I do not propose bestowing much attention on the column showing the number of persons receiving relief in proportion to the whole population of the district, because the figures were obtained from the return for one year only. Still they are valuable, as showing the enormous disproportion of poor persons in one district, as compared with another. Had time allowed, I would have worked out the returns for the ten years 1861-70; but I began my paper only a short time since, on finding that the sanitary statistics of the metropolis would not otherwise be considered at this meeting. I propose, however, using the figures to eliminate from column No. 1 in the table just considered all those districts in which the proportion of persons receiving relief was about 1 out of each 23 inhabitants. We thus obtain six districts in which concur the three most favourable conditions—viz., least crowding, the largest percentage of servants, and the smallest proportion of persons receiving Poor-law relief. These districts are, Hampstead, with a death-rate of 15.2; Lewisham, 16.2; Wandsworth, with 19.5; Kensington, 19.5; Islington, 20.5; and Camberwell, 21.4. These give the exceedingly low mean death-rate of 18.7 per 1,000 inhabitants during the ten years 1861-70; whilst the mean rate for all London during the same period, excluding, as before stated, all the deaths in hospitals, was 22.8 per 1,000. I think, from this examination, we may fairly conclude that the death-rate of a place is not alone to be taken as the index of its sanitary condition; but that, before drawing definite conclusions adverse to a locality from the death-returns only, we ought to examine the conditions under which its inhabitants are placed as regards the possession of comforts and the amount of overcrowding. I shall very briefly allude to other circumstances which increase the death-rate of a place. It may be said that these results are well known; but, as the following occurs in the speech of a leading member of the Metropolitan Board of Works published a few days since, they cannot have obtained general circulation amongst the public. The extracts are as follows. "The average death-rates were annually, for London, 23.7; Leeds, 27.6; Glasgow, 31.1; Manchester, 30.9; and Liverpool, 29.3. These facts were sufficient to show the denizens of the metropolis the great superiority of the sanitary condition of London, which had been mainly brought about by the Metropolitan Board of Works." We here have a paragraph asserting the drainage system to have been the chief cause of the low death-rates of the metropolis; whereas sanitary improvements in the houses of the poor, a general rise in wages and the consequent possession of greater comforts, fewer hours of labour, and, it may be, better oversight of young children by the mothers, have undoubtedly assisted the main drainage in producing any improvement which has taken place in the mortality of the metropolis. I do not by any means undervalue the power of properly directed sanitary measures in reducing mortality; but I assert that at present we are not able to state statistically their precise value; and that, by overstating the case in favour of sanitary efforts, we run a very great risk of having an adverse reaction in the public mind at some future period.

The last column which I propose discussing is that which shows the proportion of births to deaths. The figures are corrected for deaths in hospitals only, as it was not possible to obtain the number of births in workhouses, so as to eliminate them from the returns of the districts to which they do not belong. As, however, the deaths in the workhouses are included in the districts where the births are registered, no material change is made relatively in the numbers. As the figures do not indicate the absolute number of births, but the ratio of births to deaths, we shall find that the largest birth-rates belong to districts with the lowest death-rates, and *vice versa*. The greatest proportion was registered in Lewisham, where there were 197 births to each 100 deaths in the ten years 1861-70; whilst in Whitechapel there were only 124. The total for the five highest is 892, and for the five lowest 776, against 500 deaths. This is very satisfactory, and furnishes additional proof of the good sanitary condition of the metropolis. Indeed, if I were asked for any one statistical evidence as to the good or bad sanitary state of a large district, I should select either the rate of births to deaths, or the proportion of children under one year old who die, as compared with the number born. It is true that in districts such as St. George's, Hanover Square, where servants form more than 10 per cent. of the population, the birth-rate cannot be so high as in Bethnal Green, where they are less than 2 per cent., because the proportion of married to unmarried must be very much greater in the latter; but then I should expect to find the larger proportion of deaths of children under one year old in Bethnal Green. This excess of births in certain districts, in proportion to the population, must affect the death-rate, as a very large percentage of the deaths at all ages occur under one year old; so that the greater the number of children under one year, the larger the death-rate will be, except in districts where the parents can give the greatest attention to the newly born. The five districts in which the largest birth-

rates in proportion to deaths were registered, include four in which the death-rates were low; and the exception, Bethnal Green, furnishes precisely an example of the kind mentioned, where poverty induces neglect of very young children. There can be no doubt that the excessive death-rate of Glasgow, Leeds, Manchester, and other large manufacturing towns, depends to a very considerable extent on the waste of infant life, from the mothers going out to work, and leaving their offspring at home. Good sanitary supervision will reduce a death-rate arising from the artificial conditions under which residents of large cities live, but it cannot lessen a death-rate arising from carelessness or neglect.

