Social Science Association to Leeds served to rouse the authorities to exert their powers to improve the sanitary state of the town and diminish a still unenviable high rate of mortality. The improvement of the homes and habits of the working classes is one of the most effective means of diminishing the high rate of mortality existing in most of our large towns. Popular lectures on sanitary science and physiology can be made very attractive by the introduction of a few experiments, such as those on the chemical composition of the atmosphere, water, blood, etc. The series of sanitary lectures at my suggestion kindly given by various medical men of standing under the auspices of the Leeds Branch of the Leeds Ladies' Sanitary Association were well attended and much appreciated; and I am glad to find that the ladies themselves have now decided to lecture to the poor women and give them sanitary information and useful domestic advice tending to promote the health and comfort of their families. Under the auspices of the Bishop of the diocese, the Vicar, and the leading clergy, and many of my medical brethren, the public meetings of the Leeds Association were highly successful, and its annual reports had a large circulation. A Social Improvement Society has now taken the place of the Leeds Branch of the Ladies Sanitary Association, and promises to be very useful. Branches of the Ladies' Sanitary Association have done much good in many other places. With sanitary agencies at work such as I have named, pointing out the remedies required, and with a long continued high rate of mortality in most of our large towns, and the continued prevalence of epidemics, Parliament was compelled to act, and at last we got the promised Public Health Bill, which last session, after grievous throes, was brought to see the light of day; but, during the tedious process of its birth, differences of opinion arose between the chief adviser in charge of the case and the numerous doctors and nurses who volunteered their assistance on the occasion, the delay caused by an unnatural presentation forming the cause of dispute. The consequence was, the offspring came into the world defective, if not malformed, though the parent of the child is sanguine that it will ultimately be developed to perfection, and be able to exercise all its organs with efficiency and confer credit on its originator. It is clear, however, there is some doubt as to this happy result; for, though the doctors have been displaced, who had given their services gratuitously, the lawyers and examiners have been selected to take charge of the infant whilst under the guardianship of the Local Government Board. This course has naturally displeased the medical faculty, the members of which, having made the prevention and detection of the disease and the preservation of health their special study, considered themselves best qualified to apply the needful remedies. The official instructions just issued for carrying out the new Health Act are elaborate enough, and it is to be hoped the operations of the Act will adequately meet the ends sought to be remedied. By the passing of the Adulteration of Food and Drugs Bill, a great impulse will be given to the cultivation of chemical analysis, and a field of useful and remunerative skill and labour opened to those medical men and chemists who have made analysis their special study. The acuteness and skill shown in the detection of poisons must now be bestowed to the detection of articles so frequently employed for the adulteration of food and drugs, etc.

The working of the Contagious Diseases Acts has proved on the whole successful, and it is to be hoped the clamour and outcry at one time brought to bear against one of these Acts has subsided, and that the law will be carried out where it is most required and found necessary for the protection of the public health. We separate and isolate small-pox cases, fever, cholera, etc., and it is equally for the safety of the public and for the benefit of future generations that persons with poisonous diseases of a loathsome nature, either in men or women, should be restrained from spreading these diseases, and be treated in a special manner in special institutions. In this respect we are not as careful as the Jews were as far back as the time of Moses. We have the privilege of living under a new and Christian dispensation; still, in many respects, we disregard both the Levitical as well as Christian code of laws laid down for the preservation of our health. By breaking the natural laws of health, we deface the sacred temple we possess, and run counter to the laws of our Maker. The necessity of temperance, cleanliness, and chastity must be enforced by the arm of the law, otherwise the human body is apt to become degraded into a mere brutal machine, and the highest interests of the creature, both here and hereafter, disregarded. Our most enlightened divines have long recognised the necessity of inculcating attention to the physical as well as spiritual wants of the people under their charge. Our leading sanitary reformers, humane statesmen, church dignitaries, and ministers of religion generally, have done much to remedy the gigantic sanitary evils so long uninterfered with by the law of the land. If God's laws are broken, those of men soon come to be unheeded as well. The co-operation of the clergy with the medical profession is

always attended with public benefit; and the Public Health Act will prove comparatively a dead letter, if the parties whom it is principally intended to benefit do not intelligently and heartily unite with the local authorities in carrying it into practice, and they will not do so unless their truest friends, the doctor and the pastor, convince them it is a real advantage to make their homes and habits subservient to the laws of health. As long as the body is neglected and dishonoured, the wants of the soul will receive no attention, the education of the young will be little cared for, civilisation and religion will be retarded, and national degeneration sooner or later ensue. To meet such direful consequences, and add to the happiness and longevity of the human race, are the grand objects of the social and sanitary reformer.

