4. By dividing the square of the height by the mean coefficient, the *typical weight* for any height can be found. (See Tables II. and III.) 5. The mean coefficient varies with the age, but can be represented for the various years by side columns in the scale of physique (see scale). This method has for its recommendations, that it is based on a law of physical development. It enables the anthropologist to compare accurately one race with another, and one class of the same race with others; and to demonstrate the influence of the various causes which affect development. It also supplies the physician with the means of accurately recording the physique of his patients and comparing one with another, and may thereby reveal, in the course of future observations, important facts concerning the correlation of physique and disease.

PERINEAL LITHOTRITY.¹

By REGINALD HARRISON, F.R.C.S.,

SURGEON TO THE LIVERPOOL ROYAL INFIRMARY, AND LECTURER ON CLINICAL SURGERY IN THE VICTORIA UNIVERSITY.

IN view of the splendid results which have been obtained by Bigelow's operation of litholapaxy in all parts of the world, one naturally feels some hesitation in drawing attention to any other method of removing a stone from the bladder in which crushing forms a part. Let me, however, justify my advocacy of an exceptional proceeding, as applied to exceptional circumstances, by a few preliminary or explanatory observations.

One great advantage lithotomy possesses over lithotritry is that it permits the operator to ascertain the condition of the bladder and prostate, and to satisfy himself, by the use of his finger, that every fragment of stone has been withdrawn. The absence of this process in lithotritry is an important circumstance in explaining why recurrences or relapses should be more frequent after crushing than cutting operations. In a personal experience of lithotritry which, though not large for statistical purposes, includes considerably over 100 examples in different males, I infer not only that the liability to relapses after lithotritry is greater than after cutting operations, but that such recurrences are, as a rule, traceable to some purely mechanical cause which either the operation or the operator fails to meet.

In a paper² by Mr. Donald Day of Norwich on Repeated Lithotomy, he analyses the cases of recurring stone, at the Norfolk and Norwich Hospital, in 1024 individuals. He divides these recurrences into four groups in the order of their frequency: viz., (a) stones formed quite independently of the previous ones; (b) stones undetected at the first operation; and (c) stones formed on a fragment left behind at former operations; group *d* includes stones of bladder formation, due to chronic cystitis. Though the figures from which my own conclusions in reference to this point are insignificant compared with those at Mr. Day's disposal, they tend to support his classification, with this difference, that as my stone cases have been drawn from an area which, unlike the eastern counties of England, is not favourable for the development of calculus, I should put the spontaneous recurrence of stone, independently of a previous operation or other assignable cause, at the bottom of my list instead of at the top.

Taking the fifty cases of recurring stone in Mr. Day's analysis, twenty of these belong to group *a*, where the stones appear to have formed independently of the previous ones, thus leaving thirty cases where the recurrences were due to local causes, including undetected stones, stones formed on a fragment left after the previous operation, and cystitis. It will thus be noted that three-fifths of the recurrences, or three out of the four groups, were traceable to purely local causes in which the bladder, including its outlet, was involved. Though these figures of Mr. Day's only include lithotomy cases, they will also apply to lithotritry, but with probably greater force. From the careful examination of evidence of this kind, as well as from clinical observation, it appeared that, if the advantages of litholapaxy could be combined with those of lithotomy, so far as the latter proceeding relates to the digital

exploration of the bladder, much advantage would follow the adoption of such a procedure in certain cases where a recurrence after lithotritry might almost with certainty be anticipated, by reason of the existence of structural complications, which the operation of crushing did not attempt to cope with. For this purpose perineal litholapaxy seemed to be well suited, inasmuch as it would permit of (1) the digital exploration of the bladder and associated parts, both before and after the removal of the stone; (2) the rapid evacuation of the stone; and (3) the drainage and irrigation of the bladder, should this prove necessary. It appeared that all this could be accomplished by a perineal urethrotomy without encroaching on the neck of the bladder, so far as the necessary incision was concerned. Such a proceeding is thus referred to by Dr. Gouley of New York,³ who, writing in 1873, says: "The name of perineal lithotritry was given in 1862 by Professor Dolbeau of Paris to an operation completed in one sitting, by which the membranous portion of the urethra is opened, the prostate and neck of the bladder dilated instead of being cut, and a large stone crushed, and the fragments immediately extracted."