NOTES ON THE ACTION OF MEDICINES, OLD AND NEW.

By JOHN KENT SPENDER, M.D. Lond.,

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[Continued from BRITISH MEDICAL JOURNAL, June 15th, 1872.]

I CONTINUE my clinical notes on the Action of Medicines, drawing my illustrations and comments from the events of everyday practice, and relating the seeming effects of medicines without conscious bias or partiality. It is certain that a great amount of valuable material is lost to the profession, owing to the want of leisure which hinders general practitioners from recording their experience; nor are the failures of medicine less instructive than its successes. It is part of the imperfection of human science and art to fail; but it is necessary to distinguish that sort of failure which comes from our own ignorance, and that which arises from the natural shortcomings of the instruments which we use. It is sad to think that the latter is often made an apology for the former.

The concluding paragraph of my former paper referred to the nearly continuous use of *Bromide of Potassium* for a long time in the treatment of epilepsy. Dr. Sydney Ringer recommends that the medicine should be suspended at times for a few weeks; otherwise the system becomes accustomed to its presence, and it loses its power over the disease. But it is doubtful whether this be quite wise. It is more safe to discontinue the medicine for one week now and then, or to let the patient have only a single dose daily for two or three weeks; and with this reasonable precaution, the bromide scarcely ever ceases to hold its sway. Nor has it been my misfortune to see any of the so-called toxic effects of the long administration of the salt, save possibly a transient erythema or acne. In most cases, it may be given in liberal doses (one to two scruples) three or four times a day; and a very brilliant characteristic of the drug is, that these quantities often produce an immediate lessening or mitigation of the epileptic paroxysms. It must be confessed, however, that this favourable change is now and then of short duration, and the disease asserts its old supremacy, incapable of being checked by any medicine whatever.

It is an interesting matter for inquiry, why bromide of potassium should have been so long in winning its way with the profession; so that, more than ten years after its introduction as a remedy for epilepsy, it still required the earnest recommendation of our leading therapeutists to secure the general use of the medicine. Contrast this with the rapture which greeted the discovery of chloral, and its eager application to all sorts of even contrary maladies. The probable reason is not far to seek. Bromide of potassium was long known to us as a great deal more than a mere chemical curiosity; but its therapeutic virtues were so ill-defined, that no one seemed to know what to do with it; and uncertainty about a medicine is almost worse than suspicion and distrust. Hence, when an attempt was made to fix its value, scepticism was long in yielding to knowledge, and its use was for a long time quite random and wild. The doses in which it was administered were utterly insufficient to produce positive results; and the repute of a medicine suffers greatly when it is prescribed in inadequate doses. But chloral sprang into the world fully armed (thanks to the previous physiological experiments of the discoverer), and we knew almost directly the full extent of its powers.

I am not going to illustrate further the almost exhausted subject of chloral. This medicine has unfairly been made to eclipse the merits of several old and trusted medicines; bromide of potassium among the number. A solicitor engaged in a large and troublesome practice could get no sleep, even when he entirely abandoned work and travelled about the country for pleasure. Opium was inadmissible for many reasons; chloral was most disappointing and uncertain; and now the bromide salt stepped in and produced exactly what was needed—continuous and refreshing sleep. Less collateral disturbance is commonly produced by this drug than by chloral. I may here refer to an interesting paper by Dr. Begbie in the *Edinburgh Medical Journal* (December, 1866), in

which the value of the bromide is exemplified, not only for those "distressing nervous affections" which are the "offspring of overtaxed brain," but for the "paroxysms of acute mania and delirium tremens," and also for some forms of diabetes.

