bably be regarded as the multiple inguinal adenopathy, always present when infection of the system is about to take place) before commencing a course of mercurial treatment; and, in the second place, it should make us more guarded in prognosticating constitutional infection in cases of hard chancre, and certain immunity from all secondary symptoms in undoubted cases of soft sore.

THE TRIALS AND DIFFICULTIES OF A HEALTH-OFFICER.*

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

Inspector of Health for Bristol.

THE appointment of health-officers being of recent date, and not yet of universal adoption by the great centres of population, a few words on the difficulties and trials peculiar to such officers seem to be desirable, especially at the present time, when we are promised better legislation on the subject, which, however, from session to session is deferred—our legislators having hitherto found other matters to be of more importance than the health of the people. Without further preamble, I will enumerate those difficulties as they have cropped up in my own experience.

1. *The want of Early Information of the Occurrence of Infectious Disease in a Family or Neighbourhood.*—At present this information is only at the command of a health-officer through the unpaid courtesy of his professional friends, or by keeping up a continual system of espionage over other people—a system which is never pleasant, and one that often proves unsuccessful until much mischief has been done by the spread of disease.

2. *The Confused State of our Sanitary Laws, many valuable Enactments being Permissive and not Compulsory.*—As an instance of the complete manner in which our laws have failed to point out the different authorities for doing certain imperative sanitary work, take the building of hospitals for the isolation of persons suffering from infectious diseases. Under the Sanitary Act of 1866, boards of health may build such hospitals. Are these for the admission of paupers or not? or must paupers be provided for by the respective unions? Hence arise letter-writing and disputes between nuisance-authorities and boards of guardians, whilst small-pox or other fatal diseases may be spreading far and wide; each party considering its chief duty to be that of keeping down the rates. These permissive clauses have produced such bad results that I know at the present time a large union containing a very large workhouse without a single ward for the isolation of a case of infectious disease either in the workhouse or out of it; and I knew until very lately a large and important city without any such ward.

3. *The Separation between the Registration of Deaths and the Sanitary Authorities.*—The latter cannot get early intimation of death from the local registrars without paying such sums as the latter may please to charge for the information. I find no fault with the registrars, as with them it is a mere matter of business; but it is evident that the system is wrong, and that the deaths registered should as soon as possible be submitted to the scrutiny of the health-officer.

4. *The Division of Nuisance-Authorities, and the want of a Central Power to make them act in unison.*—I will here narrate a remarkable instance of this. From the county of Somerset a brook, which was within the memory of man a clear trout-stream, runs through a part of Bristol. A nuisance has been created by a glue-factory in the county, so as to render this brook a veritable Styx. It contained black mud saturated with animal matter, which in many places was a yard deep, and which, seething under the summer sun, gave out thousands of cubic feet of poisonous gases. The nuisance was made by A in the county. It then ran into the brook which formed the boundary between the lands of B and C, who had no hand in creating the nuisance. It then ran through a populous district under the jurisdiction of the Bristol Board of Health. The Board of Health called upon the guardians of the poor for that part of the county to abate the nuisance. In compliance with this the guardians, after taking the best legal advice, required B and C to cleanse the brook in the county and remove the nuisance. B and C, who were certainly innocent parties, pleaded non-liability. The county magistrates, after hearing the case argued by eminent counsel for some hours, made an order on B and C, because the nuisance was found on their land. B and C complied. Within the district of the Board of Health, D was in the same position as B and C in the county. The Board of Health summoned D before the Bristol magistrates, who dismissed the case, stating that D, being an

innocent party, was not liable, but that the Board of Health must find out the originator of the nuisance, who lived out of the jurisdiction of the Bristol magistrates, and had certainly no right to enter the land of D to remove the nuisance. Thus we have one law in the county of Somerset and another in Bristol; and the brook is now becoming as great a nuisance as ever. Which legal authority is right, is not for me to determine; either side is made to appear plausible in the hands of counsel. I could adduce other instances of want of unison from divided authority and the consequent failure of health-authorities.

