ABSTRACTS OF

The Milroy Lectures

ON

THE TEACHING AND TRAINING IN HYGIENE:

SOME CRITICISMS AND SUGGESTIONS.

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LECTURE III.¹

THE TRAINING OF NON-MEDICAL PUBLIC HEALTH WORKERS.

MR. PRESIDENT, LADIES, AND GENTLEMEN,—A wide conception of public health work will embrace many different kinds of non-medical workers, but the limited time at my disposal makes it necessary that I shall confine my remarks almost exclusively to the training of sanitary inspectors and health visitors. I shall first deal with the health visitor employed in child-welfare work.

THE HEALTH VISITOR.

The health visitor is in great measure a hygienic pedagogue working amongst the members of the community; and the public recognition of the supreme importance of motherhood and child-welfare is leading to the employment of an army of these women public health workers. But it is certain that we are only in the early stages of the evolution of this work, and that the future will witness more comprehensive, better organised, and therefore more effective efforts; for as our experience ripens the social factors injuriously affecting child life are found to be complex and deep set, and needing more research before we can hope to achieve a full measure of success.

Sanitary inspectors have for long personally advised in matters affecting the health of the home, and the people have reacted in a useful measure, but, of course, on the lines of environment. There is now a general recognition of the dangers of a leaky drain, and the public press for remedy at the hands of the landlord; but less heed is taken of the still greater dangers to their health involved in their personal sins of omission and commission. It was time, therefore, that a body of workers mainly concerned in health missionary work among the people should appear, and seek to put matters more in focus.

Wide Range of Activities of Health Visitor.

The health visitor has no narrow, clean-cut, and easy duties to perform. She has to watch the health interests of expectant and nursing mothers, and of the offspring up to five years of age; and, therefore, she must be able to give advice and assistance in a great variety of matters. She may have to organise a centre and assist in conducting it, and in giving health-talks to mothers on true educational lines. For the discharge of these duties her training will demand a knowledge of elementary physiology, personal and domestic hygiene, the special hygiene of the infant and of the expectant and nursing mother, the essential facts of several communicable diseases (more particularly measles, whooping-cough, summer-diarrhoea, and tuberculosis), the causes of infant mortality, infant ailments and simple home-nursing (general, fever, and maternity), elementary first-aid, and sanitary law in its application to her work in the home and its occupants. She must also possess a close practical acquaintanceship with domestic science (especially of simple artisan cooking, and the cutting, making, and repairing of infants' and children's garments). In addition to being well and practically trained in all these matters she must know much of the life circumstances of the poor, and be acquainted with all the many agencies and institutions (voluntary and otherwise) dealing with child-welfare, relief, and medical treatment. She must also collect particulars and keep records with relevancy, method, and precision.

The most important branch of the services of a child-welfare worker is the difficult branch which relates to home visitation. At these visits the worker sees the infant in its real setting; she may have much to take exception to, and

she meets the difficult type of mother who, for several reasons, will not visit a centre. To be effective in this branch of work she needs an intimate knowledge of the life-circumstances of the masses, she must be essentially practical, and she must possess that personality, tact, and knowledge of human nature which will enable her to create "the atmosphere" in which alone she can obtain results.

It is therefore no easy and simple training that the duties demand of her, and the activities of her work involve a wide range of technical knowledge. Judged from the standpoints of these requirements few health visitors receive a training which is sufficiently attuned to the needs of their future work. The training is often out of perspective, and is generally too narrow and insufficiently practical. Although there are centres where worthy efforts are being made, training centres generally are discouraged from raising the standard of the training given by the circumstance that persons obtain appointments as health visitors who have received no special training for the special duties. Up and down the country we find many women engaged in this difficult work who have never obtained a health visitor's certificate. The nurse trained in curing and not in preventing ill-health has but little qualification for the work, for, like the bulk of midwives and district visitors, she is lacking in the many-sided knowledge which the duties demand. I am aware that there are some nurses and midwives who receive a special training that goes farther to qualify them for the work of a health visitor than is the case with others, but they constitute a minority, and even with them additional special training is necessary. The subject of infant feeding alone demands considerable practical experience; the special needs of different infants may vary widely, and the health visitor has to advise mothers in their homes, often (especially in rural districts) without any guidance from a medical officer at a centre.