I have been working lately with a combination of chloral and bromide of potassium, and with results sufficiently remarkable to justify a few comments. Seven or eight grains of chloral, added to about twenty-five grains of bromide of potassium, make a very successful hypnotic draught; the efficacy of the latter medicine is increased in a ratio much greater than its mere quantity. The early stages of some mental disorders are admirably treated by the same medicines; a moderate dose being given in the morning and afternoon, and a double or treble dose at bed-time whenever there is a tendency to wakefulness. Among the brain-derangements which ought to be combated in this way is melancholia, and, perhaps, the very first signs of excitement in a person who has once had sun-stroke (or "heat-apoplexy"), or who has suffered from acute mania. I can speak from my own experience of the good which may be thus effected for a patient who has a single delusion which distorts and depresses the intellectual powers. Thus, the wife of a tradesman has a strong impression that she will one day suffer a violent death, but the apprehension is almost entirely removed by her taking for a month a nightly dose of bromide of potassium (twenty-five grains) and chloral (eight grains).

Chlorate of Potash is a medicine about which disappointingly little is found in therapeutic text-books. Is this because so much marvel clings to it, and because it is asserted to be able to do such widely different things? Thus, it is said to cure ovarian diseases (*Edin. Med. Journal*, November, 1865); and no medicine was more firmly trusted in the treatment of some varieties of phthisis. Now, let us see what we can lawfully attempt with chlorate of potash. In the first place, few medicines have suffered so much in repute by being given in inadequate doses. The paltry quantities of three or four grains are often given to adults, when doses amounting to thirty to forty grains would not be excessive. In America, strong saturated solutions of the salt are administered in the treatment of phthisis; an ounce or more is dissolved in boiling water, which, when cool, is drunk from a jug by the patient *ad libitum*. The late Dr. Symonds had a high opinion of this plan. It is certain that by this means persons in the ultimate stage of exhaustion and emaciation may be made to live on in a seemingly unaccountable way, though, of course, there can be no repair of lost or damaged tissue. I have tested the treatment in several bad cases, and, even when it fails to do anything else, it almost always completely controls severe diarrhoea. But patients who are only in the second stage of pulmonary consumption may sometimes be made much better by the bold use of chlorate of potash: and the aphthous mouth, which is one of the chief troubles of this disease, is commonly relieved in a very rapid way by simple doses of the salt in solution every three or four hours.

For the ulcerative stomatitis of children, much larger quantities of this medicine should be given than are usually done.

On the other hand, the fabulous properties once accorded to chlorate of potash are no longer believed. It was assumed to be a "carrier of oxygen" (whatever this meant) to deoxygenated textures; and it was supposed to have special tonic virtues in many asthenic diseases. It is conventionally combined with cinchona bark and acids, but it may be doubted whether additional efficacy is conveyed thereby; and it is wise not to claim for a medicine more than can be rigidly proved.

Chlorate of potash is very useful in a case like the following, drawn from nature. A young man, a member of a consumptive family, suddenly suffered (from no very distinct cause) an enlargement of the tonsils, and of the cervical and submaxillary glands; the face was swollen, as if from venous pressure; the brain-functions were confused; there was very little fever, and no striking anæmia. Very speedy benefit came from the administration of the chlorate of potash in a dose of half a drachm twice a day; no other drug was given, except an occasional aperient, and nothing was applied externally but dry wadding.

An impartial review of the therapeutic history of this valuable medicine would show that much positive knowledge has been gained of it since the writings of Dr. Pereira, who thought that it would prove to be considerably over-rated. It only remains to say that the chlorate may sometimes be used in solution, as an external application, by means of pledgets of cotton-wool; though I think it is quite inferior, as a disinfectant, to chlorinated soda.

