

left leg. An injection of three grains gave complete relief in about seven minutes.

On the 4th of July the last ligature came away, and on the same evening, and once again two days afterwards, the left leg became cold and numb, feeling, as the patient expressed it, "quite dead;" but there was no obstruction of the arterial circulation through it. Just before the spasms began to be severe, micturition was imperfectly performed, the urine being expelled painfully and in sudden jets. From the 7th till the 12th the injections were required from seven to nine times in the course of twenty-four hours, their frequency being ruled by the permanence of their effect. There was no complete trismus after the 4th, although opisthotonos continued gradually to return in from two to four hours after each injection, by the puncture of which it was always momentarily increased. On the 13th there was a decided remission in the severity of all the symptoms, accompanied by slight delirium, and a rather tympanitic condition of the abdomen. On the 14th the tympanitis was very distressing, the opisthotonos being slight; but the abdominal symptoms gradually subsided after the repeated use of turpentine enemata. The doses of extract, which had been much lessened from the 13th, were on the 19th altogether discontinued; and from this date the patient made such uninterrupted progress that on the 24th he was able to be out of bed, feeling very weak and shaky, it is true, but quite free from all tetanic symptoms, and with the stump, which had cicatrised very slowly, and from which a small exfoliation from the tibia had been extracted, completely healed over. A day or two before the occurrence of the tympanitis a number of small wen-like abscesses appeared over the chest and left arm, where the injections had been most frequently made, but they speedily healed up after having been evacuated by puncture. Besides the Calabar bean no other drug was employed, the patient's strength being maintained by a good nourishing diet, for which there was a tolerable appetite after the action of the bean had been fairly established.

It can scarcely be doubted that this was a case of tetanus, of no very mild type. The onset of the symptoms, eighteen days after amputation, was somewhat sudden, and, occurring several days after removal of the anterior flap, when the stump appeared to be healing kindly, it was certainly unexpected. The cause of the disease was probably connected with the delay in the separation of the ligatures, as well as with the irritation which results from the change occurring in the condition of the muscular and nervous tissues during the process of cicatrisation. In the *American Journal* for last October a case is reported in which tetanus occurred three weeks after a double amputation, when the stump had quite healed up, except at the point at which the ligatures came out, the symptoms, after two days' duration, abating on removal of the ligatures. In the present case, the three ligatures came away respectively on the twenty-sixth, twenty-eighth, and thirty-third days after the operation; and though a decided remission of the symptoms took place within a week after removal of the last one, it might be rather too much to say that it was consequent upon it, as by that time the process of cicatrisation was completed.

The antagonistic effect of the remedy upon the well-marked trismus and opisthotonos was immediate and complete. The arched back, painfully tense abdomen, quivering limbs, and anxious countenance, were generally relieved in from five to ten minutes after each injection, by comfortable decubitus, a feeling of drowsy ease, and during the night by short snatches of sleep. The frequency of the injections, as well as their strength, was so regulated by careful attention as to keep the spasms thoroughly under control. For this purpose repetition of the injections was necessary, sometimes every two hours, at other times not oftener than once in six hours. During the whole of the time the patient was under the influence of the bean the pupils were very much contracted, the skin was bathed in perspiration, and daily free evacuations were obtained from the bowels. The effect of one or two of the larger doses, administered when the symptoms were not so severe, was to produce nausea and vomiting, involuntary purgation, and a feeling of great depression, with fibrillary spasms of the muscles, especially those of the face, marked slowing of the pulse, and most profuse perspiration. The injections were made over both arms and shoulders, and over the chest,

abdomen, and left thigh, but in the latter situation their effect did not seem to be either so well marked or so rapidly produced.

The total quantity of extract used between the 18th of June and the 19th of July was a few grains over ten drachms, the preparation ordered being that made according to the British Pharmacopœia. As the doses required were sufficiently large to justify doubts as to the purity of the extract used, specimens were obtained from three different firms, whose names ought to be a guarantee that their preparations were as genuine as the present irregular commercial supply of the bean will allow.

That a few small abscesses should result from over 140 punctures was scarcely surprising, although the solution injected was made slightly alkaline by the addition of bicarbonate of potash, and was in that condition found to be less irritating than when merely neutralised by carbonate of soda.