5. *The Non-Adoption by our Profession of an Uniform Nosology.*—Hence the returns of deaths (occasionally even when made by able men) would puzzle wiser heads than mine. Some of our *confrères* will insist on calling a bad case of enteric fever "typhus", and a mild case of typhus goes by the name of "typhoid", or either may be disguised under the milder name of "gastric fever". Others enter as fever on the death-returns every case which has terminated with febrile symptoms and coma, although the cause of all the symptoms may have been disease of the kidney or some other important organ. Others of our body have peculiar views of the identity of common sore-throat, scarlet fever, and diphtheria. During the year, a health-officer, if he adopt a modern and specific nosology, must be often hurt by the returns of the Registrar-General, by which he will be informed that typhus, or perhaps cholera, has visited his district, although he is morally certain that neither has done so. But enough of this; let us hope that when we have one portal for our profession these differences will disappear.

6. *The importance attributed by the Public to the mere Figures of the Registrar-General, without regard to Locality, Causes of Death, or the Ages of the Dead.*—One district may be celebrated as a residence for invalids on account of its bracing air. Lethal atmospheric influences, such as prevailed in the spring of 1870, may sweep over this locality, and, by capillary bronchitis, destroy the old and the feeble in large numbers. During the same year that pest of our race, which heeds no sanitary conditions at our command—scarlet fever—may, like a destroying angel, gather the finest of our blossoms. Or a locality may be so celebrated for its hospitals and the medical and surgical attendance procured there, as to attract to it such a large number of persons suffering from fatal diseases and injuries, as, in conjunction with the workhouses, to raise the deaths in public institutions to 14 or 15 per cent. of the total. The public look only at the totals of the Registrar-General, and shake them in one's face, like Shylock his bond. When an adverse combination, due only to atmospheric influences, or an uncontrollable epidemic happens, the public will have their say about it. Newspaper editors write learned articles on the subject, which, as a rule, are very wide of the mark. Every one that can wield a pen writes to the local papers pointing out the cause of it all. Even sometimes an old-fashioned member of the medical profession will join the hue and cry, and for ever condemn all that is local. The health-officer is everywhere greeted with anxious and dubious inquiries. The public evidently think somebody ought to be hanged; and he is the most likely victim. He walks about like a "thing of shame", supported only by his *mens conscia recti*. He knows the lives he has saved; the public know how many they have lost. No one appreciates more highly the intellect brought to bear by the Registrar-General on the figures in his possession than myself. Had that high authority been furnished with further information regarding distant localities, and if he could by any process of elimination distinguish the deaths which are truly local, I respectfully conclude that many of his valuable quarterly reports would differ widely from the past—that some localities reputed healthy would sink to the bottom of the list, and others now reputed as unhealthy would correspondingly rise; that many of our country districts which send their sick to die in the large towns would change places with the latter. But the management of figures where there are so many modifying factors is a herculean task.

7. *The Death of many Infants under One Year Old is one of the greatest troubles of a Health-Officer in Large Towns.*—The majority of these deaths arise from causes over which a health-officer has no control, which are moral rather than physical in their origin. In all large towns there is the production of offspring by individuals who have no moral right to the privilege. They have not the physical means to support them, nor have they the desire to perform the duties of parents to them after they are born. They are viewed by many as unwelcome interlopers on their sensual enjoyments; and, I am afraid, that occasionally grim and undeserved poverty destroys the paternal and maternal instinct. Many die from sheer neglect and want of breast-milk or other appropriate food; others die from exposure, without proper clothing, to our variable climate; but a vast number die from want of medical advice and good nursing when suffering from diseases incidental to childhood, such as measles and whooping-cough. When either of these diseases sweeps over a poor locality in the cold spring

* Read before the Public Medicine Section at the Annual Meeting of the British Medical Association in Plymouth, August 1871.

months the number of these little victims is appalling. No means at the command of a health-authority can alter these figures. "More want they the divine than the physician." A more extensive acquaintance with the facts of political economy, a more acute appreciation of moral responsibilities, and a greater power of self-restraint, among the lower stratum of our population, can alone remove this opprobrium of our large towns. The figures tell against the locality in which the deaths occur, but they are no index of the general sanitary condition of the place.

