This may be caused by over-dilation due to the constant use of suppositories or enemata, or else by the mother's omission to teach the child to defæcate.

(c) Lack of tone in the intestinal or abdominal wall due, for example, to rickets. This is more commonly seen in older children, but may be present in infants.

If the motion is hard, one must next ascertain if it is large or small.

If it is a large hard motion, the probability is that the child's feeds are too solid. This form of constipation is especially common in infants who are fed on whole cow's milk or on insufficiently

diluted cow's milk, for the excess of casein causes a large and hard motion. In these cases when the cow's milk is suitably diluted, the constipation suddenly clears up. There are certain babies who do very well on citrated whole cow's milk. In these cases an ample supply of extra water must be given.

On the other hand, if the motion is small as well as hard, we find that the feeds are being too easily absorbed. The cause of this condition in a breast-fed baby is usually due to an insufficiency of fat in the feeds, the mother's milk being poor. Whereas in a bottle-fed baby the cause is usually that the feeds are being over-diluted with water and thus there is not enough residue in the stools to provoke action of the muscular coat of the intestine. In these cases, if the bottle-fed child is put on to feeds of whole milk, the constipation clears up dramatically.

To the breast-fed child an emulsion of suet in water may be given daily (an eggcupful of boiled water in which a piece of suet the size of a hazel nut has been shaken up) or else liquid paraffin may be administered, as this increases the bulk of the stools. Finally there is a class of case in which small hard dry motions are present and which is associated with persistent vomiting, whether large or small in amount. If this latter condition is present the faecal residue is bound to be diminished and small hard dry motions must of necessity be passed. In certain of these cases a serious condition may be present such as pyloric stenosis.

As regards treatment in general, of constipation in infancy. The first and most important point is to impress upon the mother to train the child to deprecate from the earliest days of its life. The child should be "held out" over the "chamber" every morning regularly. The importance of thus forming a regular habit early in life cannot be over-estimated. Malt is often a great help in overcoming constipation. This may be administered to a breast-fed baby by substituting one bottle of Horlick's malted milk a day for a breast feed. To a bottle-fed baby a drachm of malt extract may be administered daily in one of its bottles. I have personally found that orange juice and grape juice are disappointing in their results. In very obstinate cases which have resisted all the above methods of treatment I administer confection of senna, a quarter of a teaspoonful daily.

(2) By DR. STELLA CHURCHILL (Assistant Medical Officer of Health, St. Pancras).

I will preface my remarks by giving you the result of an inquiry that I made into relative

frequency of cases of constipation occurring in breast-fed and bottle-fed babies respectively. The figures were taken from the case sheets of 600 infants attending the Municipal Welfare Centres in Bermondsey.

523 infants were breast fed and constipation occurred in 156 cases, or in 29.8 per cent.

77 infants were bottle-fed and constipation occurred in 37 cases, or in 48 per cent.

Thus it would seem from this series of cases that constipation is more common in bottle-fed babies. I agree with Dr. Alice Hutchison that a daily action of the bowels is of great importance to the child's health, and that constipation is not to be lightly disregarded. I consider that long-continued constipation causes distention of the bowel with consequent discomfort to the child, and also toxæmia.

The causes of constipation may be epitomised as follows:—

(1) Feeding the child at too frequent or at irregular intervals.

(2) Interference with the muscular action of the abdominal wall by means of the tight binder that is applied daily to the child.

(3) The presence of such defects as phimosis or umbilical or inguinal hernia.

Then in breast-fed children I find that treatment of the mother's constipation, if present, will remedy a similar condition present in the child.

In the case of a bottle-fed child it is important to avoid low dilutions of cow's milk and to increase the amount of water present in the feeds, if constipation is present.

The Treatment of Cases of Constipation.

1. *Hygienic Measures.*—The child should be fed at three or four-hourly intervals and regularly. Small quantities of boiled water should be administered at intervals throughout the day. The clothing of the child should be loose and the binder be discarded. Gentle massage should be given daily to the abdomen. The mother should be instructed to stop giving the child purgatives.

2. *Medicinal Measures.*—If the hygienic measures above indicated do not cure the constipation, malt extract or liquid paraffin should be administered daily for a time. I have found that orange juice is useful in the treatment of this condition. The use of the soap-stick must be kept only for very obstinate cases of constipation.

3. *Treatment of defects* such as herniæ or phimosis should be thoroughly undertaken.

Last and not least the condition of the mother's health should be enquired into and suitable treatment instituted for any condition that may be present such as carious teeth, constipation, etc. In conclusion, I consider that the importance of breast feeding cannot be enough emphasized in the prevention of constipation in infancy.

(3) by DR. ALAN HAMILTON (Assistant Medical Officer for Child Welfare, St. Catherine's, Poplar).

I will deal only with the common types of constipation occurring in infancy, and will exclude the rarer forms due to defects of the higher nerve centres, such as the constipation seen in Mongols or congenited idiots, or to gross lesions of the alimentary tract such as pyloric stenosis.

Constipation in the Breast-fed Infant.—I consider that this is due largely to mismanagement of the infant in the early weeks of life. The peristaltic mechanism of the intestines at this stage is delicate and easily interfered with. If the infant is "held out" at the same hour each day he will readily acquire the habit of emptying his rectum. Unfortunately the normal course of events is very frequently interfered with. For no good reason, it has long been a custom to give a dose of castor oil on the 2nd or 3rd day of its life, to the unfortunate infant. The valuable meconium on which the intestines practise their early movements, is purged away and *days* may pass before there is sufficient material in the gut to call forth a natural stimulus. Then when enough material has at last accumulated in the rectum, the nervous mechanism of the bowel is too dulled or too exhausted to respond to the stimulus.

To meet the emergency thus produced, Granny now advises a *second* dose of castor oil or perhaps syrup of figs. The peristaltic mechanism is upset and instead of gentle painless waves passing down the intestines, irregular, painful, spasmodic, ineffectual contractions occur. The sequence of events is as follows:

A dose of castor oil with the usual result, followed by constipation, more castor oil, colic, disturbed night, a harrassed mother weakened by a recent confinement and one who is all too ready to put entire blame on her breast milk. Is it a wonder then that the vicious circle is broken by weaning, and a still more dangerous stage begun? viz:—bottle feeding in an already dyspeptic infant.

Unfortunately the diagnosis of constipation is easy, and as treatment appears to be so simple,

and the immediate results of treatment so obvious, it is not surprising that it is lightly undertaken. A mother expects and rightly expects her infant's bowels to move at least once a day and, if they do not, she finds it difficult to hold her hand when family tradition, the advice of her next door neighbour or suggestion in the form of advertisements in newspapers and magazines, point the way. Even some books on Infant Welfare are misleading. In one I find, "don't let 10 o'clock in the morning pass without getting the bowels to move, if there has not been a motion during the last 24 hours."

Infrequent or irregular action of the bowels in a young infant fed at the breast should *not* be treated by aperients, suppositories or injections. All that is required is suitable management of the breast feeding. I find that much difficulty can be avoided, and much time saved, by telling the mothers attending for the first time to put nothing in the child's mouth except the nipple, until she gets expert advice. In this way dummies, aperients, sugar water and many other bad habits are cut short.

A Second Type of Constipation in Breast-fed Infants.

In this group of cases we find, upon enquiry, that no aperients, suppositories or injections have been used, but the mother complains that the breast-fed infant is constipated. Test feeds should then be taken, and if the supply proves to be too small the infant is obviously suffering from starvation. The treatment is equally obvious. Supplementary feeds will usually be necessary, but complete success in treatment means the establishment of breast feeding.

A Third Type of Constipation in Breast-fed Infants.

In this group of cases the management of the infant by the mother leaves nothing to be desired and the test feeds are satisfactory. The infant looks well and gains at the rate of 4 to 7 ounces a week. He passes infrequent motions perhaps every 2nd or 3rd day, but the stools when passed are perfectly normal in colour, size and consistency. These infants appear to use up most of the fuel supplied to them and there is little residue. No active treatment is necessary. The condition usually rights itself in time, but I tell the mother to drink more fluid, and liquid paraffin is given to the infant to add to the residue in the colon.

A Fourth Type of Constipation in Breast-fed Infants.

In this fourth and last group of cases, the causes already detailed have been excluded. If

attention is turned to the mother, you will frequently find that she herself is not only *constipated* but is also taking frequent doses of aperient medicines. The infant is also constipated and is often restless and feverish. His skin has an unhealthy tint and the weight chart shows that he is not thriving. Successful treatment of the mother will bring relief to the infant. I ask these mothers to *stop* all aperients at once and if they are drinking milk, to stop this also. They are asked to drink at least 3 extra glasses of water a day, and to take vegetables and fresh fruit. Also, too, "an apple a day" is good advice. These mothers are told that it takes 2-3 weeks to re-educate the bowel, and during that time I often prescribe paraffin. Other medicines are very rarely necessary.

Before discussing constipation in the bottle-fed infant, I would like to mention a few points concerning both groups, bottle fed and breast fed. An infant readily acquires good or bad *habits*, and the importance of the former in this connection cannot be over-emphasised, such for instance as "holding out" the child every morning over the chamber. A mother at present attending one of the centres tells me that her breast-fed infant now aged 10 months, has not soiled a napkin since she was 2 months old.

In all cases measures should be taken to keep up or increase the general muscular tone. All tight garments should be discarded and loose ones which allow free play of the limbs, trunk, and muscles used instead. Massage to the limbs and abdomen undoubtedly has its value in suitable cases. Cool douching after the daily bath is of great value, as also, daily outings and sunbaths.

The ill effects of sweating are not so generally recognised. It is commonest in rickety children, but is not at all uncommon in over-clothed, but not rickety infants, during the summer months. The amount of fluid lost in this way may be very considerable. The dehydration may proceed to such an extent that the kidneys almost cease to function. I know of one case where the doctor concerned sought the advice of a specialist because the babe had not passed water for over 24 hours. The infant was lying in a hot room covered with innumerable garments and sweating profusely. In such cases the excessive absorption of fluid from the colon causes excessive drying of the fæces and constipation.

In rickety infants many of the factors I have mentioned are at work. The nervous mechanism is out of gear, the tone of the intestinal and abdominal muscles is below par, the infant sweats

profusely, and the diet is often faulty. To treat the case successfully all these points may be taken into consideration.

Constipation in the Bottle Fed.

When considering constipation in the breast-fed infant, little or no attention was given to the composition of the milk, but in the bottle-fed child the diet must receive our attention in almost every case.

All that has been said about habits, the avoidance of aperients and suppositories and injections, and the many measures aimed at keeping up good muscle tone holds good, but constipation in the bottle fed is to a large extent a question of dietetics.

Starvation is comparatively rare and easily dealt with. *Overfeeding*, especially with an excess of protein in the mixture, is the commonest cause, and the most severe cases are seen in infants fed upon *undiluted* cow's milk, or mixtures made from dried milk. No two children require exactly the same diet, and I believe those people who would bring all infants up on whole milk are just about as much at fault as those who pin their faith and slavishly adhere to so-called humanised milk. One infant may thrive on a certain artificial diet, which would constipate a second and give diarrhoea to a third. Infants fed on an excess of protein may grow rapidly for a time. They are usually pale and their stools are formed or semi-formed, pale and often gritty. These infants have sore buttocks of a peculiar type. There is an erythema close to the anus and not extending widely over the buttocks, but *not* a diffuse erythema such as results from contact with the acid stools of carbohydrate dyspepsias. The spots may develop into shallow ulcers. They are caused by the irritating alkaline stools. The urine may be irritating, too, for it is often highly ammoniacal.

The dilution of the mixture and the addition of carbohydrates in one form or another will rapidly cure the constipation. As a temporary measure paraffin is helpful in these cases until the changed diet has its effect.

In a second type the fat in the diet is either too high or too low. In my experience the high percentage is the commoner fault. These infants are often dyspeptic and vomiting may indicate the cause. Frequent urticarial eruptions are not uncommon. The stools are pale, bulky and greasy.

Infants fed on an excess of carbohydrate are subject to repeated attacks of diarrhoea with alternating constipation, but they become more and more tolerant to sugars, and I have twice seen young infants taking a full tin of Nestlé's

sweetened milk per day, and yet their motions were infrequent! The change to a more reasonable diet must take place slowly or severe constipation results.

The normal stool of the breast-fed infant is egg-yellow in colour, unformed, soft and smooth. The stools of the bottle-fed are very similar, but pale in colour unless malt is used, when they become darkened. I regard formed stools and any marked variation in colour or consistence as abnormal, if they occur in infants still fed entirely on the bottle.

As regards drugs I have little to add. In all cow's milk or dried milk mixtures, I believe *sodium citrate* should be added as a routine. Paraffin as already indicated is useful in certain cases, but the need for any other drugs is rarely necessary at an Infant Welfare Centre.

NOTES FROM BRANCHES.

THE METROPOLITAN BRANCH.

THE NEW PRESIDENT.

The congratulations of the Branch are extended to Dr. Fred. Holland Thomson, Medical Superintendent of the North-Eastern Hospital, Metropolitan Asylums Board, who has been unanimously elected President for the ensuing session. Much useful work has been done in conference between the Branch and the Asylums Board during the past few years, and Dr. Thomson's acceptance of the Presidency will but serve to cement the spirit of co-operation between the two bodies. He is assured of the support of the entire Branch.

DREYER TREATMENT FOR CONSUMPTION.

A number of beds for this treatment are available at the Hampstead Hospital. Application should be made to the London County Council.

EARLY ADMINISTRATION OF ANTITOXIN.

In order that the great importance of the early administration of antitoxin as influencing the fatality of diphtheria may be brought to the notice of as large a number of practitioners as possible, and with the object of removing any misconception on the point which may exist, the Infectious Hospitals Committee of the Metropolitan Asylums Board, through their Chief Medical Officer, Dr. F. Foord Caiger, make a special request that the attention of the metropolitan medical officers of health may be drawn to a letter on the subject which appeared above his signature in the *Lancet* and *British Medical Journal* of June 9th, 1923.

DR. CHARLES PORTER.

The Hon. Secretary of the Branch (Dr. Porter), has been nominated by the Committee to take part in the international visit to the United States for the special Rockefeller Course in public health administration, arranged under the auspices of the Health Organisation of the League of Nations. Dr. Porter was also recently appointed a member of the Departmental Committee to inquire into the use of preservatives and colouring matters in foods.

THE SOCIETY OF MEDICAL OFFICERS OF HEALTH.

EXTRAORDINARY GENERAL MEETINGS

An Extraordinary General Meeting of the Society was held at 1, Upper Montague Street, W.C., on Friday, July 6th, 1923.

There were present: Dr. W. J. Howarth (in the chair), Dr. G. F. Buchan, Dr. Charles Porter, Dr. E. H. Snell, Dr. F. J. Allan, Dr. F. G. Caley, Dr. G. Clark Trotter, Dr. T. H. Peyton, Prof. H. R. Kenwood.

The President (Dr. T. Eustace Hill) wrote expressing his regret that he was unable to be present.

The Executive Secretary having read the notice of meeting, Professor H. R. Kenwood submitted the revised Articles of Association, which after reference to the branches and groups had been approved by the Council. The adoption of the Articles, as circulated with "Public Health," July, 1923, was then moved, seconded and carried unanimously.

Before the proceedings closed, Dr. Howarth expressed the thanks of the Society to Professor Kenwood (Chairman), and the members of the committee who had accomplished the laborious task of revising the articles. He thought they had rendered a great service to their fellow members, and one which would do much to increase the influence of the Society as the representative body of the Public Health Service.

The meeting then adjourned.

An Extraordinary General Meeting of the Society was held at 1, Upper Montague Street, W.C., on Friday, July 20th, 1923. The President (Dr. T. Eustace Hill, O.B.E.) was in the chair, and there were present—Professor H. R. Kenwood, Dr. J. Cates, Dr. G. Clark Trotter, Dr. A. Ashkenny, Dr. G. F. Buchan, Dr. A. T. Nankivell, Dr. F. J. Allan, Dr. Charles Porter.

The Executive Secretary having read the notice of meeting, the minutes of the Extraordinary General Meeting, held on July 6th, 1923, were approved and signed.

It was then moved by Professor H. R. Kenwood, seconded by Dr. G. F. Buchan, and agreed unanimously, that the Special Resolution passed at the Extraordinary General Meeting, held on July 6th, 1923, be duly confirmed.

The Meeting closed with a vote of thanks to the President.

METROPOLITAN BRANCH.

The Annual Meeting of this branch took place at the Society's house in London, on Friday, July 6th, 1923, the President (Sir William H. Hamer), occupying the chair. Sixteen other members were present.

Dr. F. Thomson, M.A.B., was elected to the Presidency for the session 1923-1924, and will have supporting him as vice-presidents, Sir William H. Hamer and Dr. W. M. Willoughby. Dr. James Fenton and Dr. Charles Porter were re-appointed Hon. Treasurer and Hon. Secretary respectively, and Dr. H. Kenwood, Dr. Fenton and Dr. Porter were chosen to represent the branch on the Council of the Society.

The report of the work accomplished by the branch during the session 1922-1923 was adopted, and copies will be circulated to members in due course.

The Hon. Secretary (Dr. Porter), was nominated a representative of the Society on the Sanitary Inspectors' Examination Board, in place of Dr. Higgins, resigned.

A discussion took place on the question of the wrapping of bread, which had been made the subject of a communication from a metropolitan borough council to the London County Council. The dangers of contamination to which unwrapped bread was liable were referred to by a number of the members, and it appeared to be the general opinion that some form of wrapping would be of advantage from the health point of view. It was pointed out, however, in this connection that though pan loaves could readily be wrapped by machine, the wrapping of the cottage loaf was a rather difficult proposition.

Reference was also made to the letter of the County Council to metropolitan borough councils enquiring, in regard to the subject of the inflation of meat or fish, as to the extent of the practice, the methods employed in connection therewith, and whether there was a general desire on the part of the borough councils that legislation should be

promoted to prohibit the practice. From the information at the disposal of the branch it appeared that the blowing of meat, whether mechanically or by the more objectionable method of using the mouth was very much less in evidence at the present time than formerly, and that so far as fish was concerned the practice was now seldom met with. The branch were of opinion that the matter did not at the moment call for special legislative powers.

Sir William Hamer drew attention to the fact that in certain London districts the posters supplied to borough councils by the County Council giving details of treatment facilities for venereal diseases were very much out of date, and expressed the hope that an early opportunity might be taken of having them replaced by those containing the latest available information as to centres and hours of attendance.

MIDLAND BRANCH.

The annual meeting was held at the Court House, Warwick, on Saturday, July 7th, 1923.

Present: Dr. Gibbons Ward (in the chair) and 19 members. A large number of members wrote regretting their inability to be present.

