

and no small-pox patient was under treatment at the end of the week either in the Metropolitan Asylum Hospitals or in the Highgate Small-pox Hospital. The number of scarlet-fever patients in the Metropolitan Asylum and the London Fever Hospitals at the end of the week was 1299, against numbers increasing in the preceding fourteen weeks from 559 to 1247; 149 cases were admitted to these hospitals during the week, against 196, 128, and 166 in the three previous weeks. The deaths referred to diseases of the respiratory organs in London, which had been 142 and 189 in the preceding two weeks, further rose last week to 225, but were 22 below the corrected average. The causes of 68, or 2·2 per cent., of the deaths in the twenty-eight towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Bradford, Sunderland, Nottingham, and in eight other smaller towns; the largest proportions of uncertified deaths were registered in Hull, Huddersfield, Oldham, and Liverpool.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 16·4 and 18·8 per 1000 in the preceding two weeks, was 18·6 in the week ending Oct. 5th; this rate exceeded by 1·0 the mean rate that prevailed during the same week in the twenty-eight large English towns. The rates in the Scotch towns ranged from 11·6 and 14·0 in Paisley and Greenock to 20·4 in Glasgow and Leith and 22·2 in Perth. The 476 deaths in the eight towns showed a decline of 5 from the number in the previous week, and included 16 which were referred to diarrhoea, 15 to whooping-cough, 13 to diphtheria, 11 to "fever" (typhus, enteric, or ill-defined), 8 to measles, 6 to scarlet fever, and not one to small-pox; in all, 69 deaths resulted from these principal zymotic diseases, against 74 in each of the preceding two weeks. These 69 deaths were equal to an annual rate of 2·7 per 1000, which exceeded by 0·5 the mean rate last week from the same diseases in the twenty-eight English towns. The fatal cases of diarrhoea, which had been 38, 36, and 30 in the previous three weeks, further fell last week to 16, of which 7 occurred in Glasgow and 3 in Dundee. The deaths from whooping-cough exceeded the number in the previous week by one, and included 11 in Glasgow and 2 in Paisley. The 13 deaths from diphtheria showed a further increase upon recent weekly numbers; 4 occurred in Leith, 3 in Glasgow, and 3 in Edinburgh. The deaths referred to "fever," which had been 6 and 11 in the preceding two weeks, were again 11 last week, and included 6 in Glasgow and 2 in Greenock. The fatal cases both of measles and of scarlet fever showed an increase. Four deaths from measles occurred in Aberdeen, and 3 (both of measles and of scarlet fever) in Glasgow. The deaths referred to acute diseases of the respiratory organs in the eight towns, which had been 66 and 89 in the preceding two weeks, further rose last week to 99, and exceeded by 20 the number in the corresponding week of last year. The causes of 42, or nearly 9 per cent., of the deaths registered in the eight towns were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 18·6, 24·5, and 31·5 per 1000 in the preceding three weeks, declined again to 26·2 in the week ending Oct. 5th. During the thirteen weeks of last quarter the death-rate in the city averaged 24·0 per 1000, the mean rate during the same period being 16·5 in London and 15·9 in Edinburgh. The 177 deaths in Dublin last week showed a decline of 36 from the number in the previous week; they included 12 which were referred to diarrhoea, 7 to "fever" (typhus, enteric, or ill defined), 3 to whooping-cough, 1 to measles, and not one either to small-pox, scarlet fever, or diphtheria. Thus the deaths from these principal zymotic diseases, which had been 20, 31, and 30 in the preceding three weeks, declined again last week to 23; they were equal to an annual rate of 3·4 per 1000, the rate from the same diseases being 1·9 in London and 1·4 in Edinburgh. The deaths attributed to diarrhoea, which had increased in the previous four weeks from 11 to 23, fell again last week to 12; the 7 deaths from "fever" exceeded the number in the previous week by one. The deaths both of infants and of elderly persons were fewer than those returned in the previous week. Four inquest cases and 4 deaths from violence were

registered; and 46, or more than a quarter, of the deaths occurred in public institutions. The causes of 34, or more than 19 per cent., of the deaths in the city were not certified.

THE SERVICES.

ARMY MEDICAL STAFF.—Surgeon-Major Sidney Keyworth Ray to be Brigade Surgeon, ranking as Lieutenant-Colonel, vice W. Folliott, F.R.C.S. Ireland, granted retired pay (dated Sept. 25th, 1889).