EXISTING PROVISIONS FOR TRAINING OF HEALTH VISITORS.

Allow me to offer some critical comments upon existing provisions for the special training of health visitors before I pass to my suggestions for improvement. A health visitor cannot be equipped by means of lectures and a few visits to a baby centre, as some training provisions seem to assume. I do not say that lectures do not possess a value; I only insist upon their very limited value and the quite subsidiary place they should fill in the training of the class of workers with which I am dealing.

Health visitors, like sanitary inspectors, suffer from a serious deficiency in their practical training; many of both classes of workers gain their certificates too much from lecture and demonstration courses, in which they themselves do little more than take notes; and so the majority have to learn the practical side of their work, in its unfamiliar setting, after their appointment to a responsible official post. He and she slowly make themselves more or less fit at the expense of those they advise and serve, but they seldom correct the evil legacy of a narrow and defective training. The training for an office or occupation in life should surely differ from the teaching of a subject to students at college. In the former case it is essential that the knowledge should be thoroughly practical, and based, as far as possible, on observation and practical experience. At least half of the time devoted to the preparation for any branch of social work should be given to practical work, and the qualifying examination should always thoroughly test this.

The health visitor works on human material, in a variety of environment; and yet, in the past, opportunities for this social study have been either scantily provided or ignored. A training which unduly narrows the outlook of such a social worker not only curtails efficiency, it also reduces interest; and she is not properly equipped if in her training course the subject of social study is not introduced suitably to meet her needs.

Different Functions of Health Visitor and Nurse.

I can see no justification for the tendency to unduly develop the training of a health visitor in nursing work; her duties have little to do with nursing, and least of all with hospital nursing under institutional conditions. The slight nursing training demanded of a health visitor can best be provided by a four to six months' training course as a probationer at a sick children's hospital; and some of these institutions have made arrangements for this training

¹ Lectures I. and II. were published in THE LANCET of May 11th (p. 663) and 18th (p. 696), 1918.

for candidates of 18 years and upwards. Failing this, the simple home nursing training she needs could most usefully be acquired from a fully trained and busy district nurse.

We shall all agree that satisfactory results can hardly be expected from one who serves as a health visitor after no other practical experience than that obtained from nursing in a general hospital. I would ask where in her training does such a person gain sufficient practical experience of the following most essential items of the health visitor's work: the hygiene of the expectant and nursing mother, the feeding of infants (breast and hand), domestic hygiene, and home circumstances of the poor? And will anyone maintain that she can be of much value in the special work of a health visitor without more of such practical experience and training? I am satisfied that the training of nurses is generally well designed to meet its object, which is to furnish competent nursing for sick children or adults; but this has but little relation to the actual work of a health visitor.

That a limited period of such training is useful I admit; for it develops observation, it trains in the detection and diagnosis of conditions that may demand medical or hospital treatment. My point is that such training, even when spread over a long period, can never be taken as equivalent to the special training which the health visitor needs for her special work. At least four months of such special training should always be demanded of a nurse before she is allowed even to sit at the examination for the health visitor's certificate; indeed, six months is a short enough period for all the practical work and special study that she stands in need of.

One of the health visitors at present working under my direction was in a large general hospital in London for five years (first as a probationer and later as a charge nurse), she then acted as a nurse for three years at a children's hospital; and she assures me that, even when she started her special training in "baby work" at the end of this experience she knew "practically nothing about infant feeding and had no experience whatever of domestic hygiene and home visitations." It seems to me essential that we should keep the different functions of the health visitor and the nurse before us if the work of infant and child welfare is not to suffer.

RESULTS OF UNSATISFACTORY TRAINING.