Election of Officers and Council.—The following were elected: President, Dr. A. Hamilton Wood; President-Elect, Dr. H. W. Stocks; Vice-Presidents, Drs. A. Bostock Hill, George Reid, J. Robertson, T. Ridley Bailey, E. H. Snell, H. Gibbons Ward; Council, Drs. H. Gordon Smith, G. A. Auden, Rose L. Molloy, A. G. Wilkins, J. M. Cowie, W. H. Davison, W. L. M. Goldie; Treasurer, Dr. T. Ridley Bailey; Secretary, Dr. R. H. H. Jolly; Branch Correspondent and Auditor, Dr. W. H. Davison.

Representatives on Council of Society of Medical Officers of Health: Drs. E. H. Snell, H. Gibbons Ward, R. H. H. Jolly.

The usual vote of thanks to the Corporation of Birmingham for the continued use of a committee room was passed unanimously.

The Hon. Secretary reported to the meeting the sudden death (from accident) of Dr. Harry Shore, M.O.H., Walsall, in the previous month, and was instructed to write a letter of condolence to Mrs. Shore. The action of the Secretary in arranging for a wreath to be sent to the funeral was approved.

A letter was read from Dr. Bostock Hill intimating that in view of his forthcoming absence from this country it might be advisable for him to resign his position as Joint Trustee of certain investments held for the Midland Branch.

It was resolved that Dr. Ridley Bailey be asked

to become Trustee and be authorised to take the necessary steps to obtain the transfer.

Scale of Salaries for Public Health Officers.—Dr. Snell reported on the present position in relation to the above, and the meeting then terminated.

Members, and the ladies accompanying them were afterwards conducted over Warwick Castle, and the various antiquities and matters of interest to be found were described to them.

At 5 p.m. the President and Mrs. Gibbons Ward entertained the party to tea at the Woolpack Hotel. At the conclusion Dr. Snell expressed the thanks of the members to the President for the enjoyable programme he had arranged, and also for his hospitality.

Thus concluded a visit to the historical town of Warwick, most interesting and enjoyable, even if the same was made when the temperature registered 89° in the shade.

YORKSHIRE BRANCH.

A meeting of the Branch was held at the Leeds Education Offices, Leeds, on Friday, June 29th.

Previous to the general meeting a council meeting was held.

Elections to the position of Vice-President were considered and it was proposed to submit the following names to the general meeting: Drs. Jefferson Smith, Mair, Thornley, Bertram Hill.

It was proposed that the Council of the Branch should be constituted as follows: Drs. Francis, Buchan, Gibson, Sutherland, Mitchell, Wilson Jervis, Scatterty, Moore Pearce, Buck, Wynne.

The Hon. Secretary intimated to the Council that he desired to relinquish the position of Secretary to the Branch owing to the fact that he had been compelled to undertake additional private work. It was proposed to submit the name of Dr. Banks for the position. The Council also decided to advise the general meeting that a luncheon should be held in Leeds on the last Friday in September.

The recommendations of the Council were then placed before the general meeting and adopted—not, however, before Dr. Williams had insisted upon the name of each member of the Council being submitted and voted on individually.

It was proposed by Dr. Buck and seconded by Dr. Jennings that a minute be entered in the copy of the proceedings to the effect that Dr. Bertram Hill's services as Hon. Secretary had been much appreciated by the Branch.

The meeting then discussed the question of a Public Health Acts Amendment Bill.

Dr. Moore submitted as a general proposition: "That the people should make the Public Health Laws, but their administration should be placed in the hands of 'selected' capable people who should report their action to the Local Sanitary Authority."

Dr. Gibson proposed: "That whilst the time is ripe for the codification of all the Public Health Acts, it is unwise to submit suggestions for any definite political party." There voted for 5, against 2. The President declared the motion carried.

The Hon. Secretary laid before the meeting a letter he had received from the Executive Secretary on the matter of the appointment of Medical Officer of Health to the North Riding County Council.

Dr. Moore proposed that a letter be sent from the Council of the Society of M.O.H. and the B.M.A. to the North Riding C.C. asking them not to confirm the appointment of Dr. Mason without throwing the appointment open.

HOME COUNTIES BRANCH.

The Annual Meeting of this branch was held at Dover, on Friday, July 6th, 1923, at 2.15 p.m., with Dr. A. B. McMaster in the chair.

Before the meeting the members of the branch and their lady friends were entertained to lunch by the President and Mrs. McMaster.

The thanks of the guests were very happily expressed to Dr. and Mrs. McMaster by Dr. Greenwood and Dr. Scurfield, to which the President suitably replied.

The following members were nominated and duly elected to the offices indicated, for the session 1923-24:—

President, Dr. W. Benton, M.O.H., East Ham; Honorary Treasurer, Dr. A. E. Porter, M.O.H., Reigate; Honorary Secretary, Dr. H. J. Milligan, M.O.H., Reading.

The following were elected branch representatives on the Council:—

The President, Dr. W. Benton, M.O.H., East Ham; Dr. A. B. McMaster, M.O.H., Dover; Dr. Joseph Cates, M.O.H., Kingston-on-Thames; The Hon. Secretary, Dr. H. J. Milligan, M.O.H., Reading.

The meeting then terminated.

By the kindness of the President, the members and their friends enjoyed a tour by motor boat round Dover Harbour and afterwards visited the aliens medical inspection rooms. The method of receiving and examining the immigrants was demonstrated by the President and his assistants.

On their return, the party was entertained to tea

by His Worship the Mayor of Dover (Alderman W. G. Lewis, Esq., J.P.), during which a most enjoyable organ recital was given by the Borough organist, Mr. H. J. Taylor.

The Mayor and Mr. Taylor were heartily thanked for their hospitality.

NORTH WESTERN BRANCH.

The annual meeting of the North Western Branch was held in the Town Hall, Blackpool, on Friday, June 22nd, 1923.

Present: Dr. Rees Jones (President) and 22 members. Minutes of last meeting were read and confirmed.

Finance: The Hon. Treasurer's statement of accounts was submitted and adopted.

The report of the Hon. Secretary was also submitted and adopted.

On the proposition of Dr. Wheatley, seconded by Dr. Moffatt, the Branch unanimously conveyed their congratulations to Dr. Barlow on his being elected to the Presidency of the Parent Society. Dr. Barlow briefly replied.

Officers: The following officers were appointed for the session 1923-24: President, Dr. G. Lissant Cox; Hon. Treasurer, Dr. H. H. I. Hitchon; Hon. Secretary, Dr. G. W. N. Joseph. Council Representatives, Drs. James Wheatley, Lissant Cox, Rees Jones and the Hon. Secretary. Committee, Drs. Daley, Morley Mathieson, Peyton and Wood, together with vice-presidents and officers.

The Mayor of Blackpool then formally welcomed the Branch to Blackpool.

Following the meeting visits were paid to the New Open-Air Baths, the Maternity Home, the Venereal Diseases Clinic and the Infectious Diseases Sanatorium, at which last named place those present were entertained to tea by Dr. and Mrs. Rees Jones, who were cordially thanked for their hospitality.

OBITUARY.

DR. G. I. T. STEWART, M.O.H., EAST SUFFOLK.

We regret to announce the death, which took place suddenly on Friday, July 15th, of George I. T. Stewart, M.D., F.R.C.S., D.P.H., Medical Officer of Health for East Suffolk, at the early age of 51. Dr. Stewart graduated at Aberdeen University and subsequently was at St. Thomas's Hospital. For some time he did a great deal of surgical work, being associated with the ear and

throat departments of Golden Square Hospital, Ormond Street Hospital for Children, and the Throat Department of St. Thomas's Hospital. He commenced his public health career in 1908 as School Medical Officer for East Suffolk, and succeeded Dr. Llewellyn Heath as County Medical Officer in 1911. Dr. Stewart proved to be an extremely energetic and able County Medical Officer, and his early death is deeply deplored throughout the county area. Within the last fortnight he had presented a special report on the provision of isolation hospital accommodation in the county, and received from the members of the County Council a striking tribute to his ability. As recently as the Friday before his death he attended the meeting of the Local Branch of the British Medical Association to which he acted as Honorary Secretary for some time.

DR. HARRY SHORE, M.O.H., WALSALL.

In tragic circumstances the death occurred at the Walsall General Hospital on June 22nd last of Harry Shore, M.D., B.S., D.P.H., Medical Officer of Health for Walsall. While trying a motor-cycle belonging to his superintendent health visitor on the previous evening, he was flung from the machine and suffered a fracture of the base of the skull, and other injuries, to which he succumbed 24 hours later. The accident is made all the more extraordinary when it is remembered that Dr. Shore was an expert motorist, and was one of the first persons in Walsall to drive a motor car. From the evidence at the inquest it appeared that the accident was caused by his mackintosh becoming entangled in the belt of the machine, causing a violent fall, although the bicycle was at that time proceeding only at a moderate pace.

Dr. Shore, who was aged 52 at the time of his death, received his medical training at Queen's College, Birmingham, and the University of Durham, obtaining distinction at the degree examination in chemistry and medical jurisprudence. Subsequently he was in practice with his father at Walsall and on his own account, and in 1910 he was appointed Medical Officer of Health for Walsall. He proved himself to be an able and zealous public officer and succeeded in bringing about considerable improvement in the local administration, although, like most enthusiasts, he found himself frequently more progressive than some of the members of his Council. Like many medical

officers, he found most of his difficulties caused by opposition and criticism arising from members of his own profession.

After recording a verdict of "Accidental Death," the Coroner remarked that the late Dr. Shore was exceedingly well known, first of all because of the extensive private practice he once had, and afterwards because of his prominent position as Medical Officer of Health. He had very high qualifications, and was reputed to be an exceedingly able medical man. His (the Coroner's) relations with him had always been of a most pleasant character, and he (the Coroner) believed that was the general experience of everyone who had anything to do with him. Even those who differed from him, as necessarily happened frequently, always respected him as a man of strong convictions and fearless in expressing them. That he should have been cut off at the very prime of his usefulness was a very terrible thing, and had naturally created a painful sensation throughout the town. In conclusion, the Coroner offered his condolences to the widow and only son.

The Town Clerk (Mr. Herbert Lee) associated himself with the Coroner's remarks, and on behalf of the Town Council and the late Dr. Shore's official colleagues, expressed deepest and most sincere sympathy with the widow and son in the tragic happening.

CORRESPONDENCE.

The Editor does not accept responsibility for the opinions of correspondents.

SPREAD OF SMALLPOX.

DEAR SIR,—On page 283 of the current issue of "Public Health," you state that Medical Officers in the West of England must have watched . . . how Smallpox has been creeping nearer and nearer by way *apparently* of Staffordshire and Herefordshire. You go on to refer to the case which occurred in the latter county in February. Appearances are often deceptive, and the case referred to was in a person who had been in Herefordshire less than a fortnight and the source of infection was definitely traced to a town in Gloucestershire and was acknowledged by the M.O.H. of the district concerned. So the creeping was in this case in the opposite direction.

Further, as far as I know, all contacts of this case in Herefordshire were traced and dealt with.

Yours etc.,
M.O.H.

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At the meeting of the Scarborough Town Council on Friday, May 18th, the following resolution was passed: "That the honorary freedom of the Borough be conferred upon Colonel Sir William R. Smith."

At a special meeting of the Town Council, on May 18th, the Freedom of the Borough of Scarborough was conferred on the Lord Mayor and Sir William R. Smith.

From twenty-five applications the Radcliffe District Council have selected Dr. John M. Gibson as their Medical Officer of Health and School Medical Officer. Dr. Gibson is the Assistant Medical Officer and the School Officer for County Cumberland. His commencing salary will be £800. He will be Radcliffe's first full-time Medical Officer.

Editorial.

HEALTH IN FACTORIES.

It is a curious fact that with a Ministry of Labour and also a Ministry of Health in existence the whole province of health in factories should be still held by another Government Department. Medical Officers of Health have for many years deplored such dual control, the results of which are so unsatisfactory. In an ordinary industrial district possibly the most important of all health matters needing constant supervision are the working conditions of the industrial population, and these are almost entirely beyond the control of the Medical Officers of Health. Undoubtedly the control now exercised by the Home Office should be handed over partly to the Ministry of Labour and partly to the Ministry of Health.

The pre-war standard of factory inspection was absurdly low, and there appears to be no comparative figures yet available for 1922, but in a recent discussion in Parliament the Home Secretary did not question the statement that the number of inspectors is, at the present time, considerably below the proper strength, or that the number of factory inspections, allowed largely to lapse during the war, is still far below the normal. In that discussion, the Home Secretary admitted that 34,000 factories and 75,000 workshops subject to inspection have not been inspected for more than a year, and 9,000 factories and 33,000 workshops for more than two years, and that the total number of inspections has fallen by about 150,000 in comparison with the annual pre-war total. From these figures it seems as if the work which was done badly before the war has now become hopelessly muddled and inadequate, and a determined effort should be made to get the health supervision of factories transferred to the larger health

authorities. There is no reason at all for a continuance of the absurd dual control which has existed for so long. Inadequate inspection means that the Factory Acts can be infringed with impunity, and it subjects the workers to unnecessarily bad sanitation and ventilation, etc.

The Home Secretary seemed to think that the only thing that was necessary was an extension of the "Safety First" movement.

We have no wish to belittle the "Safety First" campaign, and we consider it desirable and advantageous to spread among the workers a proper understanding of the necessary precautions to be taken in connection with their employments, both against accidents and in the promotion of hygiene, but we contend that the "Safety First" movement makes thorough inspection not less but more necessary, in order that employers may everywhere be induced to adopt the most up-to-date and precautionary measures. Care on the part of the workers is not a precaution against unsafe or unhealthy conditions arising from the neglect or wilful refusal of the management to put their factories in order.

WOMEN AND BIRTH CONTROL.

When the subject of birth control was reached at the Congress of the Co-operative Women's Guild at Cardiff recently, there was a queue of delegates on the platform waiting to speak. Many were heard, but owing to the fact that the Congress was behind with its Agenda some of the women could not give utterance to their views. The resolution, which was carried by a large majority, was as follows:—

"That this Congress urges upon the Ministry of Health and Local Health Authorities the advisability of information in regard to birth control being given at all maternity and child welfare centres in the country."

The subject of birth control is evidently arresting the attention of large numbers of people all over the country, and the above decision arrived at by such an immense body as the Co-operative Women's Guild gives us reason to hope that the influence of that small but energetic and vociferous section of the public which works so strenuously to prevent the spread of knowledge upon all kinds of subjects is weakening. That section which for many years has succeeded in preventing the public being given full knowledge with

regard to the prevention of venereal disease and which has successfully, up to the present, prevented the public being able to purchase scientific preventives openly, has received its quietus in the recent Trevethin Committee report, and the equally energetic and similarly constituted section which is trying to strangle the birth control movement seems now about to be defeated. As we expressed in one of our recent issues, we have no sympathy with the frame of mind which assumes a mental and moral superiority enabling it to possess knowledge without suffering therefrom, but which assumes that the "ordinary lower-class person" would devolve nothing but harm from the spread of such knowledge generally. We agree altogether with Dean Inge, who said, when writing upon this subject, "The effect of withholding knowledge is simply to increase crime. . . . Conscience is not a monopoly of the well-to-do. The working man and his wife have a right to judge for themselves like other people."

PENDING APPOINTMENTS.

We understand that certain Local Authorities propose to advertise assistant appointments at a basic salary of £400 with bonus. In view of the uncertain outlook as regards the future of bonus awards, it is hoped that the British Medical Association will decide that in such cases there must be some undertaking that reductions of bonus will cease when the total emoluments fall to the recognised minimum. Meanwhile members of the Society are ill-advised to apply for appointments when the basic salary is fixed at less than £500.

As it is probable that several appointments of a doubtful character may be advertised in the near future, it is desirable to repeat previous warnings to members, viz. (a) that they should study the Important Notices appearing in the *British Medical Journal* every week, and (b) that they should apply for no post that is advertised only in the lay newspapers, without previous inquiry of the Soc. M.O.H. or the B.M.A.

THE ANNUAL DINNER.

Dr. T. W. Naylor Barlow will be installed as President of the Society for the Session 1923-1924 on Friday, October 19th. On the evening of the same day the Annual Dinner of the Society will be held at the Hotel Cecil. The Minister of Health has promised to attend, and several other distinguished persons have already accepted invitations. A full notice of the arrangements will reach all members by October 1st.

The Annual General Meeting of the Naval, Military and Air Force Hygiene Group of the Society of Medical Officers of Health will be held at the house of the Society on Friday, September 28th, at 4.30 p.m., when officers will be elected for the Session 1923-24. A paper and discussion will follow.

THE PROBLEM OF THE DIPHTHERIA CARRIER IN LONDON CHILDREN OF SCHOOL AGE.

BY

J. GRAHAM FORBES, M.D., D.P.H.(Camb.),
F.R.C.P.

The high prevalence of diphtheria in London during the past three years, 1920 to 1922, has surpassed all previous records, and for anything approaching it one must go back to the eight years' period between 1893 and 1901.

It follows on a long spell of sixteen years' comparative freedom, from occurrence of the disease in epidemic form, during 1903 to 1918, when its incidence was with but trifling exception below the mean.

The storm of infection may be said to have arisen in the last half of 1919, to have reached its height in the final quarter of 1921, and to have diminished but little in 1922.

During 1918, the 8,173 cases notified exceeded the mean of 7,760 for the previous ten years, 1908 to 1917. The increase in notification in 1919 to 9,459 was concentrated in the last quarter of that year, and was succeeded by further rises, in 1920 to 13,780, in 1921 to 16,319, which unprecedented maximum was only slightly reduced in 1922 to 15,287.

This abnormal prevalence has shown an annual rise in late autumn, with a corresponding fall in early summer, and may therefore be described as a succession of waves, each crest higher than the last, each trough well above the ten years' mean. The general increase during this period, has, as might be expected, fallen heavily on our schools and is represented by the growing number of cases notified each year in the school-age period of 5-15 years. In 1918, 4146; 1919, 5293; 1920, 6499; 1921, 9089; and in 1922, 7352.*

With the object of checking this heavy toll and for the prevention of further spread in the schools, special visits of investigation for diphtheria alone were paid to 317 elementary schools in 1920. During 1921 no fewer than 281 investigations took place in the schools situated in the 29 various metropolitan boroughs, but mainly, in the N.W., in Hampstead; in the N.E., in Islington and Hackney; in the E., in Stepney; in the S.E., in Bermondsey, Lewisham and Woolwich; and in the S.W., in Battersea and Wandsworth. In 1922, 259 special visits were paid to schools in

* Chart VII. for monthly diphtheria rate and carrier rate in schools (1921 and 1922). See Chart VIII. for monthly diphtheria rate 1921 and 1922; and mortality case rate (ages 5-15).

each of these boroughs, but more particularly in Islington, Bermondsey, Greenwich, Southwark, Battersea and Wandsworth.†

The following explanatory notes refer to the accompanying charts which are spaced into periods of four quarters for each of the two years (1921 and 1922):—

CHARTS I. TO V. (pp. 3-7).