Ergot is a drug around which much interest has lately clustered. It is a decided poison, and toxic quantities of it produce "nausea, vomiting, colic, diarrhoea, giddiness, headache, and dilatation of the pupil," with "great retardation and weakness of the pulse." The fresh hot infusion is the best form of administration when quick effects on the muscular system are desired; the liquid extract of the British Pharmacopœia is otherwise very convenient and effective. There are many sceptics, even

now, about the action of ergot on the uterus; but, if a demonstration be needed of its rapid and decisive influence, let a very strong dose of the recent infusion be given to a parturient woman, in whom the uterus has failed in its action for an hour, the presentation and other circumstances being normal. The contractions of the uterus nearly always begin again in a continuous and almost tetanoid manner, and there is even a danger of the child being born half-asphyxiated, or perhaps dead. It is better (so it seems to me) to recognise distinctly this peril to the child, than to try to make ourselves believe that we can administer ergot to a woman in labour with reckless impunity.

I am not going to weary my readers with a discussion of all the diseases and disorders for which ergot is said to be a paramount remedy. I will enumerate three conditions in which I have prescribed it with more or less success, and which deserve particular attention. (a) I have given ergot in some cases of neuralgia, according to the advice of Dr. Woakes, of Luton;* but, though I have had particularly good results, I have not been able to remove pain entirely by the use of ergot alone. (b) I can endorse all the favourable views of ergot in the treatment of hæmoptysis, as related by Dr. Dobell and Dr. Anstie.† I have used the medicine for this purpose during several years past, having been originally led to do so by a consideration of its therapeutic analogies. It does not yet seem to be clearly defined whether there is any stage of phthisis, even the most advanced, which is absolutely beyond the control of ergot, when spitting of blood occurs. Of the exceeding value of the medicine in these cases (though it now and then unaccountably fails), there can be no doubt whatever; and, as the facts are very little known, attention cannot be too often called to them. (c) The action of ergot on the uterus is a proverb; why should it not affect in a similar way a neighbouring organ—the bladder? I have found that that quasi-paralytic condition of the bladder, which may come on in middle-aged persons from over-fatigue or from simple want of power in the coats of the organ, is greatly relieved by the continuous use of ergot, and may be altogether removed.‡ The so-called hysterical paralysis of the bladder in young women is admirably treated with the same medicine (though I cannot deny the occasional necessity for the use of the catheter). Whether this want of power be simply motor weakness, or secondary to some variety of abdominal neuralgia, there is no more splendid combination of medicines than ergot and strychnia (half a drachm of the fluid extract of ergot and five or six minims of the *liquor strychniæ*, Ph. B., in chloroform water, three times a day); and these doses should be continued perseveringly for several weeks, as a very rapid benefit cannot be expected.

I venture now to lay before my readers a few illustrations of the ancient doctrine of *counter-irritation*—a doctrine which I believe to be wise and wholesome, and to be resolutely defended by all orthodox doctors. Even if it had been shown, beyond all cavil, to be an antiquarian relic of unphilosophical days, this is no reason for abandoning it, if we find it good for our patients, by preventing and quelling disease. And, if we can establish trustworthy landmarks in the use of the practice, we shall resort to it with the confidence which springs from exact knowledge. There is no room here to give any general theory of counter-irritation; but I may direct attention to Dr. Laycock's views,§ and insist on the importance of remembering that, by means of counter-irritants, we desire to alter the *condition of nerve-centres*, and so to influence motor, sensory, and trophic nerves.

Briefly, then (a), *counter-irritation may relieve pain*. Place a long narrow blister over the roots of the painful spinal nerves in a case of herpes zoster, and an excruciating neuralgia will be greatly relieved by this means alone. Most of us may have had some experience of the blister treatment of acute rheumatism; and even those who are least favourably impressed by its powers, will probably acknowledge its occasional good effects. (b) *Counter-irritation often relieves chronic inflammation*. Hence the unquestionable utility of "flying blisters" to the temples for some forms of chronic ophthalmia; and nothing is so beneficial for the chronic synovitis of so-called strumous subjects. In the latter case, the blister should be applied above (or on the cardiac side of) the affected joint; and there may be a distinct benefit in keeping a blistered surface "open" for some days at a time. (c) *Counter-irritation may remove obscure cerebral symptoms*. Many long-standing brain troubles, such as vertigo, congestion, and the like, are alleviated by a

* Mr. Woakes' theory is this. Some cases of neuralgia are supposed to depend upon an effusion of liquor sanguinis from the artery in the track of which the symptoms appear. The effused fluid compresses the nerve-fibrillæ, and it is the office of the ergot to restore the suspended vaso-motor function, the interruption to which had allowed the effusion to occur.

