than the other; it was also covered with a semitransparent layer of lymph, which extended over the parts in the immediate neighbourhood; there was no evidence of any of the contents of the intestinal canal having escaped through it. On opening the bowel, it was found to contain a quantity of soft substance where the transverse opening had been made, none of which had found its way between the edges of the wound. It is evident from the above observations, that the appearance and character of the wounds depend upon the direction in which they are made. When transverse, the longitudinal muscular fibres, being divided, retract, evert the edges, and pull upon the fibrous and mucous layers, and thus cause the fungous appearance already described, and fill the opening, and prevent any of the contents of the intestinal canal from passing through. When the wound is longitudinal—that is, parallel to the longitudinal muscular fibres—the transverse muscular fibres are divided, and, by their retraction, keep the edges in apposition, being partly inverted. And when the longitudinal and transverse muscular fibres are both divided, as they must be when the wound is in a diagonal direction, the edges retract and the wound gapes, allowing a free exit to the intestinal contents.

These remarks are only applicable to wounds of the intestines not exceeding half or three quarters of an inch in length.

2. *Distension of the Wounded Intestine.*—It is evident from the history of L. K.'s case, and that of the dog, that, although only partly filled with food undergoing digestion, the intestinal canal may retain a distended appearance before and after it is opened. The peristaltic action observed in the intestines consists of an alternate dilatation and contraction, as well as elongation and shortening of the successive portions of their coat. The dilatation and shortening are produced by the longitudinal, and the contraction and elongation by the circular muscular fibres; the two muscles are antagonistic in their action, and hence the explanation of the dilated or partially distended appearance after the intestinal canal is opened in the living subject. The partial strangulation of the protruding gut and its mesentery may possibly account for the excessive distension observed in L. K.'s case.

3. *The Mode of Stitching the Wounds of the Intestines.*—The method recommended by Mr. Erichsen, and which was adopted in the dog's case, may be objected to on the ground that it materially diminishes the calibre of the intestinal canal, in case of a longitudinal wound, by the folding in of the coat in bringing the serous surfaces into contact; and in case of a transverse wound, the gut is bent by the folding in of the wall on one side, and a transverse projecting ridge is formed in the interior of the knuckle thus formed; all these conditions would obviously render the patient liable to constipation, colic, and intestinal obstruction. The plan that commends itself most to my mind is the interrupted suture. The needle should be passed down through the whole thickness of the intestinal coat, about one-eighth of an inch from the edge on one side of the wound and up on the opposite side. The silk should be tied tolerably tight, so that the soft part included in it may ulcerate more readily, to allow the stitch to drop into the intestinal canal. By this method the wound is closed, the edges are kept in apposition without interfering with the calibre of the gut, and the sutures are removed in the course of a few days.

The continuous suture, and the ligature passed round so as to include the edges of the wound, are methods which, for obvious reasons, need only be mentioned to be condemned.

From the foregoing arguments it may be fairly concluded, that longitudinal and transverse wounds of the intestines not exceeding half or two-thirds of an inch in length need not be stitched, their edges being kept in apposition by the action of the muscular coats—nay, more, that stitching in these cases is a meddlesome interference with nature, which is capable of repairing the breach without the surgeon's aid; and that the only wound which requires stitching is that which is gaping, and is diagonal in direction to the transverse and longitudinal muscular fibres.

THE TRAINING, QUALIFICATIONS, AND DUTIES, OF NUISANCE-INSPECTORS.*

By DAVID DAVIES, M.R.C.S.,

Inspector of Health for Bristol.

No medical officer of health can be ubiquitous; nor can he by himself, however small the district under his superintendence, be thoroughly and always acquainted with the condition of every place in his district—a knowledge which is absolutely necessary for the due performance of the duties of his office. To be always possessed of this knowledge, he must

be assisted by a number of non-medical assistants, who are commonly called "nuisance-inspectors", with whom he should be in personal communication at least once daily. As the success of every health-officer must depend to a considerable extent on the character of his assistants, I will endeavour to describe in brief outline what that character should be, as it appears to me from personal experience.