Charts arranged in divisions showing the diphtheria incidence for all ages per 10,000 population in each of the 29 Metropolitan Boroughs for each quarter of 1921 and 1922, and, for corresponding periods in the columns below, the diphtheria carrier rate per cent. as found in children swabbed in affected schools in each Borough.

CHART VI. (p. 10).

Composite chart of each of the five divisions showing (1) diphtheria incidence for each quarter per 10,000 population, (2) school carrier rate per cent. of children swabbed, (3) percentage proportions of virulent to avirulent among carriers from whom the diphtheria bacillus was isolated and tested for virulence.

CHART VII. (p. 14).

Showing side by side for each month of 1921 and 1922:

- (1) diphtheria incidence in schools per 10,000 school children,
- (2) carrier rate per cent. in affected schools among children swabbed,
- (3) and, in separate chart below, the percentage proportion of virulent to avirulent carriers among those from whom the diphtheria bacillus was isolated and tested for virulence.

NOTE.—The rise and fall in carrier rate would appear generally to correspond with the rise and fall in case incidence, more particularly in (N.W.) Hampstead, (N.E.) Islington and Shoreditch, (S.E.) Bermondsey, Camberwell and Woolwich, (S.W.) Southwark, Battersea and Wandsworth.

The corresponding seasonal case incidence, and carrier rate are represented by the rise in the autumn and winter months and fall in the summer months in each year, more evident in 1921.

The percentage proportions of virulent to avirulent carriers tend to approximate when diphtheria prevalence and carrier rate are relatively low, i.e., in the summer months, but become widely separated with the rise in case incidence and carrier rate in the autumn and winter months, when the ratio of the virulent considerably exceeds that of the avirulent.

CHART VIII. (p. 16).

Provides the diphtheria rate per 10,000 for each month of 1921 and 1922:

- (1) *for the school age period 5-15 years for all London and (below) the corresponding mortality† case rate per cent.
- (2) *for the separate age periods 5-10 and 10-15 side by side and below corresponding mortality† case rate per cent.

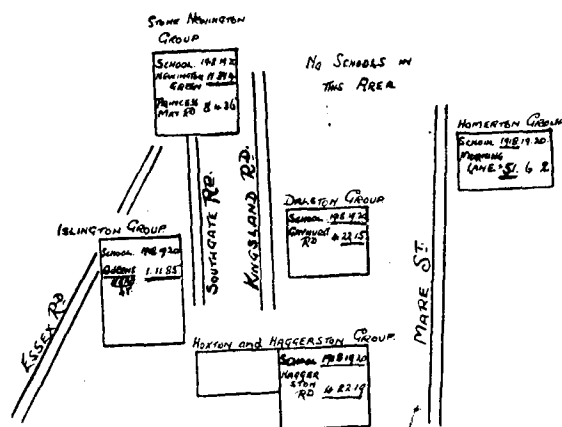
Judging from the ground traversed by the epidemic in 1921 and 1922, also in point of time, its course would seem to be one beginning in

†For tabulated and charted results, including diphtheria incidence and school carrier rate, see Table (p. 18) and Charts I.—VI. (1921 and 1922).

*From M.A.B. notifications.

†From Registrar General's figures.

1918, growing in 1919 and 1920, from a focus of adjoining areas in Stoke Newington, Hackney and Islington, where incidence was also high in the first quarter of 1921, radiating thence to reach various points of the compass in London in the last part of that year, and tending to concentrate during 1922 in the S.W. and more westerly areas of the S.E. (See plan).



NOTE.—The figures in each block under the years 1918-19-20 indicate the number of cases of diphtheria occurring in the named schools during each of the three years.

In the event of an outbreak of diphtheria in any school, with two or three cases in one class-room, the usual procedure is to arrange a visit to the department concerned at as early a date as possible. The visiting medical officer after preliminary inquiries inspects the children of affected class-rooms and selects a certain number for throat and nose swabbing, either on account of home or class contact with the diphtheria cases, history of previous diphtheria or recent sore throat, unexplained absence from school, or owing to evidence of abnormal conditions of the throat or nose, the object being to discover by bacteriological examination possible diphtheria carriers who may be responsible for the spread of infection.

School Carrier rate 1903 to 1922.

Comparison with earlier records of investigations into school diphtheria in the metropolis shows the marked increase called for in the work of school supervision and laboratory diagnosis of recent years. Thus:—

	School children.			
	Number swabbed.	B. diphth. present.	Carrier percentage.	
1903	758	58	7.6	
1904	890	60	6.7	
1905	982	95	10	
1906	803	68	8.5	
1907	770	75	10	
1908	1780	93	5.2	
1909	3009	122	4.5	

Average carrier percentage for the seven years among 8,992 children swabbed = 7.5.

During the three years 1920 to 1922, between 17,000 and 18,000 bacteriological examinations of throat, nose and ear of school children have been carried out with the following results, inclusive of re-examinations:—

Year.	Total.	Negative.	Suspicious.	B. diphtheria present.
1920	5811	4740=81.6%	350=6%	721=12.4%
1921	6606	5541=84%	419=6.3%	656=9.7%
1922	5401	4553=84.4%	370=6.6%	488=9%

Re-admission to school of carriers on negative-re-examination.

Previous to April, 1921, children yielding diphtheria bacilli in culture from the throat or nose were excluded from attending school until a repetition of the swabbing yielded one negative bacteriological result. In the case of long-standing carriers it has now been held advisable to require three negative results from successive swabbings at intervals of about a week, before readmission is sanctioned. This additional safeguard against the introduction of possible infection into the schools was judged necessary on the sufficiently established ground, that the presence of diphtheria bacilli, capable of bacteriological demonstration, may be intermittent in certain carriers; particularly those in whom the organism having become lodged in the tonsils is periodically discharged from the depth of the tonsillar crypts, so that there occur alternating positive and negative bacteriological results. The precaution embodied in three negative tests receives support from the paper on "The apparent rate of disappearance of diphtheria bacilli from the throat after an attack of the disease" (Section of Epidemiology and State Medicine, Roy. Soc. Trans., July, 1920, page 286) contributed by Dr. Percival Hartley and Professor C. J. Martin. It was calculated that, where less than three successive negative examinations are required in the case of diphtheria patients discharged from hospital and reported bacteriologically free on the strength of one or two negative findings, the chances of their really carrying were greater, by 29 per cent. for those with one negative test, and by 9.3 per cent. for those with two negative tests, than for those discharged free but really carrying after three successive negative tests—an unknown number designated by x). They also estimated the periods of detention in hospital for cases of diphtheria, previous to discharge, based on:—

One negative result as being 21 days.

Two negative results as being 34 days.

Three negative results as being 45 days.

The advisability, therefore, of applying the same standard of bacteriological test to school children, who are chronic carriers, seems a practicable and justifiable measure, although it is, of course, not regarded as being a hard and fast guarantee of safety against introduction of infection, owing to the occasional intermittence of the carrier condition already mentioned. The possibility of recurrence can, however, be met by the periodic re-examination of past carriers during their subsequent school attendance.

At the end of March, 1921, application was made by Dr. R. A. O'Brien, Director of the Wellcome Research Laboratories, for the supply of strains of diphtheria bacilli obtained in culture from the throat or nose of school children not suffering from clinical diphtheria, which Dr. Eagleton, of those laboratories, wished to have for the purpose of testing for virulence and comparing with strains from cases of the genuine disease. Dr. Eagleton's request was very readily complied with, for it was realised as providing a much-needed opportunity of dividing the school children, who were found to yield morphological diphtheria bacilli in culture, into groups of virulent and avirulent carriers.

The children whose cultures proved virulent were excluded until re-examination on three suc-

cessive occasions gave negative results, or until (as in the twelve cases quoted), the diphtheria bacillus isolated was found to be avirulent. The period of exclusion is a very variable one, and may range from one to six months or longer.

Details of Bacteriological examinations and virulence tests conducted over a period of two years.

Between April, 1921, and March, 1923, a total number of 12,017 bacteriological examinations of 9209 London school children were made by stained film preparations of cultures from the throat and nose; of this total 10,139 examinations of 8,020 children (87 per cent.) were passed as negative. In 1,117 examinations of 569 cases, or 6.2 per cent. of all children examined, K.L.B.* were found, and in 771 examinations of 620 cases or 6.8 per cent., suspicious organisms resembling K.L.B. were reported; thus yielding a total of 1,878 examinations of 1,189 children in whom K.L.B. were found or suspected.

With the object, where possible, of isolating the diphtheria bacillus in pure culture, for transmission to the Wellcome Research Laboratory for virulence tests, detailed investigations by plate culture and sub-culture were carried out in 994

* K.L.B.=Klebs-Löffler bacilli (B. diphtheria).

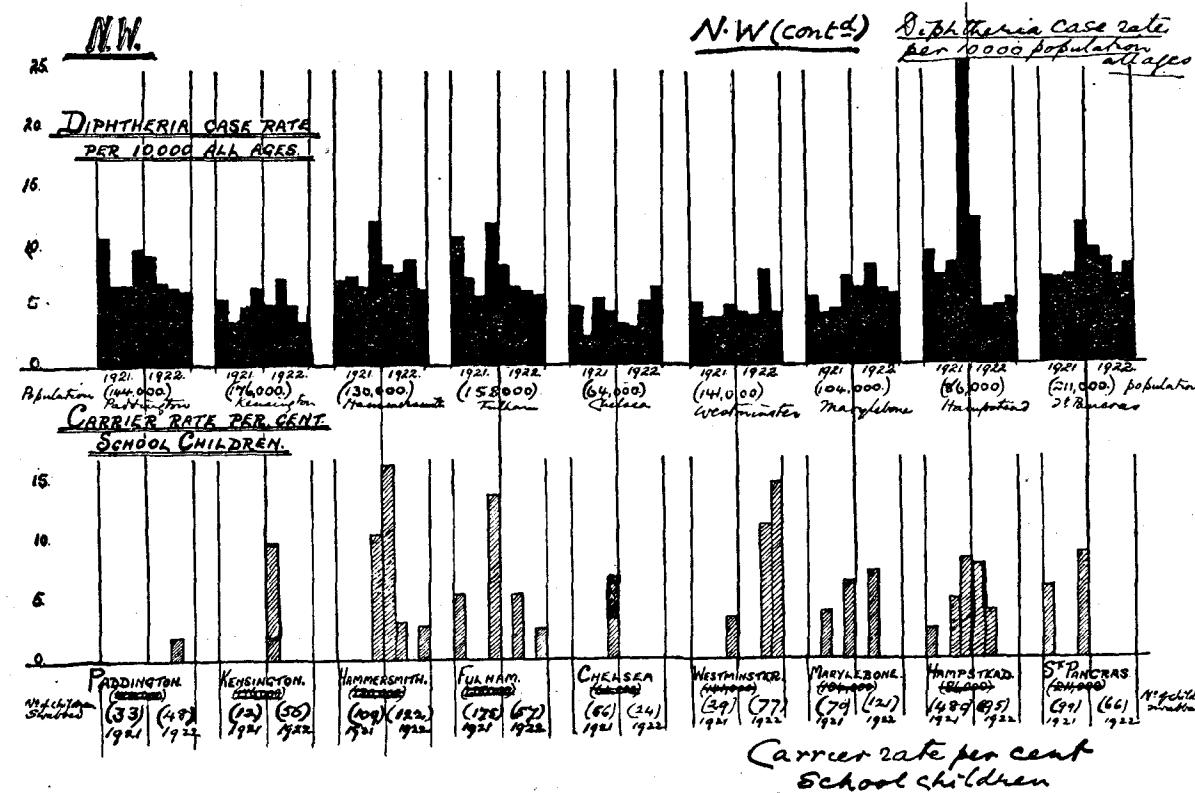


Chart I.

different cases, representing a total of 1,426 separate examinations, selected from the 1,878 in which K.L.B. or suspicious organisms were found in the preliminary cultures from the throat or nose.

The diphtheria bacillus was successfully isolated in 641 examinations of 442 cases, including 62.5 per cent. of the total original positives, and 87 cases which had originally been reported as suspicious. In 206 cases showing K.L.B. in preliminary cultures, attempts at isolating in pure culture failed, the plate cultures yielding diphtheroid organisms or *B. hofmanni* only. 549 detailed examinations were made of cultures from the throat or nose originally reported suspicious, and in 87 of these K.L.B. were isolated; in the remainder only diphtheroids or *B. hofmanni* were

obtained in sub-culture. Twenty-nine examinations were made of cultures from the ear in cases of discharging ears, and in three cases only were true morphological K.L.B. isolated, the remainder yielding diphtheroid organisms. A case of conjunctivitis and one of whitlow also yielded diphtheroid organisms only.

Re-examinations.

Of the total cases investigated in detail for the purpose of isolating K.L.B., 146 were examined twice, 51 three times, 17 four times, 16 five times, 4 six times, 13 seven times, one case 8 times, and another 9 times at varying intervals, during the two years.

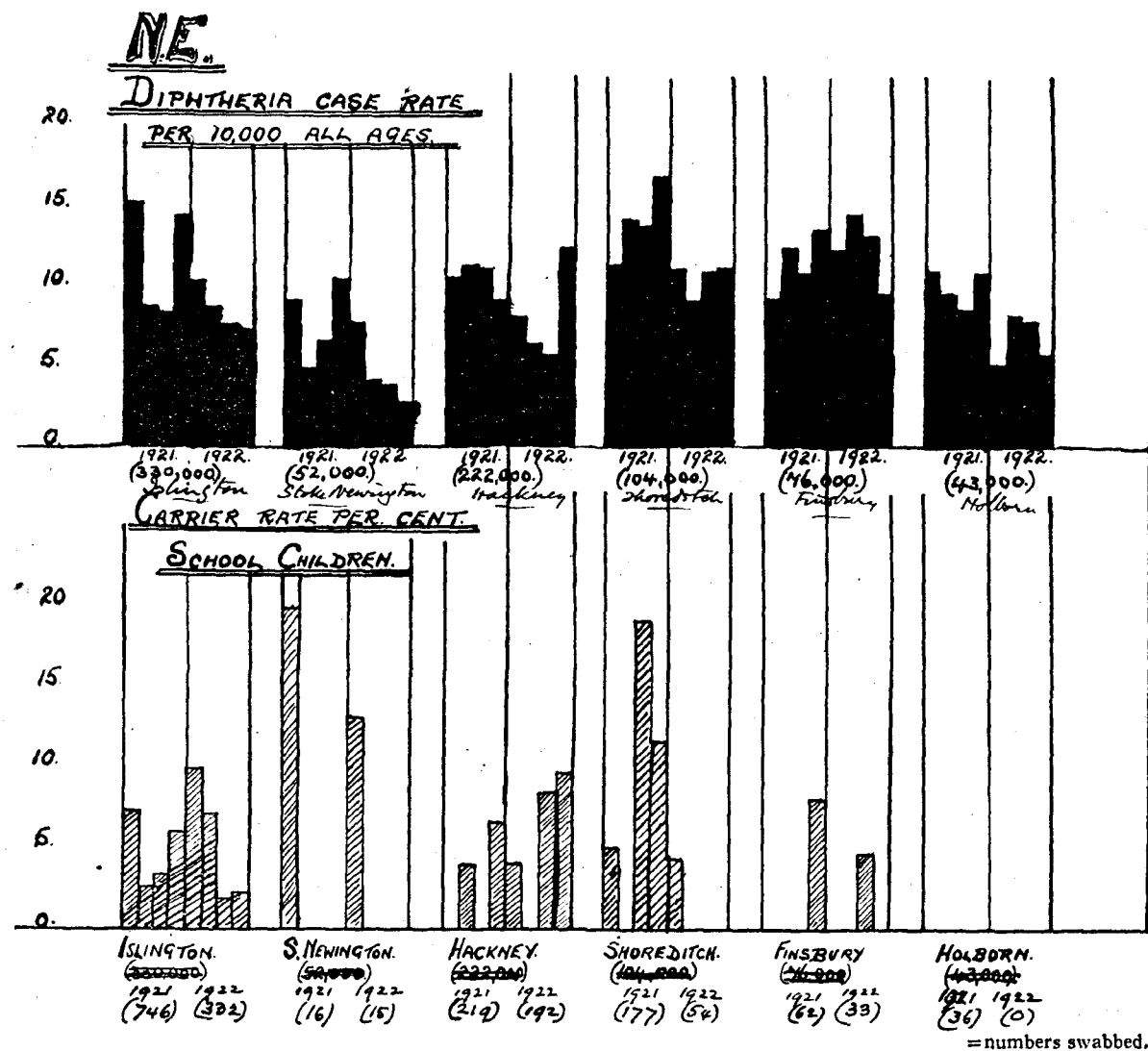
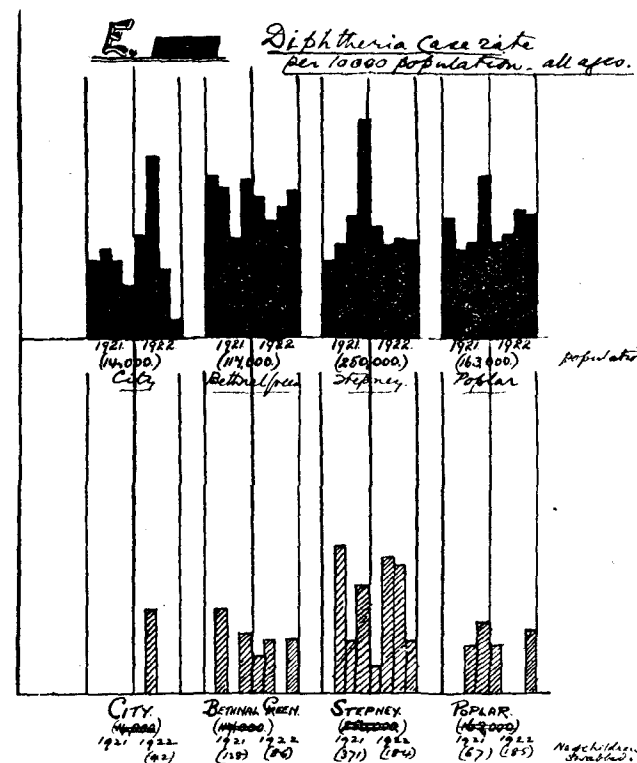


Chart II



Carrier rate per cent
School children
Chart III.

Biochemical Tests.

In addition to isolating K.L.B. and bacilli belonging to the diphtheroid group, useful confirmatory biochemical tests were applied to a large number of the strains, involving sub-culture in tubes containing Hiss' fluid serum with glucose, saccharose and dextrin, respectively, and blue litmus to indicate fermentative changes.

B. diphtheriae ferments glucose and dextrin with production of acid, but causes no change with saccharose, whereas a common diphtheroid organism such as *B. xerosis* produces acid in the glucose and saccharose, but not usually with dextrin, and *B. hofmanni*, the commonest of the diphtheroids, fails to change any of the three.

Results of virulence tests.