ARMY MEDICAL RESERVE OF OFFICERS.—Surgeon William John Naismith, M.D., F.R.C.S. England, to be Surgeon-Major, ranking as Major (dated Oct. 9th, 1889).

ADMIRALTY.—The following Surgeons have been promoted to the rank of Staff Surgeon in Her Majesty's Fleet—viz., James Porter, M.A., M.B., Charles James, Thos. Loane, M.D., John Bellhouse Bowden Triggs, M.B., George Robert Deighton Charlton, George Warner Bell, and Francis Austen Jeans (dated Sept. 29th, 1889).

The following appointments have been made:—Surgeon Horatio S. R. Sparrow to the Royal Marine Artillery at Eastney; Mr. Frederick D. Lawson to be Surgeon and Agent at Bridlington (dated Oct. 9th, 1889).

ROYAL NAVAL ARTILLERY VOLUNTEERS (Clyde Brigade). Surgeon James Cowan Woodburn, M.D., to be Staff Surgeon (dated Sept. 24th, 1889).

VOLUNTEER CORPS.—*Engineers* (Fortress and Railway Forces): 1st Devonshire and Somersetshire: Acting Surgeon M. L. Brown, M.D., resigns his appointment (dated Oct. 5th, 1889).

Correspondence.

"Audi alteram partem."

MEDICAL EDUCATION.

To the Editors of THE LANCET.

SIRS,—I am glad to see that the seed I cast upon the soil in my address on Medical Education to the members of the British Medical Association is not unlikely to be fruitful, and that in at any rate two very highly cultivated fields it has taken root, and is already well above the ground. I allude to the addresses delivered at the opening of the medical session at the Yorkshire College in Leeds by Professor Gairdner of Glasgow and at the St. George's Hospital Medical School in London by Dr. T. Clifford Allbutt respectively. I desire nothing more in the interest of medical education than that the subject should be thus freely discussed, that the voice of the profession at large should be heard upon it, and that professional opinion concerning it should, as far as possible, be fully elicited. The ground I took in my address is that, as matters stand at present, the student at the close of his curriculum is not as well prepared as he ought to be, and might be, to cope with the responsibilities of general practice, and that he needs something for which that curriculum has not provided—viz., a knowledge of the more common forms of ordinary illness. He may be, no doubt he is, well versed in the general principles of his profession. He may possess, he unquestionably does possess, in the aggregate a vastly greater amount of medical and surgical knowledge than the recently equipped practitioner of a former age, and yet, for a time at any rate, he is not his equal, inasmuch as he lacks the groundwork and the foundation upon which all his work should rest. My argument is this, that in former times, when the old-fashioned system of apprenticeship was in vogue, the student had the opportunity, greater or less, as the case might be, to see the daily routine of medical practice, of making himself acquainted with ailments and illnesses of which he can see nothing in his hospital experience, and of picking up a vast fund of knowledge whose utility would be of inexpressible value to him to the last day of his career; that *in altogether abolishing apprenticeship* a false step has been taken, and that medical education has been to some extent impoverished. And this, notwithstanding all that may be said by ultra-educationists, and by those who place theoretical knowledge so far in advance

of practical experience, is, I believe, the opinion honestly entertained by a very great majority of thoughtful medical men of our time. No one values a university education more highly than I do; no one longs more earnestly and profoundly than I that every medical student could enjoy so incalculable a privilege; but what cannot be cannot be, and, for those to whom the university is an impossibility, I hold that the best attainable means should be provided. You will now, I am sure, permit me a few words in reply to Professor Gairdner and to Dr. Clifford Allbutt respectively, especially as those words are clearly needed to prevent misunderstanding. The words in my address to which, in each instance, apparently, objection has been taken are as follows:—

“Medical Education in the Present.—Year by year and little by little we have been accumulating a burden which, if not absolutely more than the shoulders of the student can bear, is yet heavier than he can possibly carry with credit; and, instead of increasing his opportunities to acquire the strength necessary to bear it, we have curtailed his time, have deprived him of material advantages, and, in accordance with the hurry of the age, have demanded results well-nigh impossible of attainment. The five years of apprenticeship have been swept away, and with them the opportunity to master the groundwork of medical education and to acquire a sound knowledge of the more common forms of ordinary illness has gone also; and in four years, instead of eight, we permit the whole work to be completed. We have determined to ignore the utility of that homely but infinitely useful form of preparation for the higher parts of medical education which apprenticeship or pupillage was pre-eminently calculated to afford; we have determined that from the day on which a boy has been able to pass a very ordinary and limited educational examination he shall be permitted to take his place in a medical school, and we have arranged a curriculum which, if by dint of slavish toil he can master, shall enable him, at the early age of twenty-one, to enter upon the full responsibilities and duties of practice.”