I have now had occasion to perform this operation in a somewhat modified form, presently to be described, in four cases of stone in the bladder. In three of these the prostate was large, and I was desirous of draining the bladder after the stone had been removed. In two instances litholapaxy had been previously performed. In my fourth and last case the stone was very large; the following are the particulars:—

A young man, aged eighteen years, was under my care in the Liverpool Royal Infirmary during the past summer. He was suffering from a large phosphatic stone in the bladder, which it was thought could be removed by litholapaxy. The patient being placed under ether, I found it impossible to grasp the stone with the lithotrite in such a way as to enable me to crush it, for, though I could seize it easily enough, the blades could not be approximated sufficiently to permit of my locking the instrument. I therefore proceeded with a perineal lithotritry, making my superficial incision as for lateral lithotomy. I opened the membranous urethra, and readily passed my finger on into the bladder, as for ordinary exploration. Finding the calculus to be fully as large as anticipated, a strong pair of forceps was introduced into the bladder, with which the stone was crushed and extracted. When the finger showed the bladder to be free, the latter was well washed out with a perchloride solution, and then a large drainage tube was inserted. The tube was kept in for four days, and then withdrawn. The patient was well and up on the eleventh day, passing all his urine by the urethra. Though the stone weighed about three ounces, it was broken up and evacuated in something under five minutes. In the other three cases referred to, a similar proceeding was practised. In one of these the stone was uric acid, the remaining two being phosphatic; in two the ordinary median boutonniere operation was practised; whilst in the third a preliminary lateral incision was made, as in the case narrated in detail.

So far as dilating the neck of the bladder was concerned, I have been able to accomplish this with my finger, aided sometimes by Wheelhouse's small gorget. I would wish, however, to draw attention more particularly to the forceps I employ for crushing and evacuating the stone. They consist of a strong pair of ordinary bladder forceps, with a cutting rib down the centre. They are sufficiently strong to break any stone which can be fairly grasped; they are, in fact, constructed on the same principle as the blades of a lithotrite, and are intended for use in the same manner.⁴ Looking at the fragments of the stone removed from the young man whose case I have just related, it can be judged what these forceps are capable of doing, both in crushing and extracting. In this instance they enabled me to break up and remove a calculus in a few minutes, a process which I do not think could have been safely accomplished under half an hour by the ordinary lithotrite and water evacuation.

I hardly think I need apologise for bringing under notice an operation which may, in some cases, be revived with considerable advantage. Circumstances are now very different from what they were twenty-five years ago, when perineal lithotritry had numerous advocates. Thompson had not then taught us the great value of digital exploration in

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² British Medical Journal, Feb. 13th, 1886.

³ Diseases of the Urinary Organs, 1873.

⁴ They are made for me by Messrs. Krohne and Sesemann of London.

diseases of the bladder; Otis had not demonstrated the full capacity of all parts of the male urethra to dilatation; Bigelow had not shown us the tolerance of the bladder to prolonged but gentle manipulations; nor had we learnt the value of drainage and irrigation of the bladder, and how much operative surgery was capable of doing for the enlarged prostate when this was found to complicate stone. In the presence of these advances, I believe that perineal litholapaxy will be found of considerable service, and that its more general employment will tend to reduce the number of stone recurrences after litholapaxy as usually practised.

Liverpool.

ON PERFORATION OF THE VERMIFORM APPENDIX IN ITS RELATION WITH ATTACKS OF PERI-TYPHLITIS.¹

By JOHN A. MACDOUGALL, M.D., F.R.C.S. EDIN.,
CONSULTING SURGEON TO THE CUMBERLAND INFIRMARY, ETC.

AMONG the difficulties which pertain to the practice of medicine there is none greater than that at times attendant upon a correct differential diagnosis, and, although in certain cases it may not be *absolutely* necessary for the good of the patient that this should be at once decided, there are others in which such knowledge is essential for determining on that line of treatment which is the safest and the best. A correct diagnosis may prove of the highest importance where mere medical measures must suffice, and it assumes a higher value when, through a surgical procedure—itsself of some magnitude,—relief and recovery can alone be effected. The interest and the anxiety inseparable from attacks of severe abdominal pain are fully recognised as well as the difficulty, in many instances, of determining the exact condition which underlies them. And this difficulty is deepened and largely increased when we find that in one especial region of the abdomen there may arise three distinct morbid conditions, every one of them marked by the closest similarity in their symptomatology, but differing very widely in their prognosis and in their treatment.