The isolated cultures of K.L.B. obtained in the 641 separate examinations of 442 cases were sent to the Wellcome Research Laboratory for virulence tests with the following results:—

Examinations. Cases.
Virulent in ... 390 (=60 %) of 291 (=65.8 %)
Avirulent in ... 251 (=40 %) of 151 (=34.2 %)
(including 12 cases, in which the original cultures were found to be virulent in 18 examinations, and the cultures in 26 subsequent examinations, avirulent). In addition to the cultures of morphologi-

cal K.L.B., 78 cultures of diphtheroid organisms from the throat and nose and four from the ear, isolated from 71 cases, were also sent for virulence testing, and in every instance proved avirulent. The total number of strains of diphtheria bacilli and diphtheroid organisms tested for virulence between April, 1921, and March, 1923, amounted to 719 from 513 cases.

The relationship of virulence to abnormal conditions of the throat or nose and history of exposure to infection.

In 423 of the 442 cases, in which the K.L.B. were tested for virulence, particulars were stated of either abnormalities of the throat, nose or ear; history of sore throat or other illness; history of sore throat or diphtheria carriers in members of the family, or contact with cases of diphtheria. 283 were recorded as showing defects of the throat nose, or ear, e.g., tonsillitis, enlarged, unhealthy or congested tonsils, congested fauces or uvula, pharyngitis, nasal discharge, excoriation of the nasal passages, nasal crusts, adenoids or otorrhoea.

The results of the virulence test in these cases were as follows:—

(1) Cases with defects of throat and nose:—

The diphtheria bacillus was virulent in ... 190 = 68 %
The diphtheria bacillus was avirulent in ... 90 = 32 %
K.L.B. isolated from three cases of Otorrhoea.
Virulent, 2. Avirulent, 1.

(2) History of illness or contact with infection:—

	History of sore throat or illness of cold.	History of having been in hospital with diphtheria.	History of having been in hospital with scarlet fever.	Family history of sore throats or carriers.	Home contacts of cases of diphtheria.
K.L.B.					
Virulent in	39	13	4	14	27 cases.
K.L.B.					
Avirulent in	18	5	—	3	11 cases.
Desk contacts in school:					
Virulent	...	...	...	...	14
Avirulent	...	...	...	...	5
No history obtained as to contact with infection. No defects recorded.					
K.L.B. Virulent	...	...	...	...	19
K.L.B. Avirulent	...	...	...	...	10

In Dr. Eagleton's and Miss Baxter's series of 161 cultures of diphtheria-like organisms (published in Brit. Med. J., Jan. 28th, 1922):—

Cultures of *B. diphtheriae*:

- (1) from clinical cases 100 per cent. virulent.
- (2) from convalescents 90 " " "
- (3) from carriers 38.8 " " "

Guthrie (3) claims that in the majority of healthy carriers the K.L.B. present are avirulent.

nose of 10 of the children, including D.C., who was found to have nasal discharge and sores in the nostrils, and was straightway excluded. Cultures from D.C. yielded abundant K.L.B., especially from the nose. Another child, B.W., was also excluded on account of enlarged unhealthy tonsils, congested pharynx and uvula,—she too yielded K.L.B. from the throat. Of the remainder, 8 proved negative and 1 suspicious, but no K.L.B. were identified.

G.C., a sister of D.C., but in the girls' department, was swabbed at the same time and also yielded K.L.B. from the nose. The organism was isolated in pure culture from both D.C. and G.C., and also from the other child B.W. excluded on suspicion at the original class investigation. In each case the organism proved to be virulent, and serologically Type III. On inquiry at the home of the two sisters (C.) it was learnt that their mother had been suffering from sore throat and the father was under treatment for "abscess in the throat."

In this connection it may be stated that the evidence forthcoming not only from the bulk of recent investigations in 1920-1922 into the school incidence of diphtheria, but also from special inquiry on the point in time past by Dr. J. Kerr,¹⁷ goes to show that the part played by schools in the spread of the disease is of relatively secondary importance as compared with the influence of home and out-of-school surroundings and places of resort, which, being more beyond immediate control and supervision, are probably far more potent factors in the dissemination of infection.

Carriers in the Same Family.

*The number of instances in which two or more members of the same family proved to be carriers was as follows:—

Two carriers in 22 families.
Three " " 8 "
Four " " 3 "

K.L.B. though present were not successfully isolated in each case, but it was found that when isolated from pairs and tested for virulence, it did not necessarily follow that the two carriers in the same family were simultaneously virulent or avirulent. Of twelve families so investigated, five pairs proved virulent; and in four pairs, one of each pair was virulent, the other avirulent; and three pairs were avirulent. In two families (W. and T.) where three members of each family were carriers, the three in each group all proved to be virulent at the same time on more than one

occasion. In the families with four carriers, though present in all four, K.L.B. were only isolated from two members of each of the three families, proving virulent in two pairs and avirulent in one pair.

Similarly, amongst carriers occurring in the same class at school, virulent and avirulent strains were isolated from different individuals on the same date. Theoretically in explanation of such variation, it might be suggested that the question of virulence or avirulence is determined or governed by some unknown mechanism of defence peculiar to the individual concerned.

Intermittence Among Diphtheria Carriers.

Among family contacts intermittent carriers were by no means uncommon, notably in the two families (W. and T.); at one time, all three were positive, at another, one or two only, and so the condition seems to continue, one apparently re-infecting another in succession over a period it may be of six months or longer. It has, on the other hand, been found that a single carrier may persistently prove positive and virulent on each occasion of swabbing for many months without any evidence of intermittence.

The Re-admission of Avirulent Carriers.

By means of the virulence test it has been possible to allow the immediate readmission of all those found carrying the avirulent organism, without the delay of repeated bacteriological examination and often long waiting for negative results formerly required, thus avoiding much loss of school attendance for the children concerned.

During the past two years it has been calculated in the case of 33 avirulent carriers that their re-admission to school on the results of the virulence test has or would have avoided the loss of no less than 166 months, or close on 14 years of school life, an average of 5 months for each child concerned. For it was found in subsequent swabbings that the carrier condition persisted after re-admission for periods ranging from one to twenty months or even longer.

For the six months ending February, 1923, it has also been found that the average period of exclusion of avirulent carriers has been 2.9 weeks, and for each virulent carrier, before yielding 3 negative swabbings, 10.5 weeks.

In the case of the former, this period has been dependent on the time taken to isolate B. diphtheriae and in obtaining the performance of a virulence test, obviously capable of considerable reduction where bacteriological and animal tests are carried out in the same laboratory.

Recent examinations after long intervals of 14 past avirulent carriers showed that 7 of them were still avirulent carriers:—

Carrier condition first recognised.	Dates of virulence test.	Re-examination.	Period as Carrier.
H.G. 3.10.19	22. 4.21 Avirulent	26. 1.23 Avirulent	3.4/12 years. 1.9/12 avirulent.
I.P. 10.12.19	25. 4.21 Virulent 31.10.21 Avirulent	13. 2.23 Avirulent	3.2/12 years. 1.2/12 avirulent.
R.P. 8.11.19	6. 5.21 Avirulent	3. 2.23 Avirulent	3.3/12 years. 1.9/12 avirulent.
M.G. 6. 5.20	27. 5.21 Avirulent	16. 2.23 Avirulent	2.9/12 years. 1.9/12 avirulent.
L.G. 25. 6.21	30. 6.21 Virulent 30. 8.21 Avirulent	4.12.22 Avirulent	1.6/12 years. 1.3/12 avirulent.
E.M. 8.9. 21	21.10.21 Virulent 9.12.21 Avirulent	26. 1.23 Avirulent	15 months. Over 12 months avirulent.
T.S. 15.12.21	15.12.21 Avirulent 15. 4.22 Avirulent	27. 1.23 Avirulent	Over 12 months avirulent.

In the absence of the virulence test and adopting the former practice of excluding a carrier till negative bacteriological results were obtained, these children would, presumably, have been excluded for periods of years.

The return of children, though carrying organisms morphologically and culturally indistinguishable from the diphtheria bacillus, but avirulent, has led, so far as can be ascertained, to no harmful results. There is moreover no evidence yet forthcoming from reliable sources of investigation that the avirulent strain of diphtheria organism may become virulent—in other words, from the evidence present knowledge affords, the organism remains true to its type of virulence or avirulence. It is, however, recognised that in quite rare instances virulent and avirulent strains may exist at one and the same time and be obtained in the same culture from the throat or nose. This exceptional occurrence has been found in two cases (L.S. and W.P.) out of a total of 442 children (or less than .5 per cent.), whose diphtheria cultures were sent to the Wellcome Research Laboratory for the virulence test during the past two years. In a third case (M.T.) the K.L.B. isolated first from the nose in April, 1922, proved to be avirulent; a month later, however, reswabbing yielded K.L.B. from throat and nose and the organism isolated only from the throat was found to be virulent. R.T. (M.T.'s sister) suffering from a profuse nasal discharge was a nasal carrier in September, 1921. The K.L.B. isolated at re-examinations in October and November, 1921, from the nose proved avirulent.

The two strains may also very uncommonly alternate. The rare coexistence or alternation of the two types is regarded as being probably due to reinfection with one or the other strain of organism, or to simultaneous infection with both. "The risk of the virulent supervening on the avirulent is probably no greater in the case of a carrier, than in the case of the ordinary person becoming a harbourer of virulent K.L.B."* (Dr. O'Brien). Though indistinguishable morphologically and culturally, efforts at the Wellcome Research Laboratory, Dr. Eagleton also states,² have quite failed to change the virulent into the avirulent (and vice versa) in the test tube. "We have so far found no evidence that a culture may lose its virulence on being kept." Further, in his hands no success has up to the present attended the attempt to produce immunity to virulent strains by the injection of massive doses of the avirulent strain. Guthrie and his associates,³ publishing the results of their observations on diphtheria carriers in the John Hopkins Hospital Bulletin, November, 1920, find no proof that avirulent bacilli can acquire virulence or give rise to clinical diphtheria, hence avirulent carriers are not regarded as a menace to anyone. The carrier of virulent K.L.B., however, occupies quite a different position.

The following test was applied by Guthrie to prove the non-virulence of avirulent K.L.B. Five healthy volunteers, who had been tested daily for two weeks and found negative, had their throats swabbed with pure cultures of avirulent bacilli; some became carriers of avirulent bacilli, but without developing clinical diphtheria or showing the presence of virulent K.L.B.

Eight other volunteers were subjected to the severer test of application of cultures of the virulent organism to their throats. Four of them developed clinical diphtheria.

Schick tests had been previously applied to each of these volunteers and showed that the four who developed diphtheria were positive and therefore possessed no natural immunity, whereas the four who did not acquire diphtheria, were found to be negative and therefore naturally immune.

Guthrie also maintains that avirulent supervening on virulent and vice versa is attributable to reinfection, and does not imply a change of one type into the other.

The rare combination of virulent and avirulent strains is a complication difficult to explain, or to guard against, save by the aid of periodical re-examination. Twelve of the cases among school

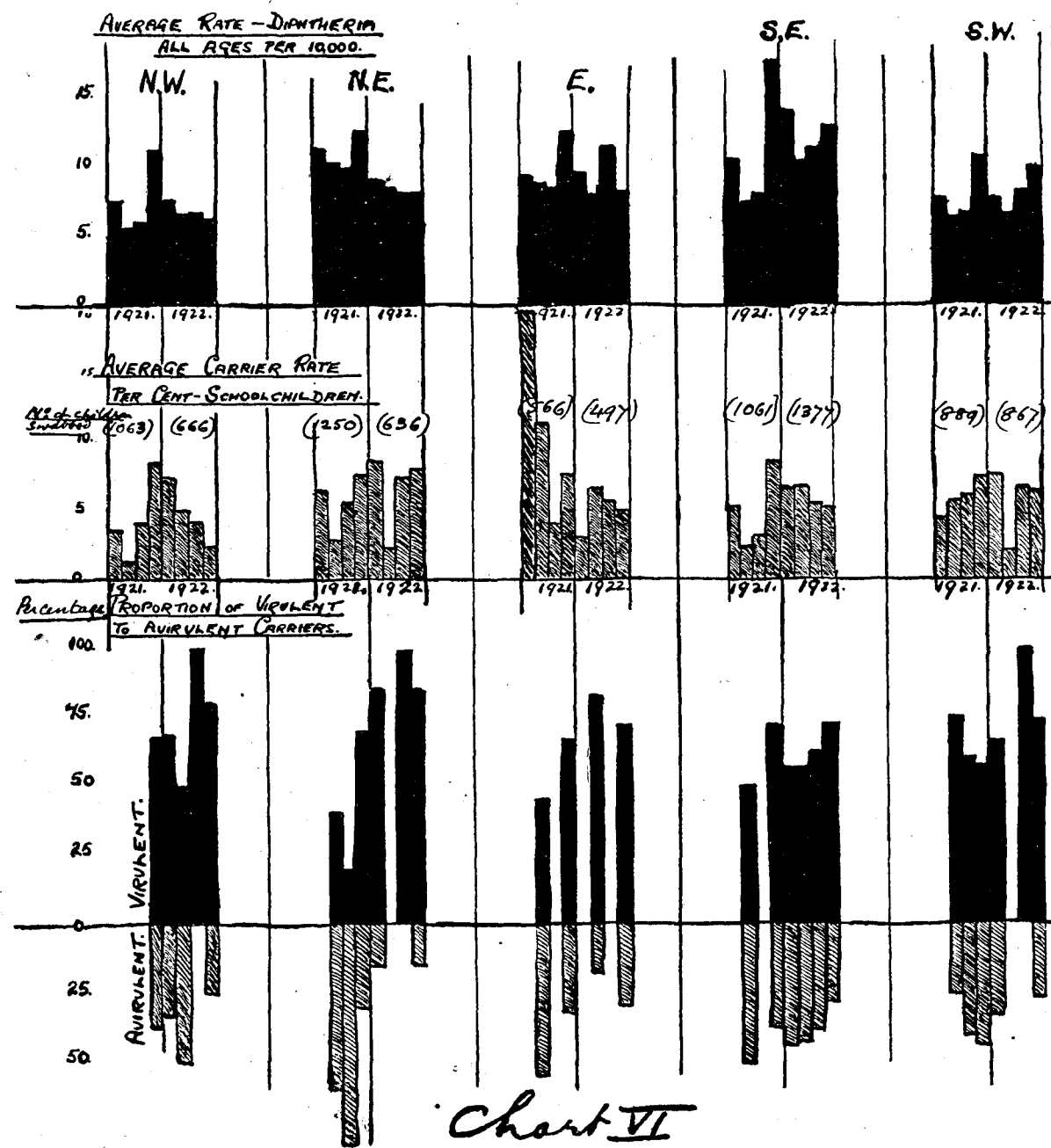
*Vide also (2) B. M. J., Jan. 28, 1922, p. 139, "Virulence of diphtheria-like organisms." (Eagleton & Baxter.)

children (or 2 per cent. of the total tested for virulence) were originally proved to be virulent in 18 separate examinations, and after varying periods of 6 to 12 weeks, yielded avirulent strains in 26 subsequent re-examinations. They were, therefore, readmitted to school, and so far as can be ascertained, without harmful result.

One case (L.S.), originally avirulent, was 3 months later found to be carrying both virulent and avirulent at the same time, and 10 weeks later virulent only, probably an instance of re-infection by virulent K.L.B.

With these exceptions, then, the experience provided by the animal test in the present series,

by repeated application to successive cultures from the same cases, has consistently maintained a clear division between morphologically indistinguishable virulent and avirulent diphtheria bacilli; hitherto also immunising experiments have failed to establish relationship between the two, and laboratory culture to convert the one into the other. In the human subject, however, although the evidence that the avirulent organism may become virulent, or give rise to clinical diphtheria is *not* forthcoming, the change from the carrier condition of virulent into one of avirulent is one which, although uncommon (in two per cent. of this series), undoubtedly occurs and cannot be ignored.



Future research and observation may establish the cause of this change; whether it is merely the disappearance of the virulent organism and subsequent reinfection with the avirulent? Whether the carrier, by the immunity from clinical diphtheria he appears to enjoy, is capable not only of tolerating the virulent organism, but also of depriving it of its virulence, so that it becomes a harmless saprophyte, and remains such, even when transmitted to others? Whether avirulence represents a degenerative phase or reversion to ancestral type, and virulence an acquired character resulting in the production of specific toxins in the non-immune? The problem of the relationship of the virulent and avirulent organisms is one of absorbing interest, still awaiting solution. So far as our present knowledge goes, one may be justified in relegating them to two separate groups. But it is difficult to dogmatise to the extent of saying that though virulent is virulent, avirulent avirulent, the twain ne'er shall meet!

In the course of investigation of school outbreaks a certain number of children are met with who have had past attacks of diphtheria and are still found to be carriers. Out of 16 such, 12 proved to be virulent and 4 avirulent. In the case of the latter the result of the test, I take it, should serve to allay suspicion of their responsibility as possible foci of infection. Can one assert with confident assurance that the avirulent carrier with a past history of frank and recent diphtheria is not a source of danger? Presumably; for one can state that the experience of the presence of avirulent carriers, now accumulating under observation in our schools, has not afforded ground for regarding them as sources of danger.

Granted that avirulent carriers can be safely ignored as sources of infection, the question then arises as to what extent the virulent carrier is to be regarded as a danger to others in the school. The example quoted of fatal infection traceable to the virulent carrier D.C. may be considered an extreme case. Is, therefore, a hard and fast line of exclusion of virulent carriers justifiable or necessary? It is known that if any school be selected at a time of non-diphtheria prevalence and all the children be swabbed, a few may be found to be diphtheria carriers. Of these chance carriers probably $\frac{2}{3}$ would be avirulent and $\frac{1}{3}$ virulent (Dr. Eagleton). In the absence of clinical cases of diphtheria the virulent carrier is presumably not a source of danger. [c.f. Dr. Eagleton's figures (p. 5) carriers = 38.8 % virulent.]

However, when diphtheria becomes prevalent, either the increased susceptibility of individuals, or the heightened virulence of the bacillus, renders the virulent carrier an object of suspicion, if not actual danger. Judging, too, from the results of virulence tests applied to school carriers during the past two years, April, 1921, to March, 1923 (when diphtheria was unusually prevalent, it would appear that the proportion of virulent to avirulent * carriers is greatly increased during a time of epidemic; and as the block chart shows, the ratio varies with the number of cases each month; the ratio of the one to the other was found to be directly reversed from one-third virulent and two-thirds avirulent, the estimated ratio in normal times, to two-thirds virulent (67 per cent. actually found) and one-third avirulent (33 per cent.) for the period of diphtheria prevalence under review; whereas during the early summer months, when prevalence was lower, the proportion of virulent to avirulent was about equal.

The corrected percentage of carriers found among the children examined in 1921 and 1922 in London, is 6.2. But that figure is found to be much increased where there is a rise in diphtheria prevalence. Thus in 40 schools, where over 400 cases of diphtheria had occurred, the carrier rate among a total of over 900 children swabbed proved to be 13 per cent. Of these positives, over 77 per cent. were virulent, and under 23 per cent. avirulent.