From the results obtained in this case it may not be too much to infer that in tetanus the administration of Calabar bean should not in any case be limited to effect mitigation of the symptoms, but should be perseveringly continued in doses gradually increasing in frequency as well as in magnitude, until either the tetanic spasms are completely overcome, or the physiological effects of the drug are manifested to a dangerous degree. Once having obtained complete relaxation, it seems far from improbable that, in a large proportion of cases, careful, free repetition of the doses on the return of the least appearance of spasm, may enable us to maintain complete control over the symptoms, until their cause becomes much enfeebled or is altogether removed.

Note.—Since the foregoing notes were written, the patient, from the breaking of one of his crutches, fell heavily on his stump, bruising it very much, and cutting it transversely through the whole breadth of the cicatrix, so that the end of the tibia was exposed. Owing to the great extent of cicatrised surface, the process of reunion proceeded very slowly, and was further delayed by the exfoliation of a small piece from the end of the exposed bone. Three weeks after the accident, he was enabled to leave the hospital for the country, and there is now but a small extent of surface unhealed, whilst his general health, as evidenced by his physical appearance, seems better than it has ever been.*

General Infirmary, Chester, September, 1869.

THE ASSERTED SUPERIORITY OF NEW HOSPITALS.

By J. MATTHEWS DUNCAN, M.D.

It is now alleged that newness is a quality so essential to a good infirmary that, in future, hospital buildings should be in the form of cottages, so cheaply constructed that they may be periodically destroyed, or built of such materials as iron plating, that they may be taken down periodically and reconstructed in a new locality, and thus kept always new. Rebuilding becomes necessary for any hospital when its materials become wasted from age and wear and tear, or its arrangements become antiquated. This is the case, at present, of the Royal Infirmary of Edinburgh. It is not to this kind of rebuilding that we are told to look for permanent newness and sanitary improvement. It is to a frequent demolition and rebuilding in a new locality, "every few years."†

This is a change in hospital arrangements so enormous, leading to so great expense, involving such great difficulties,

* I have quite recently (December) had further experience of the value of the above treatment in the case of a hemiplegic woman of sixty, who was gradually sinking from the effects of extensive scorching of the arms and body. The occurrence of trismus interfering with deglutition, and arresting the cough and profuse expectoration incident to a severe attack of bronchitis, rendered suffocation imminent. The injection of three grains of the extract, at intervals in the course of an hour, enabled the mouth to be so freely opened that the administration of the remedy was continued per orem until the unavoidable termination occurred. The state of euthanasia by which it was preceded was to the attendants not less than to the patient a source of unspeakable relief when contrasted with the previous semi-asphyxiated condition in which each painfully-drawn gasp was expected—almost hoped—to be the last.

† Edinburgh Medical Journal, March, 1869, p. 817.

that no wise man would propose it without reasons at once great, good, and cogent. We propose to examine the reasons assigned, and to inquire into the history of hospitals to find out if that offers any evidence for or against the belief that there is greater salubrity in a new hospital than in an old one.

First of all, we must point out that the very proposal contains within itself evidence of weakness; for it is plain that such an inconvenient and expensive process as demolition and rebuilding, every few years, could never be proposed to a rational body of managers, unless the cottages every few years become insalubrious and dangerous to their inmates. The proposal, therefore, involves the very remarkable and weighty admission that cottages will become insalubrious and injurious every few years; so much so, that nothing short of destruction of them will amend matters. This is a cruelly self-destructive admission; and it comes from a defender of the cottage system. Yet, after all, there may be some virtue in newness; and we proceed to inquire if it is demonstrated. The demolition and rebuilding is to produce newness. Let us examine the arguments on which this portentous plan is founded.

"When," says Sir James Simpson, "the two largest hospitals in Scotland—viz., the infirmaries of Edinburgh and Glasgow—were opened in the last century, the buildings of which they then consisted were new and fresh, and comparatively small. In the Edinburgh Infirmary, out of the first 99 cases in which the limbs were amputated, 8 of the patients died, or 1 in 12. Out of the first 30 amputations of the limbs in the Glasgow Infirmary, 1 patient only died."* He then goes on to point out that these results far excel those that are now produced.

This statement contains, so far as I know, the only evidence adduced in favour of the quality of newness of an hospital. It is short enough for the gigantic conclusion built upon it; but though short it may be found to be pithy. We must examine it.