A nuisance-inspector should be free from all organic disease. He should have passed through small-pox, or have been well vaccinated and also revaccinated, before he commences his duties. He ought also to have passed through scarlet fever, measles, and maculated typhus; and it would be an additional recommendation if he has suffered from a well-marked attack of enteric fever, as I find that one attack of even this disease is to a considerable extent protective from future attacks. He should be largely endued with good health and the natural courage arising from good digestive powers; and, above all, he must possess that "something", indescribable in language, and upon the possession of which we as Englishmen pride ourselves, which impels us under adverse circumstances to do our duty irrespectively of the probable result.

This may be considered a high standard for the mere raw material of a nuisance-inspector, and possibly too high to be found every day or in every place; but I can venture to state that the watch committees of our large towns have always within their knowledge many such characters, whom, however, they are loth and tardy to recommend for promotion, for the simple reason that they do not wish to lose their services as thief-catchers. I may here add that the only literary qualifications requisite, are ability to speak the vernacular language of the district with fluency, and to enter on their journals in intelligible language the most prominent points of their daily occupation.

Such a man having been found, and appointed to office, his special training commences. He must not think that the burden of his duties consists in making himself disagreeable to everybody; in racing after every stray pig or half-starved donkey that may have found (very inappropriately, I confess) lodging in our crowded cities; or that he is to waste his time in listening to the querulous statements of rich old maiden ladies who think they perceived "a smell", as on their way to church on Sunday they passed a street inhabited by poor people, who may have been at the time cooking their potatoes and herrings for a late breakfast. He must not be the handle by which one neighbour can revenge himself on another on account of some petty quarrel between the wives or the children. He must, if taken from the police-force, once and for ever forget that he was a thief-catcher; he must shut his eyes to all that in his former vocation would have roused his inmost spirit, and by so doing he will acquire the utmost confidence of the people among whom his duties chiefly lie; he must learn to believe that the sole object of his duties is to aid in prolonging the lives of the people, regardless of how those lives may be spent. I feel strongly that the duties of a police-officer are totally incompatible with those of a nuisance-inspector. I could substantiate my assertion by facts, but time forbids.

If taken from the police on the recommendation of the Watch Committee, the nuisance-inspector will have learned not to believe all he hears, and at the same time to treat with civility every person making a statement to him. But he must go further than this; as he is no longer a policeman, he should try to prove himself a friend to every one in his district. He should have a great deal of human nature in him; he should acquire the confidence and respect of the clergyman of the parish and of the dissenting ministers; he should be on terms of intimate friendship with the Scripture-reader and the city missionary (most valuable and productive sources of information); he ought to be acquainted with the relieving officers of his district; and, when opportunity offers, he should endeavour to acquire the confidence and good will of members of our own profession practising in his district. They have it in their power to aid him beyond all others when they have the good will to do so. He should make himself acquainted with the owners of all the small tenements in his district, and with their character. His eye should watch every doctor's carriage, every closed shutter, every funeral procession. In friendly conversation with the people, he should find out all that is going on; and in his daily interview with the medical officer, he should report all he has learned and take his advice on it.

He will find on his appointment that he is deficient in many points of special knowledge. He should acquire at least a smattering of natural philosophy. He should thoroughly understand the construction of a good eject or gas-trap; the management of a heat disinfecting apparatus; the nature and application of disinfectants. He ought also (as I think) to be acquainted with the rough outlines and the mode of propagation of the principal zymotics. I am afraid I am treading on tender ground here; but I cannot call any man a nuisance-inspector without this knowledge, as the chief and most dangerous nuisances are the zymotics. This knowledge is easily communicated where there is