Exclusion would then seem the safer course, and justified (1) if the carrier shows an unhealthy condition of the throat and particularly of the nose.

(2) If the organism is present in culture in considerable numbers and can be isolated with ease. As Dr. O'Brien has recently emphasised, the presence of the diphtheria bacillus in relatively small numbers, not allowing of ready isolation in plate sub-culture, should not be judged as sufficient evidence of power to transmit infection or to warrant exclusion. By steering such a middle course and at the same time exercising supervision over the non-excluded mild carrier, it is suggested that a practical solution may be arrived at so far as sources of school infection are concerned.

* Charts VI. and VII. for seasonal incidence of diphtheria in schools and comparison in the carrier rate and virulence ratio.

Some previously Recorded Observations on the Diphtheria Carrier.

In dealing with the carrier question in time past, measures advocated have not been at all generally guided by the virulence test. The Massachusetts' Boards of Health Association,¹⁸ (1902) emphasised the impracticability of isolating healthy infected persons not recently exposed to the disease, or, as a routine measure, the healthy contacts in infected families, schools and institutions; but in the case of children it was held advisable that contacts of infected families should be excluded from day schools, Sunday schools, and all public places.

Dr. C. J. Thomas¹⁹ in 1904 drew attention to the importance of the age period of 5—8 years as providing a large proportion of children who, from the increasing degree of acquired immunity, were liable merely to mild unrecognised attacks of diphtheria with slight symptoms, and therefore capable of spreading infection unchecked—such cases were found on bacteriological examination to amount to 80 per cent. of the total carriers—of the remainder, 12 per cent. presented no symptoms but came from infected homes, 6 per cent. were cases of recrudescence after absence for notified diphtheria (return cases), and 2 per cent. were carriers without symptoms or obvious contact with infection.

Dr. D. S. Davies,²⁰ similarly, in 1907 laid stress at Bristol on the necessity for prevention of diphtheria by efficient organization for the bacteriological examination of all contacts in infected homes and school class-rooms, and by recognition of the risk attaching to mild cases with but slight clinical symptoms, as well as to the carrier without symptoms. He regarded home infection as more responsible for spread of infection than the school.

Dr. A. G. Macdonald²¹ in a review of 90 carriers found out of 1,178 contacts (7.6 per cent.) examined at Crewe in 1910, obtained a total of 62 positives out of 534 home contacts (11.6 per cent. carriers), and 28 positives out of 644 school contacts (4.3 per cent. carriers), thus showing the higher carrier rate among home as compared with school contacts.

He classified the carriers into (1) those without clinical evidence of diphtheria, the infection lasting but a short time; (2) those with history of "sore throat" or "cold," mild neglected cases of diphtheria; (3) those without symptoms but with local lesion of throat, nose, skin, or ear; (4) those who have had clinical diphtheria and in whom diphtheria bacilli persist for long periods.

He regarded the length of carrier life as having no effect on virulence, and the control of diphtheria as dependent on the control of the carrier.

Dr. Thos. F. Harrington,* in September, 1909, examining supposed normal school children in Boston, U.S.A., obtained 99 positive results to K.L.B. out of over 8,500 examinations, or 1.16 per cent. He therefore concluded that at least 1 per cent. of healthy school children are carriers, and that though the organism may be communicable, it is usually avirulent and the condition transient.

According to Zingher,⁹ an average of 4 to 5 per cent. of diphtheria carriers always exists in New York City.

Guthrie, Gelien and Moss³ swabbed 800 children in Baltimore schools and found 85 (or 10.6 per cent.) to show K.L.B., and three months later 69 or 8.6 per cent., and at one time or other 160 were obtained as positive. Virulence tests applied to 99 showed only 9 virulent. Eleven of the 160 carriers gave history of diphtheria, but none of them within three years.

Vernieuwe¹⁵ (quoted in B. M. J. Epitome 87, January 27th, 1923, from Rev. de Laryngol d'otol et de Rhinol, December 15th, 1922) divides diphtheria carriers into four classes.

- (1) Convalescents from an acute attack—carriers by continuity of infection.
- (2) Carriers with no visible lesion (past or present).
- (3) Accidental carriers in whom diphtheria bacilli are found on a raw surface, e.g., following intranasal or naso-pharyngeal operation.
- (4) Carriers who have active nasal diphtheria with no constitutional invasion.

Treatment of Abnormal Conditions of the Throat and Nose in Carriers.

The condition of the throat and nose of the chronic virulent carrier is seldom found to be normal. Almost invariably there exists an enlarged, unhealthy state of the tonsils, nasal obstruction, adenoids or chronic rhinitis, with ulceration of the nasal mucous membrane. Such conditions imperatively call for remedy in the interests of the child and his associates, particularly at a time of diphtheria prevalence in schools, when any child with an unhealthy condition of the fauces or nasal passages must be regarded as a potential carrier of infection.

Although the value of the virulence test, by allowing the avirulent carrier to return to school

* (Paris Congress I., p. 272, 1910.)

and thus considerably reducing the number of children, who would otherwise have been excluded, cannot be denied, the problem yet remains of dealing with the persistently virulent carrier.

In the schools this has been partly met by supplying special means of treatment in a very limited number of cases and as a trial measure, such as the removal of enlarged unhealthy tonsils and adenoids, and by the use of nasal douche or suitable gargle, and close attention to the condition of the nasal and accessory sinuses. The carrier is no *persona grata* in the hospital outpatient department; in fact, requests for treatment of the condition at several of the hospitals have been met with refusal. Consequently a special clinique has been arranged for the past two years under the charge of Dr. A. G. Wells, for dealing with the obstinate carrier.

During 1920, 13 chronic carriers, and in 1921, 24, received special treatment varying according to the nature of the individual condition, e.g., nasal catarrh, rhinitis, pharyngeal catarrh, enlarged tonsils or adenoids. Weekly swabs were taken and the child was not re-admitted until three successive swabs proved negative. During 1920, 9 of the 13 cases were re-admitted to school after a period of 4 to 6 weeks, and the remainder often intermittently gave positive and negative results until they were finally re-admitted to school. During 1921, 5 were re-admitted after one month's treatment, 11 after two months, 2 after three and four months, 3 after 5 months, 1 after eight months', nine months' and twelve months' treatment respectively, having during that period become negative, or been proved to be avirulent carriers. Ionisation, so promising in the treatment of chronic otorrhœa, at present offers little prospect of practical application to the throat and nose to free the chronic diphtheria carrier.

Radical treatment by removal of tonsils and adenoids in chronic carriers usually proves quite successful in eradicating the carrier condition in which, as observed by Graham Smith, deep lodgment of K.L.B. is found to exist in the tonsillar crypts.

Rare exceptions may occur, as in the case of the famous R.C., who persisted as a carrier for several years, and even after enucleation of the tonsils—a condition attributable probably to chronic nasal sinus infection.

Councilman, Mallory and Pearse,²² in a series of examinations of 52 fatal cases of diphtheria, found evidence of inflammation of the maxillary antra or accessory sinuses in 33 (or 63 per cent.); in 28 of which diphtheria bacilli were found on

cultivation, although no clinical symptoms of antrum disease or sinusitis existed during life. They therefore considered that the chronic carrier conditions of the nasal passages may, in a certain proportion of cases, be due to chronic antral or sinus infection, calling for special treatment.

Rapid clearing up of the carrier condition after removal of tonsils has been reported by Balantyne and Cornell⁵ (B.M.J., November 24th, 1917) and by Graham Brown and Kent Hughes⁶ (Medical Journal of Australia, April 17th, 1920). The latter found that 12 per cent. of 800 school children at Windsor (Brisbane) were diphtheria carriers—50 carriers identified among 286 admissions to the children's hospital (Brisbane) when operated on were found to be free from K.L.B. 8 to 16 days after tonsillectomy. In 24 of the 50 the tonsils were enlarged, in 7 greatly enlarged, and in 19 no enlargement was recorded.

In the treatment of carriers by diphtheria vaccine, in doses of 10 to 200 million bacilli, J. L. Brownlie,⁷ of Glasgow, claims that out of 50 cases, 37 cleared up in a week, 7 in a fortnight, and 6 after a longer interval. He found that local antiseptic applications were unreliable remedies, that vaccine treatment resulted in degenerative changes of the bacilli, followed by their complete disappearance from the part invaded, and therefore vaccine administration was not only effective, but economically a sound procedure.

A. R. Fraser and A. G. B. Duncan, of Aberdeen,⁸ have also strongly advocated the use of diphtheria vaccine and suggested that a carrier possesses a certain degree of immunity, sufficient to inhibit the organism from producing clinical diphtheria, but quite insufficient to exterminate them.

They attributed the failure of many of the specific vaccines to their high endotoxin content, which prevented any but small doses being administered, whereas a large dose was essential. For, by employing detoxicated vaccines in doses of 4,000—350,000 million K.L.B. subcutaneously, they claimed to have secured very encouraging results, leading to complete disappearance of the organism and without the development of any general or local reaction; only, however, in three tested cases of persistent carriers of virulent bacilli.

They differentiated the merely "positive throat" from the true diphtheria carrier; in the former the bacilli disappeared spontaneously or after a short period of disinfectant treatment, and the condition was readily curable by one or two doses of stock vaccine, whereas the true chronic carrier

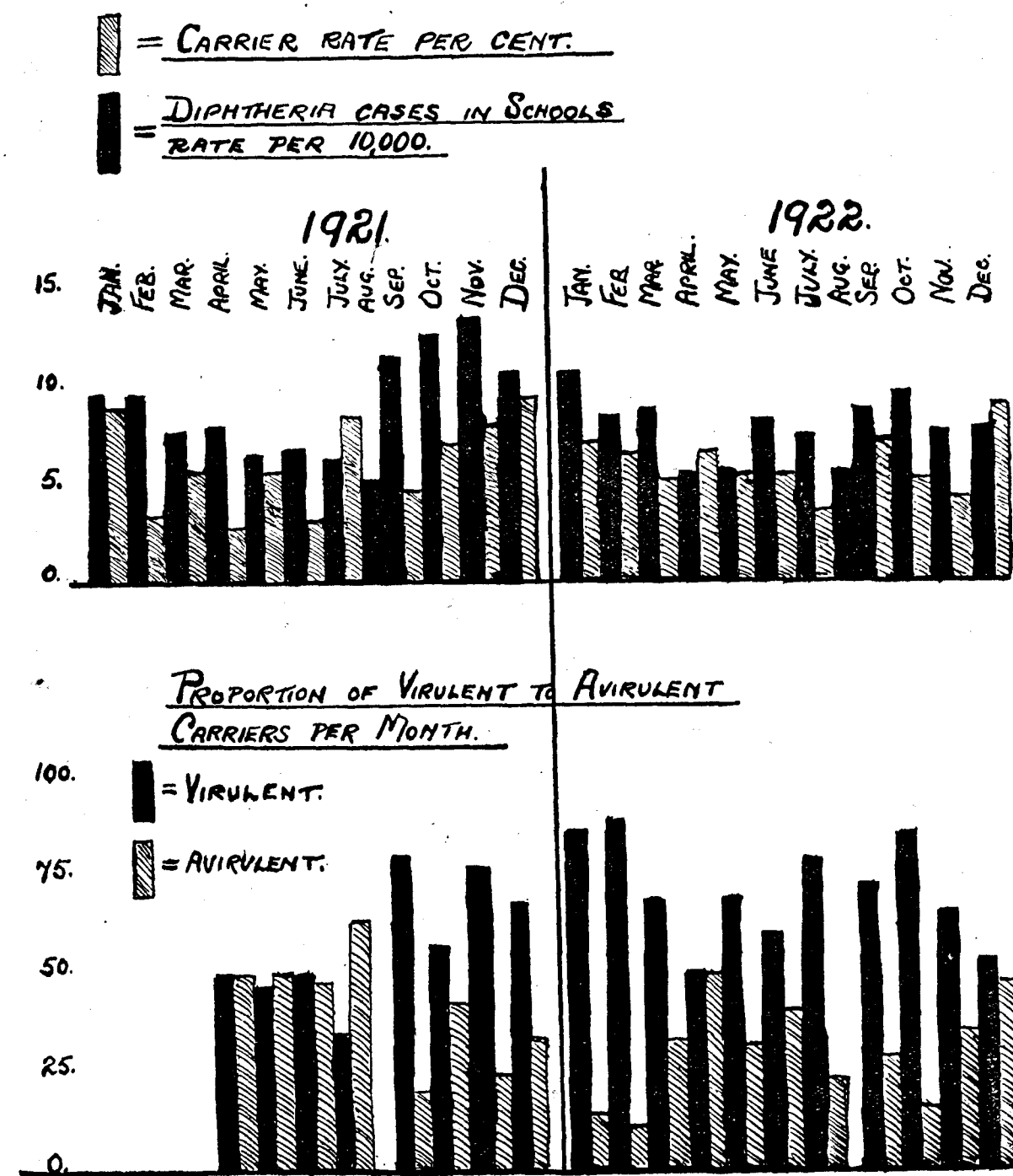
was persistently virulent and defied all other ordinary lines of treatment.

The more recent work of W. T. Benson on "the effect of detoxicated vaccines on the persistence of the diphtheria bacillus," (*Lancet*, May 5, 1923, pp. 895-897), in 146 treated cases and 61 controls, led him to the conclusion that the administration of the detoxicated vaccine did not hasten the disappearance of the diphtheria

bacillus from the throat or nose of the diphtheria convalescent, or prevent cases of prolonged persistence of the carrier condition.

Despite ordinary remedial measures, surgical treatment and the suggested value of vaccine inoculation, the problem of freeing the persistent virulent carrier remains, however, an extremely difficult one, entailing often prolonged absence from school and consequent loss of education.

Chart VII



The Control of the Chronic Virulent Carrier.

The scope for dealing with the carrier is at present strictly limited and likely to remain so. Exclusion from school of the positive virulent carrier and home contacts is all that can be insisted on. The consent of the parent is necessary before any remedial measures can be applied for abnormal conditions of the throat and nose, which favour the persistence of the diphtheria bacillus. Outside the school, the carrier is usually free to disseminate infection, more so where parental control is lax and indifferent. In all such cases close supervision, if not active precautions, to the full extent of his powers, devolves on the Medical Officer of Health to prevent the carrier, excluded from school, from being a source of danger in cinemas, Sunday schools, and other places where children may happen to congregate in and out of doors.

(As already pointed out, compared with these out of school possibilities of spreading infection, the influence of the school is of relatively secondary importance.) Sanction for such control provided, if need be, by special legislation might be advisable to meet periods of special prevalence.

No children after suffering from diphtheria and being discharged from hospital should be re-admitted to school until the results of bacteriological test establish their freedom from infection, and until the condition of the nose and throat is normal.

Since in Dr. Eagleton's series over 90 % of diphtheria bacilli, obtained from children shortly after an attack of diphtheria, were virulent, the only safe rule in the absence of facilities for determining the virulence, is, Dr. O'Brien observes, to assume that all diphtheria bacilli obtained from these children are virulent and therefore liable to cause infection amongst school mates.

Unfortunately artificial immunisation by toxin-antitoxin apparently offers little prospect of removing the carrier condition in the case of the virulent carrier, for he is according to Dr. O'Brien almost invariably Schick negative—and would therefore not respond. Vernieuwe (previously quoted), however, in recording the cases of seven virulent carriers with active nasal diphtheria but no constitutional symptoms, states that the bacilli form a virulent focus and in the majority, if not all, of the cases continue to produce a Schick positive reaction, and that, consequently, nasal diphtheria in this type of carrier does not produce immunisation.

The general practitioner is often directly concerned in the treatment of the carrier and should be kept informed as to the results of bacteriologi-

cal examination and virulence test, to enable him to influence the parent as to the necessity of preventing the child from visiting places where there is risk of his disseminating infection.

Coordination therefore between the various authorities concerned in fever-hospital, school, public health and private practice, should be aimed at to secure the following up of both the discharged convalescent after diphtheria, and the virulent carrier, where found.

Much perhaps is to be said for the suggestion put forward by Sir F. W. Andrewes,¹⁶ in a paper on the prevention of diphtheria, at a meeting of the Society of Medical Officers of Health last year, that special isolation schools, with treatment on open-air lines, might become necessary for the education and bacteriological supervision of the chronic carrier of diphtheria bacilli—a scheme comparable to the open-air schools long established and of proved value in the treatment and education of the tuberculous child.

Susceptibility to diphtheria infection and its prevention.

From the now well-known work which has been carried on for some years with increasingly satisfactory results in America by Park, Zingher,⁹ Guthrie and others, much has been heard of the value of the Schick test as a means of detecting the susceptible school child. The test itself may be regarded as comparable to the Tuberculin test. The success of subsequent immunisation of the non-immune by graduated doses of the toxin-antitoxin mixture depends much on the source of the preparation used and its careful and accurate administration. The extensive experience forthcoming from the American workers encourages a hope of the possibility, even at some remote date, of application of the test and immunisation on a wide scale in England. There is already evidence in America of the reduction in incidence¹⁰ and mortality of the disease, which may be attributable to increasing protection against diphtheria.

The mortality from diphtheria in New York City fell from :2 per 10,000 in 1920 to :16 in 1921 and :15 in 1922.

Hitherto in this country these measures have been in the experimental stage, mainly based on a few very thorough and convincing investigations which have been carried out by Dr. O'Brien and his co-workers¹¹ at the Wellcome Research Laboratories as well as by the Ministry of Health,¹² in institutions in London and the provinces, where alone close supervision of each inoculated child is at all possible as compared with those living at home and attending school.