Many other points I could mention which occasion grief and pain to health-officers, but over which they have not the slightest control, and for which they are not in the least degree responsible.

I hope these few remarks will induce others of greater experience than myself to describe their own difficulties, so that we may learn something from one another's trials, and possibly point out to the legislature how it may best help us.

SUGGESTIONS FOR THE EMPLOYMENT OF NITRITE OF AMYL IN THE COLLAPSE AND CRAMPS OF CHOLERA.

By TALFOURD JONES, M.B.Lond, University Medical Scholar,
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THE existence of cholera on the Continent, and the presence of sporadic cases in this country, induce me to offer some suggestions respecting the employment of a new remedy in this terrible disease. This new remedy is the nitrite of amyl; and my reasons for advocating its use in the collapse and cramps of cholera will perhaps best be set forth by the enunciation of the following propositions.

1. That the collapse of cholera is the result of an impediment to the circulation of blood through the lungs, and that this impediment is due to the contraction of the muscular fibres of the minute pulmonary arteries.
2. That the cramps of cholera are due to a like spasm or contraction of voluntary and involuntary muscular fibre in other parts of the body.
3. That nitrate of amyl possesses the property, when taken into the system, of causing relaxation of muscular spasm and arterial dilatation.
4. That in many features there is a considerable resemblance between cholera collapse and asthmatic collapse.
5. That nitrite of amyl is a remedy capable of giving instant relief in asthmatic collapse.

I will begin by offering some remarks as to the soundness of the first two propositions.

The exceedingly careful *post mortem* examinations of Dr. Parkes* show that in cholera collapse the lungs are found shrunken, light, dry, and pale; the left ventricle of the heart is contracted and nearly empty; its right cavities, the trunk of the pulmonary artery, and the systemic veins, are distended with blood, and the mucous membrane of the intestine pale. "That there is," he observes, "some impediment or arrest of the circulation in the capillary system generally, and in the pulmonary capillaries in particular, appears almost certain."

This impeded pulmonary circulation is indicated, during life, by the comparative emptiness of the systemic arteries—the pulse being small and feeble, or even entirely absent, at the wrist—and by the fulness of the systemic veins and the lividity of the surface.

What is the cause of this impediment to the pulmonary circulation? Dr. George Johnson, in his recent paper read before the British Medical Association in Plymouth, says it is due to contraction of the minute pulmonary arteries; that a similar arrest of the circulation occurs as a result of acute apnoea; and that embolism of the pulmonary artery has in several recorded instances given rise to the most characteristic symptoms of cholera collapse—such as blueness of the surface, shrinking of the features, pulselessness, coldness of the tongue and breath, urgent dyspnoea, with loud puerile respiration over the lungs, and a feeble whispering voice. The recently published lecture of Sir Thos. Watson will go far to strengthen Dr. Johnson's theory, which, he says, is founded on a true analogy, and is consistent with the symptoms noticed during life and with the conditions discovered after death. We may, therefore, legitimately regard it, until fairly refuted, as a sound as well as a most ingenious and important theory. In truth, it derives strong confirmation from the fact that it unlocks, like a right key, the whole of the pathological intricacies of the disease.

The very painful muscular cramps in cholera are ascribed by Dr. Johnson to the action of the choleraic poison on the muscles; and he supposes that the contraction of the minute pulmonary arteries is due to a like cramped state of the muscular fibres of these vessels, which also he refers to the specific poison of cholera.

The injection of hot fluids into the veins of patients in a state of collapse has been often followed by good effects. Dr. Johnson holds that they act chiefly by relaxing through their warmth the spasm of the smaller arteries. The blood then flows on again, and the symptoms of collapse are for a time removed. There are many other facts that might be advanced in support of this theory; but it is sufficient for my present purpose to point out, as I have in the preceding recapitulation, the more important ones bearing on the pathology of the collapse.