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a medical officer of health. To illustrate the necessity of this, I may say that I have often, when cases of fever have prevailed in a quarter not accessible to me, or deaths from it have been ambiguously reported in old-world nosology, ascertained through the inspectors, to my own satisfaction, what the disease was—whether typhus or enteric fever; diphtheria or scarlet fever; small-pox, erysipelas, or measles; Asiatic cholera or diarrhoea; and upon such conclusions I have taken my measures. It would certainly interest the profession to learn how these trained detectives can tell the name of the culprit by the style of the mischief done, although they have never seen the patient. For instance, the duration of the disease, with the presence or absence of diarrhoea, with other points ascertained in quiet gossip with a neighbour, will enable them to distinguish between maculated typhus and enteric fever. The character of the locality, the absence of infection, the age of the patient, the duration of disease, with minor points easily ascertained, will often point to “tubercular meningitis” and not to “typhus”, which may appear as the cause of death on the return made to the Registrar-General. My measures have always been taken according to my own conviction on the reports of the inspectors when the case was not accessible to my own inspection, or reported to me by a member of the medical profession.

The inspectors should be well paid, so as to be able to live generously, and so become less liable to be affected by any of their unpleasant and dangerous duties. They should not be expected to do any menial work, but each should be allowed to have at his command two labourers for the immediate removal of minor nuisances not requiring constructive work, for whitewashing courts and alleys and for the application of disinfectants.

The district under the charge of each inspector should not be too extensive. The extent might vary according to the character of the locality. Where the population is poor and the district contains many courts and allies, a population of 20,000 would give ample work to an able man; for fashionable localities, with well-to-do residents, it might be extended indefinitely.

The nuisance-inspector should be thoroughly acquainted with all the sewers and drains, so as to be able to give advice for remedying any defect in the connecting drains. He should walk through the whole of his district daily; and twice a week at least, either through himself or the men at his command, inspect every privy in the courts and alleys easily accessible. These privies should be disinfected each time they are inspected.

Although not expected to do any menial work in a general way, he must be prepared, in case of a sudden outbreak of Asiatic cholera, to take disinfectants in his own hands; in the absence of his men, to visit the affected premises; and, under the guidance of the medical officer, not to leave them until every particle of the choleraic poison has been destroyed.

To sum up his duties, they are as follows:—To see that there is no escape of sewer-gas in any part of his district; to see that the surface of the ground surrounding houses is hard and impermeable to water; to see that there is no unnecessary accumulation of dirt in any place within his district; to find out and report every case of infectious disease to the medical officer; to take his instructions on every case and see them carried out; to give instructions and to superintend the men at his command for doing menial work; to enter on his journal daily a summary of every day's work.

I have not dwelt on the large amount of unnecessary trouble given to the nuisance-inspectors by timid old ladies and sometimes timid old gentlemen who have in their walks passed a garden with some rotten cabbages in it, or have seen a dead cat or dog where such should not have been found, or have smelt a little ammonia from their neighbour's stable. These complaints being of an æsthetic rather than of a sanitary import, I have paid but little attention to them.

There are also other duties imposed on nuisance-inspectors by their employers—such as finding out the addresses of parties to be summoned and serving notices on them, inspecting the watering of the streets and the scavenging, checking the water used for street-watering, etc.; but with these duties I have had nothing to do. Such duties should not be too numerous; and, in my opinion, it would be better to employ a special officer for some of these, so as to leave the nuisance-inspectors free to perform only sanitary work.

I have thus attempted to sketch out in faint outline what a nuisance-inspector ought to be. With men more or less like the pattern I have drawn, it has been my good fortune to work for six years. Without them, I could have done but little. They are my *antenna*, by whom I can probe the most hidden arcana of a large city. Many of the measures recommended by and attributed to me were originally suggested by them.

In concluding, I may say that on one or two occasions, under the panic of a threatening epidemic, other bodies and private associations

have sent out amateur inspectors. These, with the zeal of new recruits, have reported imaginary nuisances by hundreds, and have so done much more harm than good by calling away the trained men to confute their reports. There have been some exceptions to this; but, on the whole, amateur nuisance-inspecting is like some other amateur work—very indifferent in character, and often injurious. The duties of a nuisance-inspector are to an able man simple enough, but they must be learned.