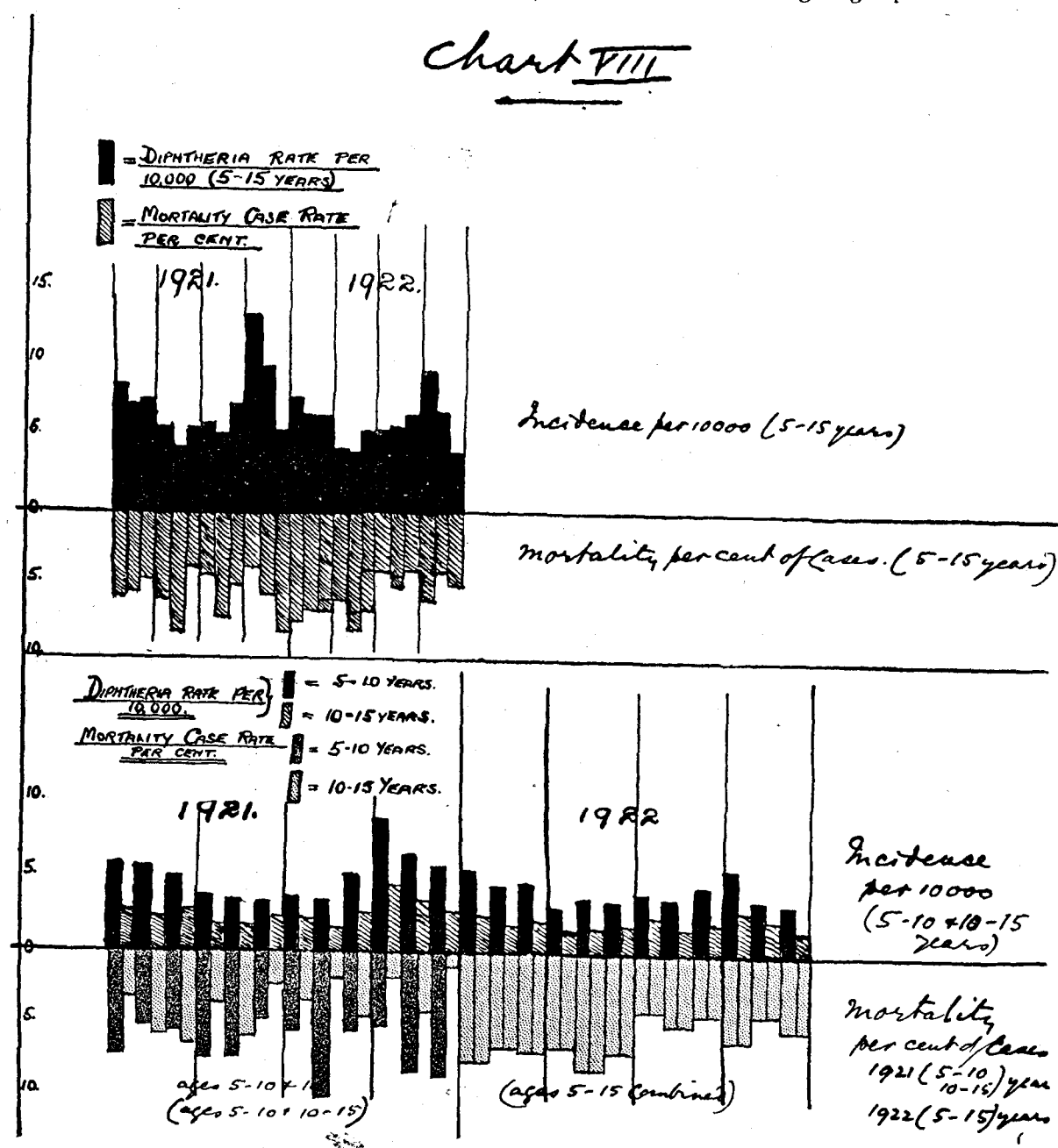
Mention must also be made of the recent valuable contribution on the subject by Surg.-Commr. S. F. Dudley, R.N. ("The Schick test, diphtheria and scarlet fever—a study in Epidemiology," published by the Medical Research Council, No. 75, February, 1923)—based on the testing of 831 boys of the Royal Naval School, Greenwich.

The Schick test has shown a high proportion of susceptible children up to the age of 5, also the interesting fact that in the poorer classes more children are immune than among the well to do. Owing apparently to less exposure to infection, the higher the social scale, the lower is the degree of immunity. Zingher⁹ in 1921 examined 52,000 children by means of the test and found as great

a range of immunity as 80 to 84 per cent. in the poorer districts, 33 per cent. in good class schools and only 15 per cent. in a rural school.

Recent observations carried out on adults, in the case of hospital students at St. Bartholomew's Hospital,¹³ shewed that of 157 persons tested only 34.4 per cent were immune, and of 23 nurses tested 43.4 per cent were immune. In time of epidemic it has been suggested that, owing to the high proportion of non-immune between the ages of 1 and 5 years, all children up to the age of 5 should be immunised without previously applying the Schick test and that the test should only be applied to adults and children over 5 years, with subsequent immunisation of those giving a positive result.

Chart VIII



Health propaganda and education of the public on the importance of such a means of prophylaxis, possibly as potent as vaccination against small-pox, might do much to gain a popular appreciation of the necessity of protecting the school child against a disease, whose mortality rate is still much too high, despite specific antitoxin treatment.

Although the request for material originally came from the Wellcome Research Laboratories, it must in conclusion be stated, that a debt of grateful acknowledgment is due to the Director and his colleagues, Drs. A. J. Eagleton and C. C. Okell, for the very valuable information provided by the results of virulence tests applied to cultures from school children during the past two years, and also for much helpful criticism in the preparation of this paper.

SUMMARY.

I.—DIPHTHERIA IN LONDON, 1918-1922.

(a) ALL AGES.*

Year.	Notified Cases.	Case rate per 10,000 population.	Diphtheria Deaths.	Case Mortality (per cent.)	Diphtheria Mortality per 10,000 population.
1918	8173	18.4	669	8.1	1.5
1919	9459	21.7	775	8.2	1.8
1920	13780	30.4	1023	7.4	2.3
1921	16319	36.4	1150	7	2.6
1922	15287	33.8	1137	7.4	2.5

Mean for 1908 to 1917	7760	17.4	588	7.58	1.3
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(b) SCHOOL-AGE PERIOD (5-15 years).*

Year.	Notified Cases.	Case rate per 10,000 estimated population at 5 to 15 years.	Diphtheria Deaths.	Case mortality per cent.	Diphtheria Mortality per 10,000 estimated population at 5 to 15 years.
1918	4146	50	233	5.6	2.8
1919	5293	64	348	6.6	4.2
1920	6499	80	439	6.7	5.3
1921	9089	112	495	5.4	6
1922	7352	92	420	5.7	5.3

(c) IN LONDON ELEMENTARY SCHOOLS.

Year.	Number of Reported Cases.	Average School Attendance.	Case rate per 10,000 of School Children.
1918	2910	604,353	48
1919	3365	591,967	56
1920	5841	624,436	93
1921	6661	625,017	106
1922	5641	616,206	91

II.—SCHOOL INVESTIGATIONS.

Number of Schools visited for Special Diphtheria investigation.

1918	56	1921	281
1919	116	1922	259
1920	317		

* From Registrar-General and M.A.B. returns.

Bacteriological Examinations of Throat, Nose and Ear of Children Swabbed in the Course of Special Visits (including re-examinations).

Year.	Total Examinations.	Negative per cent.	Suspicious bacilli per cent.	B. diphtheriae present per cent.
1918	1382	1147=83	40=2.8	195=14.2
1919	2924	2194=75	262=9	468=16
1920	5811	4740=81.6	350=6	721=12.4
1921	6606	5541=84	419=6.3	656=9.7
1922	5401	4553=84.4	370=6.6	488=9

III.—BACTERIOLOGICAL RESULTS, APRIL, 1921, TO MARCH, 1923.

No. of Examns. of Throat, Nose and Ear. 12,017 of 9,209 Swabbed.

Negative in 10,139 of 8,020=87 per cent.

B. diphtheriae present in 1,117 of 569=6.2

Suspicious diphtheroids in 771 of 620=6.8

EXAMINATIONS FOR ISOLATION OF B. DIPHTHERIAE.

1,426 of 994 cases=10.8 per cent. of all children examined.

B. diphtheriae Isolated in 641 examns. of 442 cases = 67.3 of total positives including 87 cases previously reported "Suspicious."

B. diphtheriae not isolated in 206 cases=36.2 per cent. of those originally reported positive.

IV.—RESULTS OF VIRULENCE TESTS.

Examns. (per cent.) Cases per cent.
Virulent in 390 = (60) of 291 = 65.8
Avirulent in 251 = (40) of 151 = 34.2

Total 641 442

COMPARE DR. EAGLETON'S SERIES, B.M.J., JAN. 28th, 1922.

Clinical cases of B. diphtheriae Virulent
Diphtheria ... in 100 per cent.
Convalescents after diphtheria ... 90.9 "
Carriers ... 38.8 "

V.—RECORDS OF DEFECTS OF THROAT, NOSE OR EAR, OR HISTORY OF ILLNESS OR CONTACT WITH INFECTION, IN 423 OUT OF 442 CARRIERS.

(a) DEFECTS OF THROAT OR NOSE RECORDED IN

280 Carriers = 66 per cent.
190 Virulent = 68 "
90 Avirulent = 32 "

Otorrhoea, 3 cases (2 virulent, 1 avirulent).

(b) Record of History of Illness or Contact with Infection in 153 carriers=36 per cent.

(1) Previous history of diphtheria in 18 carriers:—13 virulent, 5 avirulent.

(2) History of recent scarlet fever in 4 carriers:—All virulent.

(3) History of sore throat, "illness" or cold in 57 carriers:—39 virulent, 18 avirulent.

(4) Home contacts of cases of diphtheria in 38 carriers:—27 virulent, 11 avirulent.

(5) Family history of sore throats or home-carriers in 17 school-carriers:—14 virulent, 3 avirulent.

(6) Desk contacts of diphtheria in school in 19 carriers:—14 virulent, 5 avirulent.

No history of contact with infection, no record of defects in 19 carriers:—10 virulent, 9 avirulent.

1922.

1921.

Diphth. cases per 10,000 population	Schools visited	Children swabbed	Diphth. Carriers	Rate per cent.	Virulent	Avirulent	Serological Grouping of 70 tested strains of virulent K.L.B. from School Carriers (Types 1 to X.)	
N.W. (Total Cases, 3,682).								
Paddington ...	31.3	3	33	—	—	—		
Kensington ...	21.3	1	12	—	—	—		
Hammersmith ...	33.9	3	109	10	9.2	1	V=1.	
Fulham ...	36.7	11	175	12	7	5		
Chelsea ...	17.9	5	56	2	3.6	1		
Westminster ...	18.8	2	29	1	3.6	1	III=5.	
Marylebone ...	22.7	4	70	4	5.9	2	V=1.	
Hampstead ...	51.8	22	480	33	7	1	II, III, V, VI, X (1 each).	
St. Pancras ...	34.3	6	99	7	7	1	III=6, V=3. II, VI, X = 1 each (Total 12). N.W.	
(Average = 30.0)	62	1,063	69	6.5	18	10		
N.E. (Total Cases, 2,766).								
Islington ...	46.9	36	746	37	5	2	III=2. II=1.	
Stoke Newington ...	31.4	2	16	4	(25)	7	VIII=1.	
Hackney ...	42.6	14	219	11	5	—		
Shoreditch ...	56.2	9	171	19	14	3		
Finchbury ...	46.2	4	62	5	8	2		
Holborn ...	39.7	2	36	—	—	—		
(Average = 44.3)	67	1,250	76	6	13	12		
E. (Total Cases, 2,331).								
City ...	24.8	No Schools visited.						
Bethnal Green ...	48.6	7	128	7	5.4	1	III=1.	
Stepney ...	33.3	20	371	31	8.3	14	III=5. II=1.	
Poplar ...	43.9	5	67	5	7.4	1	III=2. I=2.	
(Average = 42.9)	32	566	43	7.6	15	11	III=10. I & II=4. VIII=1 (Total 15). N.E. & E.	
S.E. (Total Cases, 3,989).								
Bermondsey ...	61.8	15	269	19	7	6	III=3. VI=1.	
Camberwell ...	31.8	11	156	11	7	2	V, VI, VII=1 each.	
Deptford ...	31.6	1	19	1	5.3	1	III=2. VI=1.	
Greenwich ...	60.5	7	94	5	5.3	3	IV=1.	
Lewisham ...	30.0	13	169	9	5.4	3	III=4. II, IV, VI, 1 each.	
Woolwich ...	42.1	22	354	21	6	9	III=9. VI=4. IV=2. II, V, VII, 1 each (Total 18). S.E.	
(Average = 40.0)	69	1,061	66	6.2	24	9		
S.W. (Total Cases, 2,897).								
Southwark ...	29.0	7	103	9	8.7	4	III=5. II, VII, X (1 each).	
Lambeth ...	18.3	4	62	4	6.4	—	III, VI, VIII (1 each).	
Battersea ...	47.4	26	405	24	6	9	III=4. V, VI & X (1 each).	
Wandsworth ...	30.9	14	319	20	6.2	8	III=2.	
(Average = 29.4)	51	889	57	6.4	18	11	III=12. VI, X (2 each). II, V, VII, VIII 1 each. (Total 20.) S.W.	
All London. Cases, 16,288.	281	4,829	311	6.4	88	53	TOTALS.—Type I = 1, II = 6, III = 41, IV = 2, V = 5, VI = 7, VII = 3, VIII = 2, X = 3.	
Rate per 10,000 population	36.3	Schls. Swab. Crrs.	Rate% V. A.	72% 28%				

Tables giving (1) the Diphtheria Rate per 10,000 population (all ages). (2) Carriers Rate per cent. (3) Proportion of virulent to avirulent among carriers (as found in affected schools), for each Metropolitan Borough in 1921 and 1922.

NOTE.—The bold figures appearing in the columns of diphtheria cases, and of the carrier rate, indicate that they are above the average for the whole of London. * Figures provided only by number of children swabbed at special investigations in schools, and do not include miscellaneous examinations of selected individuals.

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For indispensable help in connection with the statistics of diphtheria incidence I am very much indebted, in particular, to Messrs. B. E. Spear, H. M. Scowby, and H. J. Train, as also to Messrs. F. E. Fry and E. S. Glass for their able assistance in the laboratory and the latter's preparation of the block charts.

NOTES FROM BRANCHES.

WEST OF ENGLAND BRANCH.

THE ANNUAL MEETING.

There was an excellent attendance and a long programme admirably carried out at the Annual Meeting held at Bristol on July 19th. In accordance with the procedure suggested a year ago, the Vice-President was elected President for the ensuing Session and a new Vice-President chosen from the opposite end of the area, who will, in due course, succeed to the chair. Dr. Adkins, County Medical Officer for Devon, therefore, follows Surgeon Captain O. W. Andrews, R.N., in October, and Dr. Askins, School Medical Officer, Bristol, received a hearty invitation to the Vice-Presidency. The Branch is fortunate in being able to retain the services of Dr. Stirk as Secretary. The first meeting of the new Session will probably be held at Bristol.

SMALL-POX AND DIPHTHERIA.

Two papers of considerable clinical interest were read, one by Dr. D. S. Davies on Small-pox, and the other by Dr. Peters on the Schick Test. Dr. Davies, speaking, of course, from a wide experience, gave some very valuable hints on diagnosis in connection with a disease which is much in our minds just now. He made special reference to the mild type prevalent in the West of England and in Gloucester. So impressed was the meeting with the importance of his remarks that requests were made for them to be printed and sent to all Branch Members. This has been done, and a very useful 4-page quarto circular is the result. Illustrations from photographs of two of the Gloucester cases are extraordinarily interesting, and should in themselves go far towards convincing anyone in doubt (if such a

one there be) that the patients are suffering from the disease which is implied when the term Small-pox is used, and that the rash is not due to any other disease.

APPOINTMENTS.

Dr. Ronald Briers Berry, Assistant Medical Officer of Health for Lancashire, has been appointed Medical Officer of Health for the City of Gloucester and for the Gloucester Division of the Customs Port of Gloucester, in place of Dr. J. R. Bibby, who has resigned. Dr. Bibby, who previous to his appointment as Medical Officer of Health some three or four years ago, was Chairman of the City Health Committee, is stated to have expressed his intention to seek re-election to the Council in the near future.

Dr. G. W. Harvey Bird has been appointed Medical Officer of Health for the Borough of Bridgewater. Dr. Bird is also Medical Officer of Health to the Port Sanitary Authority.

ANNUAL PROVINCIAL MEETING.

The Annual Provincial Meeting of the Society was held at the School of Art, Hull, on Friday, August 3rd, 1923, the President (Dr. T. Eustace Hill, O.B.E.) in the chair. There were present: Drs. Cates, Porter, Barlow, Edmund Smith, Petgrave Johnson, Kaye, Peck, J. D. Buchanan, Blaker, Gamgee, F. T. H. Wood, Brebner, G. R. Bruce, T. Gibson, H. Kerr, Francis, Pearce, Stirling, A. Middleton Brown, Hauxwell, Joseph, Daley, Stocks, Veitch Clark, Coleman, Erskine, and Banks.

The minutes of the last annual provincial meeting having been approved and adopted, the President expressed his regret that the meeting could only be of a somewhat formal character as the engagements of the members in connection with the R.S.I. Congress made it impossible for him, as President, to arrange the sort of social gathering which they had enjoyed as the guests of his predecessors in the chair.

The following candidates having been duly nominated, were elected to the Society:—

As Members:

Appleton, Oswald Lucas, L.R.C.P. and S., Ed., L.R.F.P.S., Lt.-Col. R.A.M.C. (T.) ret.; Browne, James M., M.B., B.Ch., R.U.I., D.O., Oxon.; Dawson, Walter, D.S.O., M.B., Ch.B., Glasg., D.P.H., D.T.M. and H.; Fleming, Hugh McCutcheon, B.A., M.D., B.Ch., Dub., D.P.H.; Gaffikin, Prudence Elizabeth, L.R.C.P. and S., Ed., L.R.F.P.S.; Jordan, Rose Fanny, M.D., B.S., Lond., B.Sc., Manch., D.P.H.; Morgan, Arthur, M.A., Cantab., M.R.C.S., L.R.C.P., D.P.H.; Shaw, Thomas Brown,

Surg. Cdr. R.N., M.B., Ch.B., Edin.; Sheppard, Mary Christina, B.A., M.B., B.Ch., Dub., D.P.H.; Walker, Edward Archibald, M.C., M.D., Ch.B., Edin., D.P.H.

As Associate:

Davies, Wm. Robert, L.D.S., Eng.

A number of candidates were nominated for election at the October meeting of the Society.

A discussion followed on the progress achieved in regard to the Society's scale of salaries, and much satisfaction was expressed at the adoption of the scale by the Annual Representative Meeting of the British Medical Association. On the proposal of Dr. Charles Porter, seconded by Dr. G. H. Pearce, it was agreed by acclamation "That the best thanks of the Society be tendered to the Salaries Committee, and more especially to their Chairman, Dr. George Frederick Buchan, for the devoted labours extending over four years which had resulted in the scale of salaries being eventually accepted by the British Medical Association as the policy of the whole profession."

On the proposal of Dr. Stocks, seconded by Dr. Pearce, it was also agreed unanimously "That the cordial thanks of this Society be tendered to the British Medical Association for adopting a scale of salaries which when enforced will secure reasonable remuneration for the Medical Officers of Local Authorities, and thereby promote the advancement of Preventive Medicine and efficient health administration to the great advantage of the whole community."

In forwarding this resolution to the B.M.A., the Executive Secretary was directed to express the grateful thanks of the Society for the convincing manner in which their case had been submitted to the A.R.M. by Prof. R. A. Bolam.

Suggestions were then invited by the President in regard to the arrangements for the Annual Provincial Meeting in future years, in order to ensure the largest possible attendance, and the combination of a business meeting with some form of entertainment. A number of proposals were submitted, and finally it was agreed that the Council of the Society be asked to take into early consideration:

- The promotion of more frequent provincial meetings of the Society;
- the relation of the Society to the annual congresses of the B.M.A. and the R.S.I.; and
- the desirability of fixing the Society's annual provincial meeting in connection with the congress of one or other of these bodies.