There is a tendency at some training centres to almost wholly submerge the subject of personal hygiene in physiological teaching; but while it is true that you can only justify and explain a certain amount of hygienic practice by physiological facts, the teaching of physiology often misses these applications and renders a very poor service to the teaching and training of the practical hygienist. The fact is the two subjects should always be coördinated; but if one is to be merged into the other it is certain that, in the practical politics of the non-medical public health worker, it is selected physiological facts which should be merged in hygiene. Only such a knowledge of physiology is demanded as is necessary to make hygiene intelligible; and, generally speaking, too much time is spent by this class of worker upon non-essential physiological matter.

As the result of much unsatisfactory training I have grown from my experience to regard the selection of a health visitor as much of the nature of a lottery; to attach little real value to much of the present training received; and to realise that the only way by which I can ensure really good services is by obtaining a specially trained individual who has already been engaged in official work for a year or two. I believe that the time is near at hand when a better training for this important work will be demanded. "Reconstruction" is in the air: and it is impossible to believe that imperfectly equipped provisions will continue to be sanctioned now that the value of infant life and the difficult work of preserving it are more widely appreciated; and now is the time to lay the foundation of a scheme which from its quantitative and qualitative provisions will ensure efficiency in this national work. Its difficulty can only be fully appreciated by those whose work has intimately touched the lives of the poor; and it is the difficulty in obtaining results that demands high-quality training of the workers.

Fortunately this branch of service has generally attracted a good type of well-educated woman worker, in whom a natural liking for the work is allied to a high level of zeal

and earnestness. With such a class of student a good standard of training is not difficult to attain to. Not only does the partly trained woman have to train under difficulties while actually engaged in her duties, and at the expense of the public she has to serve, but when once appointed she remains in office and often continues her calling without attaining to a satisfactory standard of efficiency. And so the work suffers, and with it the status and emolument of such workers; and good training provisions are discouraged.

SUGGESTIONS AS TO TRAINING OF HEALTH VISITORS.

Although I take the view that the appointment of those with no special training should cease at once, I realise that just now is scarcely the time seriously to increase the scope of the training of a body of workers who are urgently needed in considerable numbers; but it should not be long before it is possible to do this, and it is well that even now we should consider and determine a future policy in such an important matter.

The State needs the best work in the health interests of the child, and therefore the best possible candidate should be attracted to it. Good personality, enthusiasm, and tact, are essential; and she must be a woman of character, with a good secondary school education. If she is found to be deficient in any of these respects she has no business to become a health visitor; and if she does do so (as she will in many cases) her diary will *appear* to show a good record of work, while, as a matter of fact, her results will be very meagre. The public will reap the benefit of this greater and general efficiency, and they must pay the price for it. It cannot be provided unless there is always given a commencing remuneration of £100 a year, and unless training centres are encouraged to provide better practical training. The Local Government Board allows local supervising authorities to make grants towards the training of midwives, and the Board of Education may assist prospective school teachers. Why should not the training of health visitors at approved centres receive some such recognition and help at the hands of either local or central bodies? There is no class of work which has a better claim, or which stands in more need of bursaries and scholarships for promising and keenly-interested students. The sanitary inspector is almost invariably earning money during the whole course of his training; it is the exception for the health visitor to be doing this.

Course of Training.

A large number of young women who commence their studies for health visitors have received no training since they left school. It is obvious that such young women require a long course of training, and it is not unreasonable to demand an absolute minimum of 16 months (12 months at a special training centre and 4 months nursing in a children's hospital or with a district nurse). It cannot be too strongly emphasised that all the necessary technical training must be strong on the practical side and afford ample opportunities of acquiring a real acquaintanceship with the home setting in which all the future work is to be done. For the last six of the 12 months at a training centre the candidate should spend at least one-third of her time at a welfare centre, where practical experience of, and instruction in, maternal and child-welfare work is linked up with her other studies. During this period she will assist at the consultations, the baby weighings, and classes for mothers. will visit at the homes, and generally make herself acquainted with the various organisations and other provisions which touch maternal and child welfare. The candidate should be accompanied, guided, and instructed in many of her home visitations by a highly trained and experienced health visitor, and she should be admitted to a qualifying examination for a health visitor only when she is "signed up" for having personally undertaken a considerable amount of this practical work.