Dr. Gairdner's objection comes practically to this, that this familiarity with the conditions which will form the actual environment of the medical man not only in his earlier years but all through his life *is not necessary*; that his general education in the principles of his profession will secure him from disaster; and that experience will come with time; and he goes on to reason that, if it is necessary for him to have *seen and done* all the lesser, he ought by parity of reasoning to have also seen and done all the great things also. My answer is, by all means let him have seen, done, handled, and operated on everything that is possible; at least, let him have seen them done by competent hands. Let him, under skilled guidance, have himself performed all the minor operations—the operations he may be called upon to undertake the day he enters on practice; and for the major ones, let him so practise them *on the dead subject*, and so use his eyes and his head, when he sees them done on the living one by his teachers, that when the day of responsible surgical emergency comes upon him, he may feel that he is honestly prepared to meet it. The hospital, or school, or university in which all this cannot be provided must be a poor one indeed; and the “authority” which is satisfied with less falls short of the calls of duty. With the wish so earnestly and eloquently expressed by Dr. Gairdner, that a “few things should be learned thoroughly and well,” I am entirely in accord; but can Dr. Gairdner be in earnest in believing that half-a-dozen cases of pneumonia, or of Bright's or any other disease, studied ever so deeply, will stand in the stead of the practical ability to relieve a distended bladder or to reduce a dislocated joint? Can he mean that because a man has with ever so great earnestness, studied “a few cases” to the utmost bounds concerning them, that it is therefore not necessary that he should know measles from scarlet fever, nor be able to recognise small-pox, typhus, or typhoid fevers when he sees them? I cannot credit so great a man with a fallacy so awful, even though his own hand wrote it. And where, except in the homes of the people, is the student to become conversant with these things? not in the general hospitals attached to our schools and universities, for from these they are rigidly and righteously excluded, but *only* in the homes of the people, and to these he has no access except through the general practitioner, or some one of the many public charities, other than the hospitals, with which our happy land is so freely studded. For this state

of things I propose a remedy, and the *remedy itself* is one which, I venture to think, meets with very widespread approval, the difficulty being, not the remedy, but the time at which it may most advantageously be taken. On this subject again my words are these:—

“The most Advantageous Time for Pupilage.—I hold that the time to acquire simple information is when the mind is eager, inquiring, impressionable, and plastic. In our large county hospitals, workhouse infirmaries, and public dispensaries, which, up to the present time, have been but very slightly utilised, we have a splendid field in which a vast fund of information of this kind which now runs to waste might be gleaned, and of these I would make much greater use than has hitherto been the practice. In pupilage, in one or other of these, in my humble judgment, *a year, or even two*, at the commencement of professional study would prove the very best beginning; and in following the practice to be there seen under the direct guidance and supervision of those who administer them, a youth would see work which in after life would be of incalculable value to him, and would obtain opportunities for a groundwork which, under the present method of education, are wholly thrown away.”

I think Dr. Clifford Allbutt can hardly have read my address, for I do not think he would wilfully misrepresent me on so very grave a subject; and yet in his address to the students at St. George's Hospital these are the words he uses:—

“Mr. Wheelhouse proposes to make this state of things ten times worse than before. By submitting youths to a five-years' apprenticeship to working doctors at a time when their minds are expanding and impressionable, at a time when an ardent love for higher study and a yearning for ideas spring up in the heart, he would send them not where they can feel the influence of great men present and past, not where learning is seen in all her variety and in all her provinces, not where they may associate with men of their own age whose minds are occupied with other forms of culture and in training for other callings, but a student is to be confined to one mind, however able, to one profession, however honourable, to one set of ideas, however fruitful. And, as a matter of fact, we know that the ruling mind will often be something less than great, the set of notions too often vulgar, and the teaching at best a teaching and not a cultivation. Gentlemen, this is but to perpetuate the common-mindedness which I suggest is already our danger—a fault due in part to our defective education, in part to our lack of leisure. I say we are already too narrow and channelled in our thoughts, and too shoppy; and we are to improve our education by intensifying this very habit of mind. We are to make our education more comprehensive by shutting up our students with individuals; we are to strengthen their reasoning powers by therapeutical drill; we are to substitute the ideas of the middle-class parlour for the traditions of a university! But one may get roast pig without burning down one's house, and I contend—with an exception to be hereafter discussed—that a man whose mind has been enlarged and strengthened by a university course will, after a briefer drill, make a more skilful practitioner than one whose technical craft is gained by routine and is not vitalised by a comprehension of principles. It is no truism, gentlemen, to repeat in this place that knowledge is one and indivisible, and that he who is content to pick up isolated chapters of learning has no living knowledge at all.”