The meeting then adjourned.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.

COUNCIL MEETING.

A meeting of the Council was held at the School of Art, Hull, on Tuesday, July 31st, 1923. In the unavoidable absence of the President, Dr. Charles Porter was voted to the chair, and there were also present: Drs. Jolly, Stirk, Joseph, Veitch Clark, Pearce, Kerr, Bertram Hill, Stocks, Cates, Barlow, Prof. H. R. Kenwood, and Lt.-Col. F. E. Fremantle, M.P.

Apologies for absence were received from Dr. A. B. McMaster, Dr. J. T. C. Nash, Dr. T. W. H. Garstang, Dr. Peyton, and Dr. Wheatley.

The minutes of the last meeting, as published in "Public Health" (May, 1923, p. 226) were approved and adopted.

Correspondence.—(1) From the Ministry of Health acknowledging the letter from the Society dated April 23rd, 1923, in reference to public health propaganda (see "Public Health," May, 1923, p. 227), and asking for detailed suggestions. *Resolved* that the letter be referred to a Special Committee (Dr. James Wheatley, Chairman, Dr. T. W. N. Barlow, Dr. G. W. N. Joseph, and Dr. Veitch Clark), with a request to report at the September meeting of the Council. (2) From the Insurance Committee of the County of London in reference to expenditure on health propaganda. *Resolved*: That this letter also be referred to Dr. Wheatley's committee. (3) From the Association of County Medical Officers of Health referring to a proposal to suspend the medical examination of school children in the intermediate age-group. It was agreed to postpone consideration of this letter until the September meeting of the Council. (4) From the County Palatine of Chester Local Medical and Panel Committee enclosing a resolution in reference to the certification of mentally deficient cases. The Executive Secretary was instructed to circulate the resolution with the agenda of the September meeting of the Council.

Representation of the Society.—Dr. G. A. Auden was re-elected as representative of the Society on the Council of the Central Association for Mental Welfare for the period ending June, 1924.

Administration of the Midwives Acts.—Dr. Cates submitted the report of the Special Committee appointed to consider the working of the Midwives Acts and the Rules of the Central Midwives Boards.

After discussion and minor amendments the report was approved and adopted. (The report will be found below.)

It was *Resolved*: That copies of the report be forwarded to the Ministry of Health, the Central Midwives Board, the College of Nursing, the Jubilee Institute of Nursing, and the M. and C.W. Group of the Society.

On the proposal of Dr. Kerr, seconded by Dr. Pearce, a cordial vote of thanks was passed to Dr. Cates (Chairman) and the members of the special committee responsible for the report.

Relation of the County M.O.H. to the District M.O.H.—Arising out of the discussion on the above report, it was *resolved*: That the whole subject of the relation of the County M.O.H. to the District M.O.H. be considered by the Society during the coming session.

Disciplinary.—Several members having reported a strong feeling in the Branches in reference to a recent appointment in a metropolitan borough, where a Fellow of the Society had not been willing to co-operate with the Salaries Committee when asked to confer with them before accepting the post, it was *resolved* unanimously that the member in question be called upon to justify his action before the Council, in accordance with Article II. of the Society's Articles of Association.

The Council then adjourned.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.

THE MIDWIVES ACTS AND THE RULES OF THE CENTRAL MIDWIVES BOARD.

Report of the Special Committee appointed by the Council on December 15th, 1922.

Reference.—"To report on the whole working of the Midwives Acts and the Rules of the Central Midwives Board."

The Committee was constituted as follows:—

Dr. T. Eustace Hill, O.B.E., the President, Dr. T. W. Naylor Barlow, O.B.E., Dr. Joseph Cates, Dr. J. M. Clements, Dr. R. A. Lyster; Dr. C. E. S. Flemming and Dr. J. W. Bone (nominated by the British Medical Association).

The Committee elected Dr. Cates as their Chairman, and have held five meetings.

At the first it was decided to invite suggestions from Branches and Groups of the Society, from the Association of County Medical Officers of Health and from the British Medical Association.

After detailed consideration of the Acts, the Committee recommend that the following amendments should be advocated by the Society and forwarded to the British Medical Association, the Royal Sanitary Institute, and to the Government Departments concerned.

Midwives Act, 1902.—1.—(1) It has been represented to the Committee that in certain areas men without a medical qualification habitually act as midwives. This does not appear to have been contemplated by the Act. Such persons are under no supervision or control, and the Committee therefore advise that in Section 18 a definition be added in the following terms:—

"The word 'woman' shall include a person of either sex who is not a legally qualified medical practitioner."

1.—(2) There is overwhelming evidence that proceedings against handy-women are not likely to be successful until there is a material amendment of this Sub-Section of the Act. It is understood that the Central Midwives Board would welcome more stringent drafting. The Sub-Section at present reads as follows:—

"From and after the first day of April, one thousand nine hundred and ten, no woman shall habitually and for gain attend women in childbirth otherwise than under the direction of a qualified medical practitioner unless she be certified under this Act; any woman so acting without being certified under this Act shall be liable on summary conviction to a fine not exceeding ten pounds, provided this section shall not apply to legally qualified medical practitioners, or to anyone rendering assistance in a case of emergency."

The Committee recommend that the Sub-Section should be amended, thus:—

(a) "From and after the first day of January, one thousand nine hundred and twenty-four no woman shall attend women in childbirth otherwise than under the immediate personal supervision of a qualified medical practitioner in attendance at the labour, unless she be certified under this Act; any woman so acting without being certified under this Act shall be liable on summary conviction to a fine not exceeding ten pounds, provided this section shall not apply to legally qualified medical practitioners, or to any one rendering assistance in a case of emergency."

(b) "Any unqualified person rendering emergency assistance to a woman in childbirth, shall, as soon as she becomes aware of the emergency, immediately summon the assistance of a qualified medical practitioner or a midwife."

(c) "Any woman failing to summon assistance under Sub-Section 1 (2) (b) shall be liable on summary conviction to a fine not exceeding five pounds."

10.—The Committee are convinced that a midwife who acts only as a monthly nurse, should not escape supervision under the Rules of the Central Midwives Board, and should be required to notify the Local Supervising Authority of her

intention to practice in the capacity of a monthly nurse.

Midwives Act, 1918.

6.—(2) The Committee are satisfied that midwives, at times, suffer serious financial loss without redress, when suspended from practice in order to avoid the conveyance of infection. It is therefore recommended that this Sub-Section should read:—

"Wherein pursuance of any power conferred by any such rule a midwife has been suspended from practice pending the decision of her case by a court or the Board and the case is decided in her favour, or where in pursuance of the duty imposed by paragraph (3) of section eight of the principal Act a midwife has been suspended from practice in order to prevent the spread of infection, the Central Midwives' Board or the Local Supervising Authority by whom she was suspended shall pay her such reasonable compensation for loss of practice as under the circumstances may seem just, subject to appeal by either party to the Ministry of Health."

12.—The Committee gave prolonged consideration to the position which has arisen from the operation of this Section, which amended Section 9 of the Act of 1902. The latter enabled County Councils to delegate their powers and duties to District Councils, and representations were made to the Committee that Section 12 of the Act of 1918 repealing Section 9 of the 1902 Act occasioned difficulties in the working of infant welfare schemes in certain areas. After taking these considerations into full account, and weighing carefully the views expressed in the two memoranda on the subject attached to this report, the Committee felt they could not ignore the expressed purpose of the Acts, which is "to secure the better training of midwives and to regulate their practice." The Committee therefore, with one dissentient, decided that no change should be recommended in this Section.

14.—(2) In view of misunderstandings that arise in many areas through delay by medical practitioners in rendering their accounts under this Sub-Section, and the consequent difficulty which the Local Supervising Authority may experience in attempting to recover the fees, the Committee recommend that there should be a further condition in this Sub-Section requiring medical practitioners to apply for their fees within one month from the receipt of a notice from the Local Supervising Authority.

RULES OF THE CENTRAL MIDWIVES BOARD.

C.—The Committee considered the regulations relating to the training of persons admitted to examination. They are of the opinion that the time is approaching when there should be a uniform standard of training for nurses.

The need for midwives is now not sufficiently urgent to be an adequate excuse for the admission to the examination of women who have undergone partial nursing training. The obligations and responsibilities of midwives who are to be entrusted with the care of women before, during and after labour call for a high standard of general education and a prolonged period of hospital work. Your Committee, therefore, recommend that on and after a date to be fixed, and they suggest that 7 years from the next occasion on which the Rules of the Central Midwives' Board are amended would be a reasonable period, notice should be given that no woman will be admitted to the examination unless she produces

1. Evidence of registration by the General Nursing Council, except in the case of "existing nurses," or
2. The certificates indicated in Section C.2 (a), (b), (c) and (d).

Until the suggested change comes into force the Committee recommend that the period of six months mentioned in C.1 (1) should be extended to one year, and the period of four months in C.1 (2) should be extended to six months.

D.—The Committee reviewed the Rules of Procedure followed by the Board on the removal of a name from the roll and they considered the evidence placed before them. The Committee are of opinion that the Central Midwives' Board should act in a judicial capacity only and not as both prosecutor and judge.

While it is possible that the Rules governing the procedure in penal cases were drafted on the lines followed by the General Medical Council, the Committee were aware that the latter body is, in fact, reluctant itself to prosecute, and it appears to the Committee that the principle of a single body acting as both prosecutor and judge is repugnant to the general principles of the law of the land. The Committee, therefore, recommend that the Local Supervising Authority should act as prosecutor in penal cases and that suitable arrangements should be made for holding inquiries in penal cases in the provinces.

From evidence supplied to the Committee it seemed that the Central Midwives' Board was at a disadvantage in having no power to subpoena witnesses or to require evidence on oath, and the Committee recommend that steps should be taken to remove this disadvantage as soon as practicable.

E.—With regard to the Rules Regulating, Supervising and Restricting the Practice of Mid-

wives, your Committee recommend the alterations and amendments following:—

Section as at present drafted.

5. All instruments and other appliances must be disinfected, preferably by boiling, before being brought into contact with the patient's generative organs.

7. A midwife in charge of a case of labour must not leave the patient without giving an address by which she can be found without delay; and, after the commencement of the Second Stage, she must stay with the woman until the expulsion of the placenta and membranes, and as long after as may be necessary. In cases where a doctor has been sent for on account of the labour being abnormal or of there being threatened danger (see Rule 20), she must await his arrival and faithfully carry out his instructions.

If for any reason the services of a registered medical practitioner be not available, the midwife must, if the case be one of emergency, remain with the patient and do her best for her until the emergency is over.

After having complied with the Rule as to the summoning of medical assistance, the midwife will not incur any legal liability by remaining on duty and doing her best for the patient.

8. The midwife must wash the patient's external parts with soap and water, and then swab them with an efficient antiseptic solution on the following occasions. . . .

(c) During the lying-in period, when washing is required. . . .

11. The midwife must remove soiled linen. . . .

Recommendation.

5. Omit the word "preferably." Add the words: "unless otherwise allowed by the Local Supervising Authority."

7. A midwife in charge of a case of labour must not leave the patient without giving an address by which she can be found without delay; and, after the commencement of the Second Stage, she must stay with the woman until at least one hour after the expulsion of the placenta and membranes and for such further period as may be necessary. In cases where a doctor has been sent for on account of the labour being abnormal or of there being threatened danger (see Rule 20) she must await his arrival and faithfully carry out his instructions.

If for any reason the services of a registered medical practitioner be not available, the midwife must, if the case be one of emergency, remain with the patient and do her best for her until the emergency is over.

After having complied with the Rule as to the summoning of medical assistance, the midwife will not incur any legal liability by remaining on duty and doing her best for the patient.

8. Amend to read: "The Midwife must wash the patient's external genital parts. . . ."

(c) Amend to read: "Daily during the lying-in period. . . ."

11. The midwife must remove all soiled linen. . .

12. The midwife shall be responsible for the cleanliness, and shall give all necessary directions for securing the comfort and proper dieting of the mother and child during the lying-in period which shall be held, for the purpose of these regulations, and in a normal case, to mean the time occupied by the labour and a period of ten days thereafter. . . .

12. The midwife shall be personally responsible for the daily washing of the mother and the infant, the dressing of the umbilicus and any other necessary attention, and shall give all necessary directions for securing the comfort and proper dieting of the mother and child during the lying-in period which shall be held, for the purpose of these regulations, and in a normal case, to mean the time occupied by the labour and a period of ten days thereafter. . . .

Add—The midwife shall be held responsible during the whole of the lying-in period for all confinements which she personally conducted.

14. The midwife shall take and record the pulse and temperature of the patient at each visit, entering her records, with dates and times, in a notebook or on charts, which must be carefully preserved.

14.—Add — The midwife shall visit her patient

1. Within 15 hours of delivery.

2. Daily during the first week after labour.

If prevented from so doing she shall enter the reason in her register.

19. A midwife must note in her Register of Cases each occasion on which she is under the necessity of administering or applying in any way any drug other than a simple aperient, the name and dose of the drug and the time and cause of its administration or application. (See Rule 24, Note.)

19. Add — No midwife shall administer to a patient any anaesthetic or any drug other than a simple aperient, or after the completion of the third stage of labour ergot, except under the supervision or on the written authority of a qualified medical practitioner.

No midwife shall use forceps.

20. In all cases of illness of the patient or child, or of any abnormality occurring during pregnancy, labour, or lying-in, a midwife, as soon as she becomes aware thereof, must call in to her assistance . . .

20. . . . must forthwith call in to her assistance . . .

There should be a foot note to E. 20 stating that when medical help is required the midwife shall summon the usual medical attendant of the patient unless the patient otherwise desires.

21. PREGNANCY.

(2) In the case of a PREGNANT woman, when there is any abnormality or complication, such as:—
Deformity or stunted growth.

21. (2) Add—
Persistent headache.
Dimness of vision.
Illness or abnormality or stillbirth in a previous pregnancy.

Loss of blood.
Abortion or threatened abortion.
Excessive sickness.
Puffiness of hands or face.
Fits or convulsions.
Dangerous varicose veins.
Purulent discharge.
Sores of the genitals.

LABOUR.

(3) . . . in cases of serious rupture of the perineum. . . .

(3) Omit the word "Serious."

LYING-IN.

(4) . . . Rise of temperature above 100.4°F. with quickening of the pulse, for more than twenty-four hours.

(4) Omit the words "with quickening of the pulse, for more than twenty-four hours."

THE CHILD.

(5)

(5) Add the words "premature birth endangering the child's life."

22. (b) Deaths—In all cases in which the death of the mother or of the child occurs before the attendance of a registered medical practitioner.

22. (b) Omit the words "before the attendance of a registered medical practitioner."

(Signed) JOSEPH CATES,
T. EUSTACE HILL,
T. W. N. BARLOW,
J. M. CLEMENTS,
R. A. LYSTER,
CHAS. E. S. FLEMMING,
JOHN W. BONE.

DELEGATION OF DUTIES.

MEMORANDUM BY DR. JOSEPH CATES.

In practice delegation has not been found to be a success. In most cases councils have subsequently revoked such powers as they have delegated. In the few cases where delegated powers have not been revoked, the delegation has been found to operate detrimentally to the purposes of the Midwives Acts and to introduce an element of confusion and uncertainty in their administration. The evidence given to the Midwives Act Committee in 1909 was conclusive on this point, and it was then stated that delegation was an unmitigated evil.

The Acts can be administered in counties and county boroughs with greater uniformity, independence and efficiency than is possible in the case of smaller areas.

Uniformity of aim and practice is unrealisable under conditions of extensive delegation.

In smaller areas the attitude and conduct of the authorities are more likely prejudicially to be affected by local influences, jealousies and prejudices than in counties.

The more numerous are the authorities administering the Acts, the greater will be the resulting variety of standards of practice and methods of efficiency and the greater the amount of overlapping.

The difficulties of supply distribution and training of midwives are enormously augmented by a multiplicity of authorities.

The more extensive the area of administration (within reasonable limits) the wider is the experience gained by the inspector and the higher is the rate of pay she can command.

The better the remuneration offered the better qualified by education, training and experience are the candidates for vacancies.

An improvement in the social and educational status of the inspector may reasonably be expected to be followed by a like improvement in the general status of the midwife who comes under her influence.

In counties maternity work is often done by district nurses, who are usually supervised by a superintendent of the Nursing Association; in the event of delegations being effected over-lapping of supervision would ensue.

JOSEPH CATES.

DELEGATION OF DUTIES.

MEMORANDUM BY DR. J. M. CLEMENTS.

I have been asked to give some reasons why the Authority which administers the Maternity and Child Welfare Act in any area should be the Local Supervising Authority for Midwives in that area.

In this connection it is necessary to bear in mind that the Maternity and Child Welfare Authority has statutory power to make provisions for the care of expectant mothers and infants, to organise and administer Welfare schemes which include such agencies as Infant Welfare Centres, Lying-in Homes, the provision of Home Helps, the giving of free food in necessitous cases, etc.

It is their duty to see that there is an adequate supply of midwives to meet the needs of their area, and they have power to supplement this by establishing a Maternity Home, if necessary. The Authority is concerned with all influences which affect injuriously the health of mothers and children, in the case of the former more particularly during the period of pregnancy, lying-in, and lactation, and in the case of the latter from birth to age five.

The rôle of the midwife is a very important one in any scheme of Maternity and Child Welfare. Her services are required at a critical time in the life of the mother and the infant, and have far-reaching effects on the health of both of them.

If she is a good midwife and knows her work she may at times, by acting promptly, save the life of a mother or baby. On the other hand, failure on her part to realise the actual conditions with which she is dealing, and the need for medical assistance, or failure to take proper precautions against sepsis, may result in the loss of life or lead to impairment of the health of the mother or child. She is an essential and important part of any scheme for the welfare of mothers and infants. What then is her proper relationship to the Authority which administers such a scheme? Should she be subject to any supervision or control by the Authority? It has been decided by Act of Parliament that she shall be under supervision and control, and my object is to try and convince you, as my experience has convinced me, that the proper Authority to exercise this supervision and control is the Authority which administers the Maternity and Child Welfare Act.

So far as the County Boroughs are concerned, the question does not arise, as the County Borough is the Authority for both purposes. It is only in county areas which administer their own Maternity and Child Welfare Schemes that difficulty arises; here the County Council supervise and control the midwives and the Local Sanitary Authority or Authorities administer the Maternity and Child Welfare Scheme.

Some of the reasons in support of my view are as follows: The Maternity and Child Welfare Authority is more intimately associated and concerned with the welfare of the mother and infant than any other. Through its officials it is brought into daily contact with the midwife and her work. By means of its maternity home, its welfare centre, and the home visiting of its health visitor, it is in a position to exercise a very close supervision and control over the midwives in its area. Compare this with the supervision which can be given by an Authority whose inspecting officials live 20 to 30 miles away, or even more, and who can only pay flying visits at considerable intervals for the purpose.