A social study course, attuned to the needs of the health visitor, should be provided at every training centre. This should be conducted by a special teacher; should embrace addresses by experienced social workers; and many "observations," to be followed by discussions, should be personally conducted by the teacher. The granting of a qualifying certificate on a written examination and a short oral one should cease; a practical examination is also required in all cases.

In addition to these 16 months of systematic training most candidates should be advised to devote further time to special training where this is possible, as there is a demand for health visitors who can also act in the capacity of: (a) sanitary inspectors; (b) local inspectors of midwives; or (c) who will devote a great part of their time to children suffering from measles, whooping-cough, or tuberculosis. Therefore an additional six months should be devoted by most candidates to midwifery training or to nursing training in either a fever hospital or tuberculosis sanatorium, or an additional three months to acquire the certificate of a female sanitary inspector.

Training Centres.

I would welcome the establishment of one model training centre, with its own and associated activities (child-welfare and maternity centres, hospital provisions, home visitations, &c.), *all affording the maximum of training facilities.* The whole aim of the scheme would be the fullest realisation of the best calculated provisions and methods, under the most skilled advice, for the training and examining of this most important group of public health workers. It would be a fitting national memorial to the fathers who have fallen in the Great War, and would serve as a model to which the many other training centres would turn for example and guidance.

In my opinion the following *small-scale* provision for *practical* work in connexion with any training centre would be very suitable:—

(a) A day nursery for healthy babies and children up to 5 years of age. Mothers should be encouraged to call and give their infants the breast when this is practicable.

(b) Two small wards for sick babies who are not sufficiently ill for hospital treatment.

(c) Out-patient clinics for expectant mothers, infants, and children. The requirements of training should be kept prominently in view in every department of this work. Even at the medical consultations candidates should be present (in rotation) to receive instruction.

(d) From this centre home visitations would be made.

At this work the ordinary student would spend much of her last six months and a certificated nurse or midwife at least four months, and preferably six.

As to midwives, by our efforts to prepare them to give suitable advice to the mother upon antenatal and infant hygiene we gain valuable assistance from a body of workers who make an exceptional appeal to the mother. It is from the midwife that over 50 per cent. of the mothers receive the very first advice and lesson in the feeding and care of the baby, for they come directly under her influence for several weeks before and for at least ten days after her confinement. These grave responsibilities can only be properly fulfilled by capable women adequately trained, and the recent revision of the rules of the Central Midwives Board with reference to training should favour a better knowledge in these matters. But the training of the midwife does not qualify her in all the branches of the work of a health visitor; it is designed solely to produce capable midwives. Take, for instance, the subject of infant hygiene (including infant feeding). Commonly the midwife only sees the baby for ten days, and what she is taught will generally suffice to tide over this short period, but in the case of the infant most of the difficulties of management arise later on, and she has not been trained to deal with these.

THE SANITARY INSPECTOR.

The official duties and work of a sanitary inspector are fundamentally different from those of a health visitor; and the latter's duties call more for personality and a knowledge of the social setting in which she has to make her essentially health missionary appeal. In the case of both groups of candidates a reasonable time-limit for training demands much concentration on essentials. Even then the work is difficult and wide enough for the sanitary inspector class of student, if a proper perspective is taken of its demands. It is a fact that can hardly be disputed that the present efforts at the training of sanitary inspectors are at once too comprehensive and too narrow; too comprehensive in that they embrace non-essential matter; too narrow, in that they do not provide a sufficient training in essentials.

The sanitary inspector mostly comes from the higher artisan classes; he is often earning a living in some branch of the work connected with building construction when he

begins his training for a sanitary inspector's certificate. Evening classes have therefore to be provided; and, unless a candidate can show (as he often can do) some previous knowledge and experience of one or more branches of the work with which the course deals, the training course of 6 to 9 months is too short; it should not be less than from 9 to 12 months, having regard to the fact that the student can devote little more than certain evenings a week to his studies and training. In this branch of training, as in others, we rarely reach the stage of building the edifice; we stop short at the accumulation of a certain amount of material—some necessary material is missing from the structure, and some is there which is not required.

Parts of Training that can be Reduced.