Nuisance-inspectors are indispensable assistants to health-officers—qualified members of our profession—but still only assistants. Unless guided, supported, and assisted, by the experience and influence of medical officers who can command the respect of the public, they will fall easy victims to the thousand and one theories of self-made sanitarians who abound among the unoccupied and affluent residents of our large cities, who have been the victims and supporters of all the mischief-producing theories which, like a blight, have blown over scientific medicine.

In conclusion, let me tender a sincere apology for the meagre and imperfect character of this paper, which was written only at the earnest, and, I may say, importunate, entreaty of our respected chairman, who is one of the most devoted votaries of Hygieia.

ANOMALOUS SYMPTOMS IN A CASE OF MORPHIA-POISONING.

By JOHN SPENCER FERRIS, M.B.Lond., etc., Uxbridge.

DR. GUY, in his book on *Forensic Medicine*, after stating that the symptoms of morphia-poisoning are those of opium and its preparations, relates two or three anomalous cases in which tetanic spasms were prominent symptoms, and throws out a suggestion that the three grains of acetate of morphia that Palmer gave Cook were the real cause of the latter's death, and not strychnia, as was generally supposed. On this ground, and on the similarity of the symptoms to those of strychnia-poisoning, I think the following case important.

Sarah V., aged 60, cook, who was just recovering from a severe attack of bronchitis, took at 2 P.M., March 19th, twenty-five drops of a solution of muriate of morphia for a bad cough and diarrhoea. She was then left alone; but at 4 P.M. she rang the bell. The nurse went up and found her lying on her bed bathed in perspiration; the face was swollen, and the eyeballs protruding; both sides of her mouth were twitching; the arms were bent, and moved backwards and forwards convulsively. In a moment the movements ceased, and she complained of great pain in the chest, and could not take a long breath. She said she could not see anybody or anything. After a time, the convulsive movements in the arms and face returned. She had great pain in the back and partial opisthotonos, with delirium, and fainted several times, so that she was thought to be dead. A large quantity of warm water was given her, and she was very sick at 5.30 P.M. I saw her at 6 P.M. I found her complaining of great pain in the chest, principally in the middle of the sternum; the breathing was short and quick, and she sighed often; she also had pain in the bowels. Her legs were twitched up, and she begged that they might be held as she could not keep them quiet, and said it felt as if there were worms in them. She had also pain and twittings all down her spine. The pupils were very much contracted, not being so large as a pin's head, and she saw red and black spots floating before the eyes. The pulse was about 60. She had no disposition to sleep; the cough had entirely ceased since taking the morphia, though incessant before. All the pains and convulsions then left her, and she was quite easy for two or three minutes, when they returned again; the nurse told me that, ever since she was taken, there had been distinct intervals between the paroxysms. The patient afterwards told me that she first felt the effects about half-an-hour after taking the morphia; that the first symptom was violent pain in the chest and inability to take a deep breath, and then pain in the bowels; and that she never had any disposition to sleep, and she could always open and shut her mouth freely, and therefore had nothing like locked jaw. I gave her sal volatile, brandy and water, and strong tea, which she swallowed without difficulty. Warmth was also applied to the bowels and chest. The convulsive movements and pains gradually left her; and when I quitted her house at 9 P.M., she was only complaining of slight sickness and pain in the head. She could not see distinctly, though the pupils were still much more contracted than usual. The twenty-five drops of morphia were dropped out of a four-ounce bottle, labelled “Solution of Muriate of Morphia, ten to sixty drops per dose,” obtained from a chemist in Reading, so that I cannot exactly tell the strength, more especially as these were almost the last drops in the bottle, and very probably there was some undissolved alkaloid in them. How is it a chemist, now that the Phar-