HYPERTROPHY OF THE ARTERIAL WALLS.

By GEORGE JOHNSON, M.D., F.R.S.,

Physician to King's College Hospital; Professor of Medicine in King's College, London; etc.

To any one who feels confident that he has satisfactorily worked out a problem, the opportunity of answering objections is always acceptable; and I have to thank my colleague Dr. Beale for having done me the favour to put forth two objections which admit of a complete answer.

The suggestion that thickening with degeneration of the arterial walls had been mistaken for genuine hypertrophy, is completely refuted by pointing to the obvious contrast between my published illustrations of hypertrophy and Dr. Beale's representations of arterial degeneration. It is assumed that the drawings fairly represent the specimens from which they are taken; but the specimens still exist, and can be compared with the drawings. Dr. Beale's Plate XIII, to which he refers in illustration of his criticism, a part of which only has been quoted by Sir W. Gull, contains five figures, of which one represents a normal artery, while three are illustrations of thickened arteries which most pathologists, without even a "hint" being given, would recognise as examples of amyloid or waxy degeneration. But one figure (72) presents an entirely different appearance. This is an artery from the peritoneum of a starved frog; and its fibrous tunic is much distended, probably by glycerine or by acetic acid, while the muscular coat is pushed inwards, and the canal is narrowed. This is a good example of the "hyalin-fibroid" change in the external coat of an artery—artificially produced, as usual. Dr. Beale now repeats the suggestion which he made on a former occasion—that a contracted healthy artery "may be indistinguishable from one of less diameter but with thicker walls." The specimen which Dr. Beale exhibited at the *soirée* of the Royal Medical and Chirurgical Society in illustration of this suggested source of error, showed, as I believe, to the satisfaction of most men who examined it, that, so far from it being difficult to distinguish a normal contracted artery from one with hypertrophied walls, it would scarcely be possible to confound the two. My own specimens of hypertrophied arteries exhibited on that occasion had their canals uniformly distended by injection, and formed a striking contrast with Dr. Beale's specimen. While Dr. Beale believes that the muscular wall of an artery may be atrophied, his singular incredulity as to the possible occurrence of arterial hypertrophy "under any supposable circumstances" will probably prevent him from spending much time in the search for what he conceives to be a physiological impossibility; but to those who are less sceptical I beg to suggest a mode in which they can easily obtain arteries with an increased thickness of true muscular tissue in their walls, and at the same time satisfy themselves that the thickening is not the result of contraction of the canals of the vessels. Let a section of an injected healthy kidney be compared with one from an injected small granular kidney. The size of the canals of the afferent Malpighian arteries, and the normal thickness of their walls, are both well known and remarkably uniform. A comparison of these particular arteries from the two kidneys will show that, while the canals may be of equal size in the two specimens, the muscular walls are more than twice the normal thickness in the diseased kidney.

ETHER AS AN ANÆSTHETIC.

By SAMUEL FIELDEN, Esq., Shildon, Durham.

At a time when the question of anæsthetics is again attracting the attention of the profession, the following notes may not be without interest.

C. B., aged 24, a feeble, cachectic young man, came under my care early in December last. His symptoms were indicative of vesical calculus, and from his history these had existed for eighteen or twenty

years. I passed a sound into his bladder, and verified my diagnosis. The urine contained no albumen.