As to the matter in the present training course of the sanitary inspector that may be lightened, the important work of house-to-house inspection is seldom prosecuted to a sufficient extent in any district because the sanitary inspector has too many other calls upon his time. This work would be benefited by relieving him of what may be termed his epidemiological work and giving it to a female sanitary inspector, health visitor, or specially trained nurse. I would also relieve him from the study of matters which pertain to the specialist engineer. I refer to installations for sewage purification (excepting the principles and details of the small and simple provisions), of ventilation and warming (except in their strict application to the home and workroom). It is a serious reflection on his training that the sanitary inspector can often tell you more about the complicated schemes of mechanical (plenum and vacuum) ventilation designed for large buildings than of the practical expedients for ventilating a living-room or bedroom. There is no need for him to acquire the technicalities of the architect or of the specialist sewage, ventilating, or warming engineer. Again, his knowledge of sanitary law, that bugbear of the sanitary inspector, should be restricted to that which bears directly upon his work and duties. At present he is expected to go beyond this, into matters which only concern the medical officer of health and the clerk.

In the future the sanitary inspector will have more circumscribed duties than in the past, but a better standard of knowledge and training for these duties will be demanded. His work in connexion with notified disease will be undertaken by medical officers on the one hand and nurses or health visitors, as their outposts, on the other. The duties of the sanitary inspector should be practically confined to the sanitation of premises and their environment, and food work; and, in small areas, the work of disinfection.

Proposals in Regard to Increased Instruction.

These curtailments of study above suggested would make room for the increased instruction called for in other particulars. Let me refer to what are, in my judgment, the chief deficiencies of most, if not all, of the present training schemes for sanitary inspectors.

Elementary science training is essential to the comprehension of practical sanitary science; and, therefore, suitably equipped laboratories and museums are essential to training centres. Applied science is at present super-added upon too flimsy a foundation of pure science. In examinations it is often pitiable to witness efforts to explain the workings of simple sanitary apparatus and appliances, because of the candidate's lack of knowledge of some elementary facts of physics and chemistry. A knowledge of the scheme of Local Government and a better practical training in the making of sanitary surveys and reports are also necessary. The training is very weak on the practical side. The sanitary inspector should be competent to deal with any problem of sanitary construction, and should always possess a *real* and *intimate* knowledge of the nature and uses of the various building materials. Not only must he know how to make inspections, apply tests, and furnish reports, he must also be entirely competent to criticise, direct, and advise upon all details of reconstructional work. At present the recently certificated man who can do all this is the exception, not the rule.

But perhaps the weakness of his practical training stands out most markedly in the matter of food inspection. This is a very important branch of the work of a sanitary inspector; and some take a special course of instruction and obtain an extra certificate of proficiency in this subject. The need and existence of such an extra certificate is an admission of the

insufficient training in this respect, which the large majority of sanitary inspectors receive; indeed, their knowledge is very scant and only becomes really useful by subsequent official experience. It is not too much to ask that *every* certificated sanitary inspector should have received the instruction provided for this extra certificate.

The neglect of rural sanitation is another defect in the training. Judging from their training manuals and training courses, one would be led to the conclusion that every sanitary inspector is destined to practise in large urban areas, and so when he starts his work in a rural district he generally thinks and acts in terms of urban provisions; his work is in a novel setting which is almost foreign to him, and he is generally "impossible" for some time.

Need of Individual Training: Apprenticeship.

Often the sanitary inspector is an indifferently educated young man. Therefore the value of a training course which consists almost entirely of lectures (of little value except to the trained student or experienced individual) and demonstrations (supplemented by a few arranged visits), which leaves the student to drift along with text-books and information gained from his own unguided observation and inquiries, has serious limitations. Indeed, it cannot effect its aim, and it is owing to the defect of such courses that the student's knowledge is not sufficiently real. Such candidates need individual training, guidance, and assistance; they cannot be dealt with satisfactorily on the wholesale scale, and for this reason, as also because the practical training is so deficient, less formal tutorial instruction is desirable, and this means a serious limitation to the numbers in any class. This class of students, thus trained, would soon show better results, both at the examination and on taking up their duties. Private tuition often proceeds somewhat on these lines; and it is for that reason that it often is needed to supplement the usual methods of training-centres.