† Dr. Anstie's papers, in recent numbers of the *Practitioner*, should be consulted.

‡ See some remarks by Dr. Meadows on this point in the *Practitioner*, September 1868.

§ *Medical Times and Gazette*, June and August, 1871.

seton or an issue; and this not by reason of the discharge from a particular spot, and still less from the draining away of any supposed peccant humour, but by virtue of a dynamic impression on the central nerve-ganglia. (a) *Some very sudden inflammations of the brain and of the viscera of the chest are admirably treated by rapid blisters.* The old-fashioned acute cerebritis now and then seen should be combated in this way (the head, of course, having been previously shaven); and nothing affords such relief to the fearful dyspnoea of acute capillary bronchitis. The life of even a very young child, who may be attacked by this urgent disease, may be saved by the bold application of a cantharides blister. I am persuaded that there is much unnecessary terror about the use of blisters in the case of children—a terror which is increased, rather than quelled, by the authority of some text-books; but on this point I say no more at present, as I propose, shortly, to write some independent remarks in favour of the practice. Finally (c), *counterirritation deserves a trial in some forms of chronic consumption.* This is one of the traditions of what we term old-fashioned days, which ought to be highly commended. Damage to lung-tissue and all its consequences may be alleviated by blisters to different parts of the chest; and trustworthy observers have testified that the morbid process is sometimes arrested, if not altogether stayed. I am glad to add my own experience in this matter; for nothing, I think, can be better than the results which are now and then obtained by limited counterirritation of chest-surface in the earlier stages of pulmonary tubercle. In my next paper I hope to offer some statistics on this important topic.

[To be continued.]

INFECTIOUS DISEASES AND SANITARY LAW REFORM.

By JOHN LASCELLES, Esq., Barrister-at-law.

THE recent outbreak of typhoid fever in Mayfair and Marylebone has again forced upon public attention the desirability of legislation for preventing the spread of infectious diseases. It is now admitted that the outbreak in question was caused by infected milk, which had been obtained from a farm where one or two persons had lately suffered from a form of typhoid fever which had been prevalent in the neighbourhood. The Mayfair and Marylebone case is by no means exceptional. We know that several outbreaks of typhoid fever have, within the last two or three years, been traced to infected milk-supplies. One of these took place at Leeds early in the present year, and the infection was clearly traced to a farm near Harewood, from which the families affected obtained their daily supplies of milk; and at which the Corporation Officer of Health found six persons suffering from fever in a room on the ground floor, which opened into a kitchen from which there was a door into the dairy. He also discovered that the same woman acted as dairy-maid and as nurse to the fever-patients. Diseases have been thus often traced to infected milk-supplies, because outbreaks so caused are usually of sufficient importance to lead to public investigation. There can be no doubt, however, that large numbers of isolated families are desolated by infectious diseases which are conveyed to them by means of infected clothing, food, etc.; and that, as such outbreaks are not general, the public hear nothing about them. We are sometimes startled by stories of poor journeymen tailors who have used cloth, which had given them to make into overcoats, as temporary blankets wherewith to cover their wives and children who were suffering from fever or small-pox. We have been told of infected bakers who were employed in the manufacture of the bread which, perhaps, conveyed the seeds of death into some of our houses the next morning. These stories may or may not be true; but we cannot shut our eyes to the fact that infectious diseases, with all their terrible consequences, are conveyed into our homes by some means or other, and that, as our sanitary laws now stand, we have no means of knowing whether our milk, our clothing, or our bread will or will not, on any particular day, bring suffering and death into our households; we leave the matter to chance. Certain statistical tables, gloomy records of our apathy and folly, periodically remind us that infectious diseases destroy as many of our people every year as would be destroyed in a bloody and disastrous battle. These dry statistical tables speak to us, and we must not dare to pretend that we do not understand what they say. They tell us of desolate and poverty-stricken families; of fatherless children and widows; they awaken echoes in our hearts of distant sounds of suffering and lamentation and woe in thousands of English homes.