Now, all this as mere declamation is of course superb, and if it were a correct version of the matter in question I would not utter a word; I would sit silent, abashed, and crushed. But as it is exactly the reverse of anything I have ever said, or thought, or written, I cannot permit it to pass without observation and correction. *I would rather go on as we are, greatly as I consider that our plan might be improved, than that we should go back to the system of a five-years' apprenticeship to one man or to one institution.* I hold, and I have ever taught, that to go back to that system would be to waste, hopelessly and absolutely, three years of the very best part of every educational life. My words are clear and explicit, and are not open to the construction put upon them by Dr. Allbutt. “That one, or even two years devoted at the commencement of professional study to the acquirement of a knowledge of the ground work, and of the observable phenomena of our science, under the supervision of competent teachers, in some of the insti-

tutions whose infinitely valuable opportunities are, under the present order of things, entirely wasted would be of incalculable value." And with this opinion Dr. Allbutt, after all, does not appear to disagree, for, a little further on in his address, we find him actually advocating such a measure.

"Nevertheless, I agree with Mr. Wheelhouse that an apprenticeship to the domestic side of your work, a familiarity with its lesser marks and byeways, is necessary. These we cannot teach here. After your faculties are trained and strengthened in their main branches, your lesser shoots shall be duly laid in. But with capacities thus enlarged, one year's apprenticeship would do the work of five in earlier age; and an obligation upon young men thus to apprentice themselves before the completion of their studies would have my approbation and active support."

Wherein, then, lies the great difference between us? Simply as to the time (the old, old question) at which pupillage may be most advantageously taken. I think that rudimentary knowledge should be sought in the earlier years of studentship. Dr. Allbutt, in common with many others, would place it later on; and when a man's mind *has* been expanded by converse with his fellows and by the scientific observation of the phenomena of disease, and is truly and rightly aflame after higher knowledge, higher reasoning, and higher aspirations, he would put him back to the bare study of the *Pharmacopœia*, and to the acquirement of those rudiments of medical education which can only then be a weariness to his soul and a degradation to his energies. The difference between us, infinitely great as it is, is not one of "principle" after all, but only a question as to the choice of time, and is hardly such as to call for the old story of the Chinaman, who was so devoted to roast pig that he was ready at any time to burn his house down that he might revel in his favourite dish.

I am, Sirs, your obedient servant,
Leeds, October, 1889. C. G. WHEELHOUSE.

WHY DOES THE UTERUS CONTRACT DURING PREGNANCY?

To the Editors of THE LANCET.

SIRS,—Under the above heading, in your last issue, Mr. Wade of Chudleigh, in a letter throwing out a suggestion as to the cause of these contractions—namely, the presence of blood overcharged with carbonic acid, says: "We have the authority of Playfair for the statement that the intermittent contractions of the uterus occur every five or ten minutes, sometimes oftener, rarely at longer intervals, throughout the whole of gestation." I hope it may not be considered a piece of unpardonable egotism if I take this opportunity of pointing out that the subject was first introduced by me in a paper read so long ago as Oct. 4th, 1871, before the Obstetric Society of London, and subsequently added to in papers on the same subject at three International Medical Congresses, and published in their proceedings. The first paper will be found in the *Obstetrical Transactions*, London, vol. xii. In it, page 219, I remarked: "It may be that the semi-stagnant state of the blood (that is, of course, charged with carbonic acid) in the uterine sinus &c. may provoke contractions, but certainly there is some other excitant than either foetal movements or the irritation of the various nerves in sympathetic connexion with the uterus." Of course this suggestion is the same in essence as Mr. Wade's; but we both derive our inspiration with the idea thrown out, I think, by Brown-Séquard—namely, that the presence of carbonic acid in excess in the uterine sinuses causes the uterus to contract. I cannot find that he gives "much evidence in proof, but it is a fair working theory; and I also think it may be assumed as one of the factors in the genesis of labour." But there are other agents concerned in the movements of the blood in the walls of the uterus and placenta; and to these I have called attention in a note published in the *Proceedings of the Royal Society*, 1879: "Note on the Auxiliary Forces concerned in the Circulation of the Pregnant Uterus and its Contents in Woman." These transcendental points seldom get into text-books where Mr. Wade has been looking, or if they do, it is many years after their introduction; and even some text-books of modern date have altogether omitted noticing these contractions and the great help they give in the diagnosis of pregnancy. Mr. Wade, however, remarks: "We are all familiar with the facts that the chorionic villi dip freely into the sinuses of the uterine wall, and that in this situation an exchange takes place between the fluids on the