If the same medical and nursing staff which carries out the work of the welfare centres were also responsible for supervising the midwives it would bring the latter into closer co-operation with the work of the centres and induce them to send expectant mothers to the Centre for advice.

The notification of artificial feeding by the midwife to the supervising authority under Rule E. 12 A. is at present of little practical use unless the supervising authority also administers the Maternity and Child Welfare Centres.

When one considers the large numbers of infant deaths that occur during the first week or ten days of life, or before the midwife ceases to attend, it emphasises the need of closer co-operation between the officials of the welfare centres and the midwives in their preventive work, both ante-natal and post-natal, if the high mortality at this age is to be reduced.

Such co-operation can be more easily arranged if there is only one Authority concerned.

Instances have been brought to my notice of midwives who are actively hostile to the welfare centres and persuade mothers not to go there. Again, I have known midwives whose methods are not quite sound, some are too ready to advise the mother to give up breast-feeding if any little difficulty is experienced in the early days. Others are in the habit of giving the baby strong aperients like castor oil, with the result that the baby is brought to the Centre suffering from constipation and deranged digestion.

Such irregularities as these can best be dealt with by having one and the same Authority administering the Maternity and Child Welfare Act and Midwives Acts.

Instances of other anomalies in the present arrangements can be given. Take, for example, that of a midwife who has a case of puerperal fever or gonorrheal ophthalmia in her practice. These cases have to be notified to the local Sanitary Authority, but the latter has no power to deal with the midwife if the occurrence of such is due to any default on her part.

To put the matter concisely, the midwife is an essential part of any welfare scheme for expectant mothers, and if she is to be controlled or supervised by anyone then it should be by the authority which administers the scheme of which she is an integral part.

J. M. CLEMENTS.

REDUCTION IN INFANT MORTALITY.

In order to stimulate public interest in the reduction of infant mortality the "Daily News" is offering prizes to local authorities of not less population than 20,000. A prize of £25 is offered to the district which has secured in the year ending midsummer last the greatest reduction in the death-rate of boy babies under one year of age as compared with the previous 12 months, and another prize of £25 for the lowest actual death rate among boy babies.

The awards will be made upon the corrected figures furnished by the local medical officer of health, which must reach the "Daily News" office not later than October 1st, 1923.

CORRESPONDENCE.

The Editor does not accept responsibility for the opinions of correspondents.

CONTROL OF INFECTIOUS DISEASES.

From Dr. A. H. BURTON, M.O.H., Ilford.

Dear Sir,—I see in your August issue, page 305, that Dr. F. H. Thomson, North Eastern Hospital, M.A.B., is stated to have made the following remarks:—

"It was not a problem that could very well be checked by the Medical Officer of Health, who as a general rule had no greater knowledge of infectious disease than the general practitioner."

It would be interesting to know on what grounds Dr. Thomson makes such an ill-founded and sweeping assertion, or of whose work as Medical Officers of Health he has had experience to obtain such knowledge as to their capacity or suggested incapacity in the diagnosis of infectious disease. Surely it cannot be from the Metropolitan Medical Officers of Health, who I see have done Dr. Thomson the honour of electing him their President for the ensuing year. Has Dr. Thomson had any experience in the work of provincial Medical Officers of Health, who as a general rule have the supervision of an Isolation Hospital?

As a matter of fact one of the great drawbacks which exists in Public Health work in the Metropolitan Area is the entire divorce which exists between the administration of the Isolation Hospitals by the Metropolitan Asylums Board and local health administration, as this precludes any control by the Medical Officers of Health in such matters as "return cases," the numbers of which I understand are not even now published by the M.A.B.

If Dr. Thomson or any other Medical Superintendent of the Metropolitan Asylums Board could give Medical Officers of Health assurance that he could recognise without doubt a typical mild case of Scarlet Fever in its early stages, no doubt valuable assistance could be obtained, but how many of these cases are placed in side-walls, even in the M.A.B. Institutions, until the Medical Superintendent sees whether or not they "peel"?

Yours faithfully,

A. H. G. BURTON.

THE SOCIETY OF MEDICAL OFFICERS OF HEALTH.

The Special Committee appointed to advise on the revision of the Society's Articles of Association have submitted the following Draft, based on suggestions received from the Council, Branches and Groups. Any observations which Branches or Groups may wish to forward before the Draft is considered by the Council should reach the Executive Secretary not later than May 2nd, 1923.

ARTICLES OF ASSOCIATION.

PRELIMINARY.

1. These Articles shall be construed and the expressions used therein taken to have the same meanings as in the Companies (Consolidation) Act, 1908-1917.

2. The Association is established for the purposes expressed in the Memorandum of Association hereto annexed.

3. In the construction of the following Articles, unless repugnant to the context, the masculine includes the feminine, the singular includes the plural, and the plural the singular; and the following words and expressions have the respective meanings hereinafter assigned to them:

The term "Year" means the inclusive period between the first day of October in any one year and the last day of September in the following year.

"Session" means the period between the Annual Meeting and the last Ordinary Meeting in the year;

"Month" means a Calendar Month;

"Association" means the Association incorporated by the Memorandum of Association as "The Society of Medical Officers of Health";

"Branch" means a localised Association of Members of the Association, recognised, or sanctioned, or constituted by the Council;

"Group" means an Association of members within the Association, recognised, or sanctioned, or constituted by the Council;

"Honorary Fellow" means Honorary Fellow of the Association;

"Fellow" means Fellow of the Association;

"Member" means any member of the Association, whether Fellow or Associate;

"Associate" means Associate of the Association;

"PUBLIC HEALTH" means the Journal of the Association.

MEMBERSHIP.

4. The Association shall comprise Honorary Fellows, Fellows and Associates.

(a) Honorary Fellows shall be persons who are eminently distinguished in the advancement of public health.

(b) Fellows shall be:—

(1) Medical Officers of Health, acting or retired, whether in the British Isles and dependencies or elsewhere;

(2) Medical Officers and Inspectors, acting or retired, of Government Departments whether in the British Isles and dependencies, or elsewhere;

(3) Medical Officers (Sanitary), acting or retired, of the Navy, Army, and Air Force (at home or abroad);

(4) Registered Medical Practitioners holding a Diploma in Sanitary Science, Public Health or State Medicine, under Section 21 of the Medical Act, 1886;

(5) Assistant Medical Officers of Health; or

(6) Medical Officers or Assistant Medical Officers holding specialist or clinical appointments in connection with any branch of Public Health, e.g., inspection and treatment of school children, tuberculosis, maternity and infant welfare, venereal diseases, industrial hygiene, fevers, mental diseases, ophthalmology, bacteriology, dentistry, and such other medical appointments as may be made from time to time.

(c) Associates shall be persons of professional standing interested in the advancement of public health.

5. For the purpose of registration the number of members of the Association is declared not to exceed 2,000.

6. The Association comprises eleven branches, entitled respectively the Metropolitan, the North-Western, the Midland, the Yorkshire, the Northern, the West of England and South Wales, the Home Counties, the Southern, the Scottish, the Eastern, and the Welsh.

Additional branches may be constituted by the Council as they shall see fit, and any existing branch may be dissolved by a two-thirds majority of the Council present and voting on a resolution for that purpose, of which due notice shall have been inserted in the notice convening the meeting.

Each branch shall have the entire control of its own business, but any resolution on matters relating to the policy, control or discipline of the Association can only be passed in the form of a recommendation to the Council for their consideration.

The President of the Association shall be *ex-officio* a member of each branch.

7. Every member resident in the United Kingdom shall join the branch whose ordinary place of meeting shall be most convenient to him, and he shall notify in writing to the Executive Secretary of the Association the name of the branch which he joins.

The Honorary Secretary of each branch shall forward annually to the Executive Secretary of the Association within seven days after the meeting of the branch before the last day of April for the election of members of the Council, a list comprising the names and addresses of the several

Fellows, and Associates attached to the Branch.

8. Groups of the Association may be constituted by the Council as they see fit. Any Group may be dissolved by a two-thirds majority of the Council present and voting on a resolution for that purpose, of which due announcement shall have been inserted in the notice convening the meeting.

Each Group shall have the entire control of its own business, but any resolution on matters relating to the policy, control or discipline of the Association can only be passed in the form of a recommendation to the Council for their consideration.

The President of the Association shall be *ex-officio* a member of each Group.

ELECTIONS.

9. Persons proposed for election as Honorary Fellows shall be nominated by the Council; their names and addresses shall be inserted in the notice convening the meeting of the Association at which the election is to take place.

10. Candidates for election as Fellows or Associates shall be proposed in writing by two Fellows or Associates at a meeting of the Association, and shall be balloted for at the next ordinary, provincial or annual meeting.

The names and addresses and titles of the candidates, with the names of their proposers and seconders, shall be inserted in the notice convening the meeting of the Association at which the election is to take place. If any member of the Society notifies objection to a candidate in writing to the Executive Secretary, the election of such candidate shall be postponed pending enquiries by the Council.

An Associate upon becoming eligible shall, if he desire, become a Fellow, on notifying such desire to the Executive Secretary of the Association.

All elections shall be by ballot, and no candidate shall be declared to be elected unless he obtains the votes of four-fifths of the Fellows present and voting.

11. If any member of the Association should be charged with conduct detrimental to the honour and interests of the medical profession or the Association, the Council shall have the power, after due enquiry of which at least fourteen days' notice shall be served on the member, specifying when and where he may be heard in his defence, to admonish or call for the resignation of such member. Should he refuse to resign when so required, the Council may terminate his membership by expulsion. A majority of two-thirds of those present and voting at a meeting of the Council, shall be required for the purpose of exercising the powers conferred by this Article.

This Article shall be printed on the form of application for election to the Society, and candidates shall be required to signify acceptance of its terms as a condition of their membership.

SUBSCRIPTIONS OF MEMBERS.

12. Fellows shall pay such annual subscription as the Association may decide from time to time. Associates elected prior to the first day of October, 1908, shall pay an annual subscription of ten shillings and sixpence each, those elected subsequent to the aforesaid date such annual subscription as the Association may decide from time to time.

Payment of the aforesaid subscriptions shall entitle each member to a copy of *PUBLIC HEALTH* as and when published.

13. All subscriptions shall be due and payable at the commencement of the session in October.

Any member who shall be in arrear 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.

14. Any member wishing to determine his connection with the Association may do so by forwarding his resignation in writing to the Executive Secretary of the Association, and until he shall have done so he shall continue liable for the payment of his subscription.

15. The Treasurer of the Association shall pay in every year, on or before the last day of September, to the Treasurer of each of the branches for branch expenses the sum of not less than two shillings and sixpence in respect of every annual subscription paid by members of their respective Branches to the Treasurer of the Association during the current year, and may by special resolution of the Council pay travelling expenses of any member of the Association when attending Council meetings, Committees or Deputations on behalf of the Association, provided that in case of any member who is a member of more than one branch a sum of not less than two shillings and sixpence for branch expenses shall be paid only to the treasurer of the branch to which the said member shall have been formally joined in accordance with the terms of Article 7.

The Treasurer of the Association may from time to time, by special resolution of the Council, pay a contribution towards the expenses of any group or groups constituted in accordance with the terms of Article 8.

PRIVILEGES OF HONORARY FELLOWS AND ASSOCIATES.

16. Honorary Fellows and Associates shall be entitled to attend the meetings of the

Association other than meetings convened in accordance with the provisions of the Companies (Consolidation) Act, 1908, and take part in the discussions; but they shall not vote at any election or on any subject affecting the constitution, the management, the policy, or the discipline of the Association, unless duly elected as members of the Council.

OFFICERS OF THE ASSOCIATION.

17. Subject to the provisions of Articles 4 and 16 the officers of the Association shall be:—

(a) The President, who shall be elected at the ordinary meeting of the Association in the month of May in every year by the Fellows from among the Fellows.

The nomination of the President shall take place as follows:—Each Branch may nominate a Fellow of the Society as suitable for the Presidency, and shall notify such nomination not later than May 1st to the Executive Secretary of the Association, and from amongst the Fellows so nominated by the Branches the Council shall select one name and shall submit the same to the Association for election. No other form of nomination or selection shall be adopted.

The election shall be by ballot.

The President shall come into office on the first day of October following his election.

(b) Three Vice-Presidents, one of whom shall be the immediate Past-President.

(c) The Chairman of Council.

(d) The Treasurer.

(e) The Editor of *PUBLIC HEALTH*.

(f) Two or more Trustees of any funds of the Association which it may become necessary or convenient to invest in the names of Trustees, if and whenever the Council shall think fit to appoint such Trustees.

(g) The Executive Secretary.

18. The Chairman of Council, the Treasurer, the Vice-Presidents, and the Editor shall be elected annually by the Council at their meeting in May, and shall come into office on the first day of October following their election. These officials shall not be re-elected for more than three years in succession.

All elections shall be by ballot.

The Council shall have power to fill any vacancy that may arise from time to time.

THE COUNCIL.

19. The management of the Association shall be vested in a Council which shall consist of:—

(a) The President, three Vice-Presidents, the Chairman of Council, the Treasurer, and the Editor of *PUBLIC HEALTH*.

(b) One representative elected by or from each Branch, and a second representative when

its membership reaches 150, and one additional representative for each 75 members in excess of 150.

(c) One representative elected by or from each Group.

(d) One Medical Officer of Health for each representative elected or due to be elected, by a Group.

(e) Two representatives nominated by the British Medical Association.

(f) At the discretion of the Council, one other medical man, to be elected after due notice by a two-thirds majority of those members of the Council present and voting.

20. The Council shall be elected as follows:—

Before the last day of April, in every year, each branch or group shall hold a meeting for the election of their Branch or Group President and Honorary Secretary and their representative or representatives, if any, on the Council, all of whom shall come into office on the first day of the session following their election.

No member shall be eligible to be elected on the Council, or to vote, whose subscriptions for the current year shall be unpaid.

The Secretary of each branch or group shall, not later than May 1st, send to the Executive Secretary of the Association the names and addresses of the President and of the elected representatives.

In the event of any branch or group failing to elect qualified representatives, the Council shall, at their meeting in September, elect from amongst the members attached to the branch or group the requisite number of members to represent the branch or group on the Council.

Any casual vacancy shall be filled by the Council from members attached to the branch or group whose representatives shall have ceased to be a member of the Council, or from the appropriate category as indicated by Article 19 (d), (e) and (f).

The Council at their meeting in September shall elect to serve on the Council for the ensuing session representatives nominated in accordance with Article 19 (d), (e) and (f).

All elections shall be by ballot.

The Council shall come into office on the first day of October following their election.

21. The Council, at their meeting in the month of May in every year, may appoint an honorary counsel, an honorary solicitor, or firm of solicitors, and an honorary architect or surveyor.

22. The Council shall, at the annual meeting in every year, submit a report of the proceedings of the Association during the preceding year, together with the report of the Treasurer and the Editor of *PUBLIC HEALTH*. The said reports shall, if practicable, be published in the October issue of *PUBLIC HEALTH*, and if so published may be taken as read at the annual meeting.

23. The ordinary meetings of the Council shall be held in London in the months of November, January, March, May, and September, unless the Council shall otherwise determine, on days and at hours to be from time to time fixed by the Council.

A special meeting of the Council shall be convened by the Executive Secretary on a requisition signed by the Chairman of Council, or by five members of the Council.

At all meetings of the Council seven members shall form a quorum.

24. The Council shall have power to appoint Committees, with powers which shall be defined in the resolution appointing any such Committee.

Committees so appointed shall report their proceedings to the Council.

25. The Council shall provide a common seal and shall have full power to use the said seal in the execution of all or any of the powers vested in them by these Articles, or otherwise in relation to the business or affairs of the Association as they in their discretion shall think fit.

26. The Council and all Committees of the Council appointed as aforesaid shall cause minutes to be made of all proceedings at any meeting of the Association, or of the Council, or of their Committees; and the Council shall at all times cause a register to be kept of the Honorary Fellows and members of the Association, together with their respective last known place of abode.

27. All moneys received by or on behalf of the Association shall be regularly paid into the banking account to be kept in the name of the Association, and no money shall be paid by or on account of the Association, other than petty cash disbursements, except by cheque of the Treasurer on the said banking account, upon the order of the Council or of a Committee duly appointed by the Council for that purpose.

28. The Council may from time to time make, alter, repeal, or amend bye-laws for regulating the conduct of their business and the proceedings at their meetings.

MEETINGS OF THE ASSOCIATION.

29. The Annual General Meeting of the Association shall be held in London in the month of October on a day, at a place and at such a time as shall be fixed by the Council; at least seven days' notice shall be given of such meeting to every member of the Association.

30. The Association at the Annual Meeting shall appoint an auditor in accordance with the provisions of the Companies (Consolidation) Act, 1908.

31. All ordinary meetings of the Association shall be held in London on such a day and at such hours to be from time to time fixed by the Council.

32. A special meeting of the Association shall be convened by the Executive Secretary on a requisition signed by the Chairman of Council, or by seven Fellows.

33. A meeting of the Association shall be held in the Provinces every year between the months of May and September inclusive, at some place, and on a day and at an hour to be fixed by the Council.

34. At all meetings of the Association seven members shall form a quorum. The President shall take the chair; in his absence, the senior Vice-President shall preside; in the absence of the President, and Vice-Presidents, the members present shall elect a chairman.

35. The Association may from time to time make, alter and repeal bye-laws for regulating the conduct of their business and the proceedings at their meetings.

NOTICES.

36. All notices to Honorary Fellows and members shall be deemed duly delivered to them if served personally or sent by post to their last known place of address.

37. A notice may be served by the Association upon any member either personally or by sending it through the post in a prepaid letter addressed to such member at his registered place of address.

38. As regards those members who have no registered address in the United Kingdom, or where place of residence cannot be ascertained, a notice posted up in the Registered Office of the Association shall be deemed to be served upon them at the expiration of twenty-four hours after it is so posted up.

39. Any notice required to be given by the Association to the members of any of them, and not expressly provided for by these presents, shall be sufficiently given if given by advertisement.

40. Any notice sent by post shall be deemed to have been served on the day following that on which the envelope or wrapper containing the same is posted, and in proving such service it shall be sufficient to prove that the envelope or wrapper containing the notice was properly addressed and put into the Post Office.

41. All notices required by the Companies (Consolidation) Act, 1908, or any statutory modification thereof, or the regulations to be given by advertisement shall be inserted in a newspaper circulating in London, and if so advertised shall be deemed to have been sufficiently given.

42. None of the provisions in Table "A" of the Companies (Consolidation) Act, 1908, shall apply to this Association, except so far as they may be contained or repeated in these Articles.

43. None of these Articles shall be rescinded, varied, or altered, or any addition made thereto except by a special resolution passed in accordance with the provisions of the Companies (Consolidation) Act, 1908.

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