Now we know that much of the suffering and death caused by infectious diseases is preventable, and that it would be prevented if we could make up our minds to submit to suitable and necessary legisla-

tion. At intervals during the last three years, I have advocated a reform in our sanitary laws which would, I think, reduce our danger from such diseases to a minimum. The principle of my scheme has been approved of by men who were well able to judge of its merits. I first devised and drew it when acting with my friend Dr. Arthur Ransome as a subcommittee of the Manchester and Salford Sanitary Association. It was afterwards carefully considered, and was approved of by the Committee of that Association; and the Joint Committee on State Medicine and the Report of the Royal Sanitary Commission of the British Medical and Social Science Associations also considered it, and printed it in the appendix to their report. Nothing less, however, than a healthy and intelligent public opinion in favour of the scheme can enable its supporters to put it into the practical shape of a section in a future Sanitary Law Consolidation and Amendment Act. I think it well, therefore, to take advantage of the interest which has been recently awakened in the subject to which it relates, to submit it to more extensive criticism than heretofore, in order that what is valuable in it may gain additional supporters, and what is useless may be finally dismissed to the limbo of impracticable ideas and suggestions.

I have stated above that our safety from infectious diseases is now left to chance, but, I think, no one will seriously argue that this state of things should be allowed to continue. If we can protect ourselves and our families by taking a little trouble and forethought, it will readily be admitted that it is our duty to take the trouble and forethought required for that purpose. I am far from being an advocate of what is called over-governing the country, or of undue interference with individual liberty of action. Infectious diseases are, however, a source of danger to all persons in their vicinity; and the public have an undoubted right to insist that such precautions shall be taken by persons in charge of those who are suffering from them, as are necessary to reduce this danger to themselves to a minimum; and, this being so, they clearly have a right to take means to satisfy themselves that such precautions are duly taken in all cases. I will not support these propositions by arguments, for they will be admitted by even the most persistent advocates of the *laissez-faire* principle of government. Premising, therefore, that every part of England and Wales is now within the jurisdiction of some one local sanitary authority, I will proceed to submit the following proposals for legislation which, if properly acted upon, will, I think, give the people the protection they require.

In order that they may be clearly understood, I will state them as dryly and concisely as possible. All cases of fever, or any other infectious disease, shall be speedily brought under the notice of the sanitary authorities having jurisdiction over the areas in which they occur. In order that this may be done, medical men attending such cases shall be bound to give immediate notice thereof to such local sanitary authorities. They shall also be bound to declare their infectious character to the persons in charge of the houses in which they occur, so that some immediate precautions may be taken to prevent them from spreading. When no medical man is in attendance, the persons in charge shall themselves give the required notice to the local sanitary authorities. Every local sanitary authority receiving such a notice, shall immediately send printed directions as to the disinfection of clothing, etc., and as to precautions which should be taken to prevent the spread of infectious diseases, to the person in charge of the house where the infectious disease is. These directions shall include various methods of disinfection, some of which shall be capable of being adopted by persons in the humblest circumstances; they shall be drawn up and printed under the supervision of the medical officers of the Local Government Board; and each local sanitary authority shall keep a stock of them ready for immediate use. At intervals of not more than ten days, counting from the receipt of these directions, the person in charge shall send to the local sanitary authority the certificate of a properly qualified medical man that the directions have been duly acted upon. And he shall continue to do this until he send to such authority the certificate of a properly qualified medical man that no person in the house under his charge is ill of fever or any other infectious disease, and that those parts of it requiring disinfection, together with the bedding and clothing used by and about the person who was sick, have been thoroughly cleansed and disinfected. Medical men wilfully neglecting to give notice and to declare as mentioned above; medical men or other persons giving false certificates; and persons in charge of houses, having cases of fever or other infectious disease in them, wilfully neglecting to give the required notice when no medical man is in attendance, or to act upon the printed directions sent them, shall be liable to be fined. Moreover, the persons last mentioned, on being guilty of any of the defaults, or failing to send the periodical certificates referred to above, shall also be liable to have their houses entered by the officers of the local sanitary authorities, who shall have power to do the disinfecting required, to remove the infected persons to a hospital, and to charge the cost of such pro-