No authority or reference is given whereby the source of the statements might be discovered and their scrutiny facilitated. I therefore went to the chief official of the infirmary of Edinburgh, Mr. McDougall—the best authority, also, as to our infirmary documents. He at once told me that the early documents of the infirmary were, for statistical purposes, utterly valueless, on account of their incompleteness; that, so far as he knew, they had never been searched for amputation statistics; that a search, if made, would yield nothing of any value; and that the first statistics of the hospital on which reliance could be placed were with much difficulty made out by Dr. John Reid, who, it is well known, flourished long after the beginning of the infirmary.

This condition of the source of the Edinburgh evidence in favour of newness might render further consideration of it quite supererogatory. Nevertheless we proceed to notice another peculiarity of it—namely, the smallness of the figures. When a high number is not obtainable, one may be glad to have 99 (Edinburgh) and 30 (Glasgow). But in the present instance, the number that might be taken is limited only by the duration of the quality of newness—a period of time which is nowhere described. We therefore cannot explain the mystery of 99 and 30; nor can we dream of any explanation why 99 is the number selected for Edinburgh and 30 for Glasgow. Still another curious peculiarity lies in the numbers 99 and 30. Why were they chosen? Why not 50, or 100, or 150, or 200? These unexplained circumstances lead us to believe that the choice has been made with art, not with wisdom. But whatever may have been the method or principle of selection, anyone can see that the figures are too small for any conclusion of value in the present question, especially when the smallness of the mortality is held in view; and that the doctrine of chances will account for far greater successes than are here recorded, without any resort to the quality of newness as an explanation.

We now examine the 30 of Glasgow Infirmary. These are derived from Lawrie's paper on the Results of Amputations.† I know little as to the value of the documents whence these data were derived. But their completeness may be guessed at if we remember that they go back to 1794, and if we notice what Lawrie said of them: "Many," says he, "of the journals have been lost, and others are very carelessly

kept." The 30 amputations were "for disease," and they ranged over a period of seventeen years. Is an hospital seventeen years old still a new hospital? If it be not, what is the value of this 30?

The next point to be noted in regard to Lawrie's 30 amputations with 1 death is that Lawrie ascribed the success, not to newness of the hospital, but to the early performance of the operations. I give his own words. "The error," says he, "we at present commit is delaying amputation after every rational hope of cure has fled, merely because the patient is not obviously dying. The consequence has been the reduction of the success of amputations from 1 in 30 to 1 in less than 3 by one calculation, and from 1 in 9 to 1 in $3\frac{1}{2}$ by another." In another place Lawrie adds: "It is, however, but justice to ourselves to state that the more dissipated habits and lowered condition of our patients, added to the increased size of our hospital and the crowded state of its wards, must have considerable influence in diminishing the success of our operations." So far is Lawrie from thinking evil of the old Glasgow Infirmary, that he is careful to point out that, though the amputations were less successful, the number of cases of disease cured was as great in the old as in the new hospital. After stating that in the old times amputation was had recourse to in cases in which its mere proposal would in later times be scouted, he says: "Of the whole number amputated in the early period, 1 in 9 died; in the later, 1 in $3\frac{1}{2}$. Cured, including amputations, in the early period, 40, or 1 in $1\frac{3}{4}$; in the later, 43, or 1 in $1\frac{3}{4}$ very nearly. Cured without amputation, in the early period, 13, or 1 in 5.4; later period, 31, or 1 in 2.6. From which it appears that the number of cures in the two periods is nearly precisely the same, but that in the early period it is effected principally by the amputating knife, in the later by treatment." Who can doubt that, in this respect, Lawrie thought the later excelled the earlier period? Who that looks with single eye for truth will fail to see that the 30 early amputations with 1 death prove nothing, till a variety of possible interfering conditions, such as Lawrie indicates, are shown not to have produced the seemingly favourable result.