But apart from the limitations in value of a lecture, qua lecture, think of the amount of matter which has to be dealt with in the limited number of lectures provided! One finds, for instance, that such subjects as "infectious diseases" and "ventilation and warming," are each dealt with in the space of one hour. What can be the value of such a hurried and restricted survey to the uninitiated student; and what opportunities has the lecturer to supplement text-book statements from his own experience?

But what I regard as of prime importance in securing the better training of the sanitary inspector is that he should be required to serve a form of apprenticeship to an experienced sanitary inspector in office. A period of at least four months may suffice in some cases, and during the whole of this time he should be associated with the sanitary inspector in his work for a *minimum of six hours a week*. There should not be great difficulty in arranging for this. Few sanitary authorities would object to such facilities being offered for training future public servants, if the Local Government Board expressed its approval and sympathy with the scheme.

Women Sanitary Inspectors.

A few years ago women sanitary inspectors were added to the Public Health Service. Be it said at once that the training for a woman sanitary inspector in precisely the same field of knowledge as the male inspector is absurd and indefensible. The present training of women for a sanitary inspector's certificate had better cease altogether if it cannot be made a separate woman's certificate, with the training based on the special items of sanitary inspector's work which the female official is called upon to undertake. When she acts as a sanitary inspector her duties are restricted to the detection and reporting of nuisances in and about dwellings; the inspection of factories and workshops where women are employed; the inspection of registered houses let in lodgings; and the making of inquiries and of giving advice with reference to notifiable infectious disease.

What is the motive therefore in making her train and show an equal proficiency with the male inspector in such subjects as building construction and material, drainage reconstruction work, sewerage and sewage works, slaughter-house inspection, &c.? Why not rather aim to raise her knowledge to the highest pitch in the work she has to do, rather than prejudice her knowledge of this work by training her to a poor and diffuse knowledge of an unnecessarily wide field? I would especially elaborate her knowledge on

communicable disease and its prevention, and employ her on visits of inquiry and advice with reference to notified disease. Generally speaking, she is better at this work than the male sanitary inspector; and, moreover, the person who has to be interviewed at such visits is almost invariably another woman.

MUSEUMS OF HYGIENE.

A well-equipped museum is an essential provision for the training of the official public health worker, and yet we do not possess in this country a single museum of hygiene which is entirely worthy of the subject. Outstandingly the best is the Museum of the Royal Sanitary Institute; but that is incomplete in some respects. It is complete only in the apparatus of the sanitary engineer and inspector. But much of the subject-matter of personal, domestic, infant, and industrial hygiene lends itself to orderly and detailed presentation in a museum of hygiene; and this, more suitably developed, would be most helpful in the practical training of certain arms of the public health service. But, generally speaking, outside of London the collection of material for demonstration purposes is miserably inadequate (even at university centres) to the training needs of *any* branch of public health work. The hygiene museum, where there is one, is generally but a travesty of those provided for other subjects.

What is the reason for the wretched provision in this respect at most training centres? It is the old story of money-starvation—the denial that so impoverishes results in all branches of public health training. A well-equipped museum not only demands much thought and energy; there must also be maintained a reasonable expenditure of money. Generally speaking, our training centres of hygiene and public health appear to be regarded by Government, local sanitary authorities, and the public as institutions calling for no special recognition and support, instead of being looked upon as provisions for the practical training in a sphere of work which is a vital concern to the community.

STANDARDS OF TRAINING AND EXAMINATION.

It will be agreed that, both in respect to medical and non-medical public health officials, the lack of collaboration between the trainers and the examiners of the candidates is deplorable. Teachers will continue to rail at examiners, and examiners find fault with teachers, until they are more intimately connected up and mutually coöperate to ensure well-trained candidates, for it is essentially the standard of the examination that determines the standard of the training. The occasional discrepancy of the best student of a centre failing while the worst succeeds at an external examination, is mainly due to the circumstance that at some examination centres a candidate to whose training more months have been devoted than there are hours given to the examination may be referred after a rather haphazard examination, without any guidance from the training centre, and without any advice being given to the centre as to where the training has failed. Here, then, there is ample scope for an improvement which is vital to training; and I beg to offer the following suggestions to secure a better, fairer, and more rational scheme for examinations.