foetal and maternal sides of the villous membrane which alone separates them." I am quite willing to concede an exchange, but not through one membrane alone; and I cannot include myself in the "all," as may be seen in my "*Anatomy of the Human Placenta*" (*Obstet. Trans. Lond.*). However this may be, if Brown-Séquard's theory be correct, the retention of semi-stagnant blood, highly and increasingly charged with carbonic acid and effete foetal matter, is probably the immediate stimulus required to produce the uterine contractions I have pointed out, and which acts as a supplementary heart. The contractions act, it should be observed, independently of any external irritation. Up to the present time I have had no co-worker in this subject; when other observers take it up, probably newer points will be brought to light.

I am, Sirs, yours obediently,

J. BRAXTON HICKS.

George-street, Hanover-square, Oct. 3rd, 1889.

REMARKABLE SURVIVAL AFTER MULTIPLE PISTOL-SHOT WOUNDS.

To the Editors of THE LANCET.

SIRS,—The following case may interest those of your readers who perused the articles in *THE LANCET* of Sept. 14th, 21st, and 28th, under the heading, "Five Cases Illustrative of Cerebral Surgery."

On the evening of Oct. 13th, 1881, W. L.—, aged twenty-one, a rural postman, was seized by a would-be assassin, who fired several shots at him from a revolver, and having expended his own ammunition, called to a companion to "have at him now"; this man then continued the attack, and fired into their victim. *One of the bullets entered the brain, where it still remains, and causes little if any inconvenience*, although for nearly two years he could not bend his head or lean forward without giving rise to great pain and unpleasant symptoms. On making my examination I found a bullet wound on the left side of the head, about half an inch posterior to his ear, and immediately beneath the parietal eminence. Through this wound the brain substance exuded, and a small probe passed directly inwards for a distance of about two inches by merely letting it drop into the wound. On examining with tip of little finger, no spicula could be found. Another bullet entered the left temple just above the zygomatic arch, about an inch and a quarter from the edge of the orbit; it took an inward and downward direction; its course, however, could not be traced. Another hit the angle of the jaw, took an upward direction, and was held between two molar teeth. One entered the left side of the chest on a line with the nipple, an inch and a half posterior to it, passed through the chest, and was extracted from the right axilla. One glanced off the great trochanter, and became lodged in the lumbar muscles. Two passed through the forearm about the middle. One entered the forearm about two inches from the wrist, took an upward course, and was extracted near the elbow-joint. One passed through the hand between the thumb and index finger. The skin on the left forearm and wrist was destroyed, the clothing having been set on fire by the powder. On the right hand the metacarpophalangeal joint was destroyed by the charge from a pistol loaded with shot, several grains of which and some of the paper used for "wad" were extracted from the palm of hand. The man was almost pulseless, and, the case seeming hopeless, it was decided by Dr. Allen and myself not to interfere except symptoms demanded it further than to cleanse and dress the wounds, carbolic lotion being used. He was given brandy and new milk or beef-tea every half hour. Coughing was severe for some days, and there was considerable hæmorrhage from the lungs. He had also a sharp attack of double pneumonia. He was kept perfectly quiet and cool, morphia being given in minute doses hypodermically to relieve the cough, which caused terrible pain in his head. On the fifth day after being wounded he had considerable delirium, and could hardly be restrained, as he was "afraid of being taken to an asylum" at one time, while at another he thought his assailants were again attacking him.

This case, besides being interesting, I consider very important from the fact that, although being so fearfully wounded, the man did not lose consciousness till some time after he was brought to the police barracks, where he described one of his assailants and fully identified him. He was also able to describe a man who passed him soon after the attack; he also dragged himself to a house a few