To prove, by statistics, the value of the quality of newness, it is necessary to observe the greater success of new hospitals generally, or in a preponderating number of instances; and, further, to prove that like success is not attained apart from newness—is not obtained in old hospitals. Now, unfortunately for the argument in favour of newness, it is easy to show success in old hospitals equal to, if not greater than, 1 in 12, or 1 in 30; if the data of comparison do not rise above 99 or 30. For instance, Mr. Callender* states the occurrence of 78 consecutive cases of amputation of the upper extremities, without a single death, in his large London hospital, above a hundred years old. Still more unfortunately for Sir J. Simpson's argument for newness, he has himself utterly destroyed and refuted it, probably in forgetfulness of having ever stated it. Nothing else can account for this example of "hoist with his own petard." Encountering Mr. Holmes's just incredulity as to the value of his statistics, he writes a passage in laboured self-defence,† which will repay the student's perusal as a good *reductio ad absurdum* of his own previous argument in favour of newness. I quote only a short part, adapted to my immediate purpose: "Now," says he, "at St. Bartholomew's Hospital in London, in 1855, 17 males suffered amputation, and all recovered. During the same year, in 25 amputations, 12 of which were thigh cases, there was only one death. In 1861 there were 24 consecutive amputations with only 1 fatal case. In this way, in that metropolitan hospital, during these periods, out of 49 limb amputations only 2 died, or about 1 in 25." Thus the hospital above one hundred years old had a smaller mortality than the Edinburgh Infirmary when new.

But it would be a waste of time to pursue this subject further. The argument for newness is, so far as it has been given, destitute of force or ingenuity. When we consider the immense issues based upon it, we might characterise it justly in terms which we shall not use. To propose, on such grounds as we have above considered, that hospitals should be pulled down every few years, and rebuilt, is at least premature, perhaps also ludicrous.

As should be well known, Dr. Thomas Keith has recently

* Edinburgh Medical Journal, March, 1869, p. 817.

† Medical Gazette, 1841, p. 394.

* St. Bartholomew's Hospital Reports, vol. v.

† THE LANCET, Oct. 2nd, 1869, p. 476.

had twenty-six consecutive cases of ovariectomy, with only one death. The operations were almost all done in some chambers that have been for many years used as a private hospital. What would be thought of the wisdom of anyone suggesting that Dr. Keith's unparalleled success at the time referred to should be held as indicating that a comparatively old hospital is best, and that all other hospitals should be made like his? Yet such proposal would have better grounds than any Sir James Simpson gives for his, for Dr. Keith's success has never been equalled.

If the kind of reasoning which Sir James Simpson adopts be admissible, then the facts, which he has himself adduced, show that an hospital should be one hundred years old before it is regarded as salubrious!

We now turn to a few hospitals to inquire what they have to tell as to the influence of newness; and I take maternities, the kind of hospital with which I am most familiar. Such hospitals are, I believe, better adapted than any other for the study of questions such as that now before us. No doubt even in them there are difficulties arising from the varying quantities in different hospitals of primiparity, of difficulty in labour, of women under the depressing influence of seduction and of other conditions; but at the same time labour is a distinct unity with well-known laws, and this cannot be said of amputations, with all their varieties of situation, of kind, and their subdivisions into primary and secondary, and others. I can give only a few examples of the influence of newness in maternities.

The Lariboisière is the newest large Parisian hospital. "All the world," says M. Depaul, "knows the excellent situation of this magnificent hospital; the wards are vast and well ventilated. The number of deliveries is inconsiderable; and, nevertheless, the cases of death by puerperal fever are proportionally very numerous." Everything is in its favour. Yet the deaths are, proportionally to other old Parisian hospitals, very numerous. The earliest statistics of it which I can procure, and probably of its very first years, show a mortality among the lying-in, from puerperal fever alone, of 1 in 24 in 1854, 1 in 22 in 1855, and 1 in 26 in 1856.

St. Louis is an old Parisian hospital. The mortality from puerperal fever in it was, from 1852 to 1856, 1 in 416. Puerperal fever alone is not an altogether satisfactory test of an hospital's salubrity; but, so far as it goes, it shows that the old hospital far surpasses the new one.

The Edinburgh Royal Maternity Hospital was, in 1856, removed from Minto House to its present location. I have never heard that it has been otherwise than remarkable for insalubrity.