1. As to the constitution of the Examining Board, a preference should be given to specialists in their own subjects who are engaged at training centres.

2. In respect to every candidate from a recognised training centre who is about to present himself for examination, there should be forwarded from the centre a short record—more especially of his practical work, including his terminal examination marks; and an assessment mark of this record, not exceeding 33 per cent. of the total marks for a pass, should be put to the credit of such student.

3. A brief general report upon the result of the last examination should be furnished in respect to the candidates of each training centre, when circumstances warrant it or whenever an application is made.

As with the health visitors, so with the sanitary inspector, no test of qualification for their work can be regarded as satisfactory that does not embrace a practical examination in addition to the usual written and oral examinations. As in the case of candidates for Part 2 of the Examination for the D.P.H., the sanitary inspector candidate should be given some premises to inspect and report upon; indeed, such a test is even more appropriate to this examination than to that for a D.P.H.

I am satisfied that there is only one way by which the training courses and examinations to which I have referred in this lecture can all be brought to conform to a satisfactory standard, and that is for those central authorities at Whitehall who are interested in securing the most efficient service of public health officials, and who contribute toward the salaries paid to them, to lay down the scope of the training and examination that must be everywhere provided in order to secure their approval of any appointments made, and to see, by frequent inspections, that the standards they impose are maintained. They will then refuse to sanction and endow the appointment of any official who has not received a thorough practical training at an approved centre, and they would refuse to recognise such a make-shift and make-belief provision as the appointment of persons to perform important and difficult duties for which they are not suitably qualified; for at present not only may one who has received nothing but a nurses' or midwives' training sit for the examination for a health visitor's certificate without any further training, she may even be appointed to act as an official health visitor without having obtained a special certificate. Unless action is taken on the lines above suggested there seems to be little, if any, hope of future improvement.

CONCLUSION.

Mr. President, Ladies, and Gentlemen,—I have emphasised in these lectures the prime importance of the subject of the teaching and training in hygiene and public health, for the standard of such training determines the quality of the whole public health services. I have directed attention to the fact that our schemes for such teaching and training need revision, reconstruction, and standardisation. I have ventured to indicate where the training, directed to many special issues, is lacking, and to offer suggestions for improvement. As I have been confirmed in the criticisms and suggestions I have made by the opinion of a large number of prominent teachers and official workers in hygiene and public health, I venture to hope—and I do so most earnestly—that some at least of the suggestions may appeal to those who have it in their power to give practical effect to them. If this hope is realised, the Milroy Lectures for 1918 will have served a most useful purpose.

A CONTRIBUTION TO THE TECHNIQUE OF INFECTED WOUND CLOSURE,

MORE ESPECIALLY COMPOUND FRACTURES.

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Remarks by Colonel Sir ROBERT JONES, A.M.S.,
C.B., F.R.C.S. Eng., Edin., & Irel.

ONE of the greatest problems which the Army medical authorities are faced with is the provision of hospital beds for the large numbers of wounded men who are being continually transferred to England. This problem naturally varies with the severity of the fighting in France; and, if the present indications are to be relied on, the pressure is likely to increase.

Captain Gurd's article is therefore extremely opportune, as it emphasises a method of rapid and successful closure of wounds which otherwise might persist as sinuses for months. Not only does this method help in the early closure of wounds, but it facilitates the subsequent operations, such as nerve suture and tendon transplantation, which are rendered more simple and effective with the diminished scar formation. As can be realised, the diminution in the number of dressings allows of better fixation, and thus leads to better and quicker healing both of soft tissues and bone.

Introductory.

During an experience of over two years as surgical specialist with a casualty clearing station in France the writer has become familiar with, and consequently an advocate of, the methods of wound treatment instituted by Carrel and Rutherford Morison. The comparative ease with

which filth-impregnated and actively infected fresh wounds can be prepared at the C.C.S. for immediate primary or early secondary suture led the author, when transferred to a home hospital, into which the late results only of war wounds are admitted, to attempt modifications of wound excision and sterilisation upon wounds in which bacterial invasion had become well established.