On December 20th, I performed lateral lithotomy, and extracted an oblong mulberry calculus, which weighed 5.7 grains. Ether was the anæsthetic employed, and was administered by means of a sponge enclosed in a towel folded six or eight times, and held closely over the mouth and nose. Fully half an hour elapsed before complete anæsthesia supervened. The quantity of ether used was six ounces. There was no excitement, nor any noisiness on the part of the patient. The pulse and breathing were scarcely at all affected, but the return to consciousness was protracted considerably beyond the time usually required for recovery after chloroform inhalation. An hour and a half after the operation vomiting came on, and recurred frequently for twenty hours in spite of remedies. The patient complained of the vomited matter tasting strongly of ether. Only a little light food had been taken on the morning of the operation, and that three or four hours previously.

With the exception of the exhaustion produced by the persistent sickness, the patient had progressed favourably, and since December 30th has sat up for several hours daily. I am indebted to my friends, Mr. Jobson and Mr. Thwaites, of Bishop Auckland, for their kind assistance at the operation.

CLINICAL REMARKS ON STONE IN THE BLADDER.*

By W. F. TEEVAN, B.A., F.R.C.S.,
Surgeon to the West London Hospital; etc.

I HAVE now operated on thirty-five patients for stone in the bladder; of these twenty-three were adults, the remainder boys. I performed lithotomy in seventeen cases, and lithotripsy in eighteen. I lost two of my patients; one, a pauper aged 66, who had been bedridden for two years before the operation, died one month after I had removed from him, by lithotomy, a large oxalate of lime calculus; and the other patient, aged 70, died suddenly from heart-disease ten days after lithotripsy, whilst straining forcibly to pass a fragment of stone. It thus appears I have had two deaths in my practice, and I have published them both, for I think it more incumbent on a surgeon to make known his fatal cases than his successful ones: in the first place, it is only due to the profession; and, secondly, I think that more is to be gained from an investigation into the fatal cases. I would now briefly relate certain conclusions at which I have arrived from my own experiments, investigations, and experience. I will commence with the choice of an operation in a given case. Shall it be lithotomy or lithotripsy? I think the following rule is the safer one to act upon. We ought to cut every patient, unless we can clearly make out that lithotripsy is indicated. By adopting such a rule as this we shall, I am sure, obtain much better results than if we act on the converse and crush every case unless lithotomy be specially called for, as there will always be cases occurring, from time to time, in which there will be doubt whether they be better suited for lithotomy or for lithotripsy. I would say that every doubtful case ought to be cut. I have never regretted performing lithotomy, but I have some reason to think that in a particular case lithotomy would have been better than lithotripsy. I am of opinion that we ought never to crush a calculus unless the urethra be capacious, the stone small or of moderate size, and the kidneys fairly healthy; for if they be much diseased the patient will, in all probability, get a low form of chronic cystitis, and be carried off by irritative fever or blood-poisoning. However, every case must be judged by its own particular peculiarities and bearings, and not by any rules that may be or can be laid down. For instance, a contracted urethra does not preclude lithotripsy, because we can enlarge the canal, and if the meatus be abnormally small we can incise it. Neither does a large stone forbid crushing, for it may be safely done in a young man, provided it be phosphatic and not too large. Then, again, the fact of the kidneys being diseased does not put lithotripsy out of the question; for if the calculus were small, it could be crushed with comparative safety. If the urethra and bladder be extremely sensitive, I regard the case as unfit for lithotripsy, for the patient would be broken up by the want of rest and loss of appetite, attending the continued irritation set up by the passage of fragments. However, before relegating such a case as I have described to lithotomy, we ought to try if we cannot greatly abate the morbid sensitiveness of the urinary tract by the daily introduction of an olivary elastic bougie. I have known excessive irritability almost entirely removed in a few weeks by such method. Experience is everything in lithotripsy. A surgeon may cut his first case as brilliantly as his last, but it is otherwise with