Lastly, we turn to the grand example of the Dublin Lying-in Hospital. It has existed for more than a hundred years. It is a large hospital, the largest in the British Empire. Its total mortality has been 1 in 72. One of the most powerful attacks made upon the present hospital system is really a criticism of this hospital's mortality made by Dr. Evory Kennedy. He has published a table with coloured figures showing admirably the fortunate days of this great institution ("On Hospitalism and Zymotic Diseases," p. 30). I leave readers to judge from the following extracts what influence newness and oldness have exerted in this hospital, which was first occupied in 1757. I give a few figures only, but sufficient to illustrate the present subject: "In 1757 the mortality was 1 in 55; in 1758, 1 in 50; in 1766, 1 in 227; in 1768, 1 in 41; in 1795, 1 in 214; in 1822, 1 in 220." The hospital, when quite new, had a mortality far above the average. When comparatively old, it had frequently long runs of great success.

In conclusion, I shall state what I have proved in this short paper. I have not proved, nor do I believe, that newness is not a great advantage. But I have proved that newness is no guarantee of salubrity or of success, and that oldness is no barrier to even extraordinary salubrity and success. So universally is newness appreciated, in the ordinary sense of the word, that the citizens of Edinburgh have resolved to desert their old hospital and build a new one in a new locality, at an enormous expense.

Edinburgh, Nov. 1869.

THE TREATMENT OF HYSTERICAL APHONIA.

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THIS functional condition I have found in practice as little amenable to treatment by physic alone as any in the whole field of medicine; but I have recently so satisfied myself with the good effects of electro-magnetism applied to the *tongue only*, when used in conjunction with other remedial agents, that I am anxious to bring a few cases before the readers of THE LANCET.

After having ascertained by laryngoscopic examination that the case of aphonia before us is not the effect of polypi, diseased arytenoid cartilages, or of any morbid growth in or about the larynx, and that there is no inflammation, ulceration, or serous infiltration of the mucous membrane—as these organic conditions are frequently associated with hysteria,—we must next inquire into the state of the uterus, and find out whether there be amenorrhœa, leucorrhœa, or menorrhagia; for, if the treatment be undertaken by electro-magnetism alone, when these functional conditions exist, the beneficial result of its application will probably only last for a few minutes.

I will just state that in all cases of functional aphonia, when the vocal cords are viewed by the assistance of the laryngoscope, they are seen to lie almost parallel, separated by an interval, which will vary in different cases, and they are almost or quite motionless.

CASE 1.—E. C—, aged sixteen, a strumous-looking girl, who had two sisters die from phthisis, of moderate size and fair complexion, consulted me for loss of voice. She was a teacher, and had not menstruated for two months. I was informed by her friends that she often suffered from hysterical fits, and that she had lost her voice for three months. I made a laryngoscopic examination, and found everything healthy. I put her under a course of iron treatment, and gave her five grains of the sulphate in infusion of quassia twice daily, and two compound rhubarb pills when necessary. At her next period, she menstruated; and when this had passed off, I applied electro-magnetism to her tongue. Her voice returned with a loud scream. The iron was continued for a fortnight longer, and she has not lost her voice since.

CASE 2.—E. J—, aged twenty-six, came under my care in January last, suffering from aphonia; but she had often been my patient before, when the subject of severe attacks of hysteria. She was tall, stout, and fair, and free from any symptom of disease. I applied electro-magnetism to her tongue, and her voice at once returned, much to the surprise of her mother and another lady friend who was present. She took tincture of valerian and camphor water for three weeks, and has had no aphonia since.

CASE 3.—A. J—, aged twenty-four, a well-proportioned young lady, with sandy hair, came under treatment in July last, suffering from aphonia and paralysis of her right arm. I had attended her before. She was never very strong. I gave her one-twelfth of a grain of strychnine, one drachm of tincture of valerian, and an ounce of camphor mixture, twice a day. After taking this for a fortnight, the power to use her arm returned, but aphonia still existed. I therefore applied electro-magnetism to her tongue. The voice returned, but was lost again in about ten minutes. Electro-magnetism was now applied much stronger, and the result has been perfectly satisfactory ever since. She was married a month ago.

CASE 4.—M. A. D—, aged eighteen, single, very small, and of unhealthy appearance, had suffered from loss of voice for six months, and had been nearly all that time under the treatment of a medical practitioner in the country; but, getting no relief, she came to consult me. By the aid of the laryngoscope I could discover no organic disease of the larynx, and, as she was extremely nervous, I gave her two grains of the valerianate of zinc twice daily, in a pill,

"THE Professional and General Scribbling Pad," published by Jarrold and Sons, will, we think, be found very useful by members of our profession for notes and prescriptions. Its cost is one shilling.