In order that methods might be tested Colonel Sir Robert Jones placed at my disposal 30 beds and admitted cases exemplifying the various types of suppurating compound fractures which have hitherto proved difficult to control in the hospitals in this country. At his request this preliminary report upon the results obtained in this group of cases has been prepared. It is fully realised that a larger number of cases kept under observation for a longer period is necessary in order that the permanence of results may be properly estimated.

In this series of cases bacteriologic and other laboratory controls have not been possible. It is hoped that, in the near future, another series of cases will be treated and that we shall be in a position to carry out such examinations.

It is not my purpose in this note to discuss the relative value of the various operative techniques and antiseptics which have been employed in the treatment of war wounds, nor to attempt to analyse the chemical or immunologic processes involved in wound repair. It is my intention to outline a method of treatment which has, in my hands, proved of very considerable value, and to attempt to justify my opinion in this respect by an analysis of cases.

Description of Technique.

Infected compound fractures, as seen in the home hospitals, fall more or less naturally into three groups, depending upon degree and virulence of infection, resistance of individual, and length of time since injury. For indicating suitable therapeutic measures cases have been divided as follows:—

1. Acute suppurative cellulitis with slough formation.
2. Open granulating wounds communicating freely with exposed bone and discharging purulent material in moderate quantities.
3. More or less quiescent bone inflammation communicating with the surface by means of one or more sinuses.

I. Acute suppurative cellulitis.

The treatment has consisted in excision and cleansing of original wound, if not already accomplished. Adequate incision of inflamed area is made, tubes are introduced, and discontinuous instillation with Dakin's solution or eusol employed according to method introduced by Carrel.

Dressings are changed daily, or once in 48 or 72 hours, depending on amount of suppuration. In all more important wounds the first few dressings are best carried out with patient under anaesthetic, so that the tissues may be thoroughly examined and if necessary, further incisions made, pus pockets evacuated, necrotic material excised, and instillation tubes accurately placed in positions in which they will do most good. Less frequent dressings under an anaesthetic have proved more useful than dressings carried out in the ordinary way at shorter intervals.

So soon as necrotic fascia, muscle tissue, &c., have separated or have been excised and profuse suppuration more or less controlled, the treatment is changed. The surface of the wound and the surrounding skin is thoroughly cleansed with soap-and-water and bathed with spirit. The wound is then dried, an excess of bismuth iodoform paste (Morison) is placed over surface and into all pockets and bone cavities. Gauze gently wrung out of liquid paraffin, and containing in its centre a mass of B.I.P.P., is placed everywhere in contact with the tissues.

This is substantially the technique suggested by Morison with the addition of the paraffin-gauze pack. This was commenced with the view of inducing the bismuth iodoform mixture to insinuate itself into all interstices of the wound, and appears to have proved its usefulness.

Wounds so treated, even though they have been previously discharging freely, do not require dressing more often than once on 5 to 15 days. Pain in injured limb and marked constitutional evidence of infection indicate necessity of further interference. Even though there be moderate staining through the dressings, the wound need not be disturbed, as the dressings do not tend to become foul, nor do proliferating granulations tend to invade, or become adherent to, the paraffined gauze.

In several cases it has been found useful in phlegmonous wounds receiving Carrel-Dakin instillations to protect portions of wound less severely infected by means of a B.I.P.P. paraffin-gauze pack.

II. Wounds so treated have now been transferred into members of Group II. As soon as the infectious process has become localised, as evidenced by absence of surrounding zone of oedema and hyperæmia, an effort is made to approximate the tissues and skin edges, and so minimise the ultimate formation of new tissues with its accompanying sequelæ of adherent scars and nutritional disturbances.

This is done by insertion of mattress sutures of heavy silk (No. 12-16) smeared with B.I.P.P. and protected by small rubber tubes or buttons. These sutures are placed 2 to 4 cm. from edge of wound and drawn