lithotripsy—it requires practice, and a surgeon who has a gentle hand may impose on the tolerance of the bladder in a way that would be instantly resented if the surgeon were an inexperienced operator. The more I see of lithotripsy, the more I am convinced that the secret of success lies in making each crushing as short as possible. At the first and second sittings the male blade ought only to be screwed home once, but later on this procedure may be repeated twice or thrice. It would thus appear that I only allow my lithotrite to remain in the bladder from half a minute to two or three minutes, and it is to this that I attribute my success. I never give chloroform for lithotripsy, for I look upon the patient's consciousness as necessary for a successful result. If the patient take chloroform, the surgeon is usually tempted to do too much, and the result is that the patient gets incontinence of urine or cystitis. Indeed, I would say that, if lithotripsy cannot be performed without chloroform, the patient had better be cut. I have seen deplorable results ensue from chloroform being given in cases of lithotripsy—the patients being made chronic invalids for the rest of life, and actually put into a worse position than before they were rid of their calculi. Usually I keep my patients to bed only on the day of operation, and on that following it, for I find that confinement to the house injures a patient by lessening his strength; indeed, I have treated many cases most successfully as out-patients throughout. The after-treatment of my cases is as simple as possible; I do nothing unless there be a clear indication for it, and I never wash out a patient's bladder, unless imperatively needed, for it gives more pain than lithotripsy itself. No prudent surgeon would, I presume, ever think of withdrawing a fragment of stone from the urethra unless it were impacted; for any laceration of the canal is sure to be followed by traumatic stricture, and may be attended with fatal consequences through urethral fever or pyæmia.

I have cut seventeen patients for stone; twelve of them were boys, the remaining five adults, who had very large calculi. All my patients recovered, except the one already referred to. Before operating either for lithotomy or lithotripsy, I consider it advisable to keep the patient very quiet for some days, in order to reduce the general and local irritation to a minimum.* We ought to commence the external incision low down, for we then wound less vascular parts, which is all-important in feeble old men. The only disadvantage attached to it is that we may injure the rectum; but this is unimportant, as we can always close the fistula. Everything hinges upon the internal incision. The usual method, in England, is to make a very small hole in the bladder—merely piercing it; and the advocates of such practice found it upon grounds which are absolutely false. They say that if you exceed the margin of the prostate, and open up the deep fasciæ, you will get infiltration of urine, which will kill the patient. Now, infiltration of urine is a physical impossibility after lithotomy. How can you get infiltration when the urine is poured out as fast as it is secreted? Where is the urine to be infiltrated? All the tissues in connection with the wound are filled with coagulated blood a few minutes after the operation. They are, so to speak, varnished with blood, and no urine can affect them. Surgeons talk of infiltration of urine after lithotomy, but, so far as I know, there is not a single unequivocal case on record; the alleged cases of infiltration having been instances of cellulitis, occurring from the surgeon having bruised the prostate in extracting calculi from persons of bad constitution. The advocates of the limited incision are in this extraordinary position. Either two bodies can occupy the same space at the same time, or else the capsule of the prostate can be stretched like a piece of India-rubber, to permit the surgeon to extract the stone, and then immediately returning to its former circumference. Now, either of the above suppositions is absurd. Two bodies cannot occupy the same space at the same time; the prostate and the calculus cannot both be contained at the same time in a fibrous circle less than two inches in diameter. The fibrous jacket, in which the prostate is enclosed, is made of white cellular tissue; and if a student were to go up to the College of Surgeons, and tell the examiners that white fibrous tissue could be stretched like a piece of India-rubber, he would be deservedly plucked. It is impossible to extract a stone by dilatation. You may tear, but you cannot dilate. If there were no objection to the present method of operating, it would still, in my opinion, be open to condemnation, as it tends to make men timid or indifferent operators. No year passes in London without it being known to the profession that some surgeon has failed in the operation of lithotomy. Lithotomy may well boast that it has humiliated more surgeons than all the other operations in surgery put together. Many a surgeon operates brilliantly for years, and, at last, receives his *coup de grace* from lithotomy. At the present moment, London presents the melancholy fact of having a surgeon who has had much experience in cutting for stone, and who yet re-

* Read before the Surgical Section at the Annual Meeting of the British Medical Association in Birmingham, August 1872.

* I always perform the lateral operation. The median is not so successful method, and is admirably calculated to emaculate the patient. The medio-bilateral is founded on deductions from supposed facts which are fallacious.