Assuming, now, that the pathological causes of collapse and cramps are such as I have enunciated (and I firmly believe them to be right), what, then, is the physiological antidote to the poison which gives rise to such muscular contractility?

In my third proposition I say that nitrite of amyl, when taken into the system, causes relaxation of muscular fibre, and induces dilatation of the smaller arteries. In support of this statement it will be necessary to say a few words about the action of this remedy; and this is all the more needed, since I find from inquiry that the nitrite of amyl is most inadequately known; that its employment in medicine has hitherto been most limited; and that very little has been written about its action in disease. As an instance of this it may be stated that, since the publication in the BRITISH MEDICAL JOURNAL of February 26th, 1870, of the two cases treated by amyl, and communicated to the Clinical Society on the 11th February, 1870, by Dr. Lauder Brunton and Dr. Anstie, nothing has appeared in the columns of the JOURNAL on the action of this remedy.

Nitrite of amyl, $C^{10}H^{11}O, NO_3$, is an amber-coloured fluid, smelling like the essence of ripe pears. The experiments of Dr. Richardson show that it causes paralysis of the chain of organic nerves which supplies the contractile power of the blood-vessels; and that, applied to the olfactory filaments by inhalation, the impression is conveyed along the ganglionic nervous tract, and causes more or less paralysis of the vaso-motor nerves, and induces muscular and arterial relaxation.

Though it produces its characteristic effects directly upon the walls of small arteries, yet it is highly probable that it also acts upon most, if not upon all, unstriated muscular fibre.

I have now employed it in many cases of disease, and have likewise given it experimentally to some fifty friends, and have found that its administration invariably causes increased frequency of cardiac pulsation, dilatation of the arterioles, flushing of the face, warmth of body, and perspiration. It may be administered by inhalation, by the mouth, or by subcutaneous injection. It is beyond the scope of this paper to dwell further on this interesting remedy, or give details about its varied uses, mode of administration, etc. Those of my readers who may wish to learn something more about it will find in the next number (the October number) of the *Practitioner* a paper by me on the subject.

I have stated that in many features there is a considerable resemblance between the collapse of cholera and that of asthma. Thus the dusky or leaden hue of the surface, the coldness, the clammy perspiration, the feeble pulse, and the general signs of an impeded pulmonary circulation, are in both much alike. Dr. Johnson has noted this similarity, and says that the main difference between choleraic and asthmatic collapse consists in this—that in asthma there are a primary apnoea the result of bronchial spasm, and a secondary asphyxia or pulselessness consequent on contraction of the minute pulmonary arteries. On the other hand, in cholera there are a primary asphyxia, and a secondary apnoea consequent on the arrest of circulation.

That nitrite of amyl is a remedy capable, as I have stated in my fifth and last proposition, of giving instant relief in asthmatic collapse, will be seen from the following case, in which its employment was followed by the most striking results.

At twelve o'clock on the night of October 23rd, 1870, a woman begged I would instantly go and see her daughter, who, she said, was in a dying state. On entering her bed-room, I saw the patient, a young married woman, half undressed, sitting on the corner of the bed, and holding on to the bed-post. There was a dusky, leaden hue about her face, neck, chest, and hands, and a cold, damp sweat clung to her. Her body generally was cold, but her feet and legs were of an icy coldness. Her pulse could scarcely be felt. She was making violent efforts to breathe, and each inspiration was accompanied with marked recession of the supra-lavicular and the intercostal spaces. Loud sibilant *râles*, with sonorous rhonchus, could be heard over the greater part of the chest. She tried to speak, but could only make faint gasps. The thought instantly occurred to me, that the nitrite of amyl, which, it should be mentioned, I had procured only a short while before, might be of use. I

* *Researches into the Pathology and Treatment of Asiatic Cholera.* By E. A. Parkes, M.D.Lond. 1847.

† Lecture on the Diffusion, Pathology, and Treatment of Asiatic Cholera. By Sir Thomas Watson, Bart., M.D. (BRITISH MEDICAL JOURNAL, Aug. 5th, 1871.)