Under the terms "typhlitis" and "peri-typhlitis" we have been accustomed to recognise a condition of localised abdominal inflammation evidenced by the presence of pain, of a sense of resistance and slight dulness on percussion in the right iliac region, by tenderness on pressure, and fulness, which fulness in a very considerable proportion of cases assumes the form of a well-defined tumour. This local condition is not usually attended by very grave constitutional manifestation, and a favourable prognosis may, as a rule, be given. The terms of this prognosis I can best render in the words of Dr. Hilton Fagge.² "I have, indeed, a strong conviction," he says, "that no case in which the disease can be diagnosed as being seated in the cæcum ever terminates fatally if judiciously managed." And, again: "Even when typhlitis presents itself clinically under the guise of intestinal obstruction or of *diffused acute peritonitis* [the italics are mine], I believe that it scarcely ever destroys life if judiciously managed." This favourable estimate of the risks attendant upon an attack of peri-typhlitis I read for the first time more than a year ago, and then, after some considerable experience of the disease, I would have fully endorsed it, but within the past eight months it has happened that four cases have come under my own observation; and of that of a fifth I have intimate knowledge, in which, apart, may be, from a history of greater severity in the subjective symptoms, the whole conditions, local and general, were at the beginning but those of a peri-typhlitis, and yet all these five sufferers are now in their graves. From a consideration of the morbidity which gave rise to such sad issues there spring these two questions: Wherein lies the difference between the simple and the fatal cases of peri-typhlitis? and have we any knowledge by which in their early days—for, as a rule, there is not much in their later—by which we may distinguish between them? Perhaps the best way in which we can approach a discussion of this subject is by bringing under notice, very concisely, the clinical features in three cases of peri-cæcal trouble, all

differing, I believe, in their etiology, and endeavouring through the relation of their symptoms, and their issue, to determine the features which distinguish the favourable cases from those of graver omen.

CASE 1.—The early progress of the first case I will give in the words of the sufferer herself, a lady who has had indifferently health, but who had at no period of her life any history of previous abdominal trouble: "I remember quite well that I got 'a chill' in going into a cold chapel at about 11 A.M. one day; it was a horrible day of east wind and wet. I never was warm again all day, but had no pain—just shivered and was miserable. I awoke with a pain at about 4 A.M. next morning, though not very severe, and it went on getting rather worse, until it grew very bad about 1 o'clock, and then it seemed as if a bolt of fire had been passed through me. I fainted, and was sick, and had no relief until I had that blessed opium." This lady, when I first saw her, was suffering much pain in the right iliac fossa, where there was tenderness on pressure, with a sense of resistance, but no dulness. The expression was good, the pulse quick (120), and the temperature 101·2°. She had only vomited once, but felt nauseated. Next day the general condition was worse, the pulse was quicker and smaller, the temperature 102·2°, and there was distinct fulness in the fossa, but no tenderness beyond its limits. I need not record the daily progress, but will only add that the highest temperature was 103°, and that for three or four days its average was close upon 102°; that a distinct tumour formed in the course of the third day; that this tumour lasted for fully a fortnight, that it gradually subsided and disappeared, and that the line of acute tenderness never extended much beyond its limits. Four years have elapsed since this attack was recovered from, and she has had no return of pain or sense of discomfort in the affected region.

CASE 2.—An active healthy boy, aged fifteen, with no record of previous illness, and with no history of any previous attack of abdominal pain, was, six hours after eating a hearty meal of uncooked mussels, seized with sudden pain in the right iliac fossa. His doctor saw him some hours afterwards, and had no difficulty in satisfying himself that the lad had a typhlitis. His temperature rose to 102°; and, without increase in the region of tenderness, a well-marked tumour slowly formed. I saw him on the sixth day of his illness, for retention of urine had made its appearance and added to the anxiety of the case. He had then a good aspect, a pulse of 90, a temperature of 101°, and a well-developed peri-typhlitic tumour, with no tenderness beyond an inch or so from its edge. He had not vomited except in the beginning of his illness, but had some diarrhoea alternating with constipation. His recovery, as his attendant notes, "was steadily progressive, the tumour not disappearing for more than a fortnight after the cessation of pain." In neither of these cases was there any vomiting but that which accompanied the onset of the disease, and there was no general abdominal tenderness and no marked abdominal distension or rigidity.

CASE 3.—M. H—, a healthy girl, aged twelve, was, within a short time of having eaten a hearty breakfast, seized with very acute pain in the right side of the abdomen, quickly followed by vomiting. She was in no way collapsed, but complained bitterly that the fomentations applied to the painful region aggravated her suffering, and that a dose of laxative medicine which was administered increased the tendency to sickness. In the twenty-four hours following she had severe pain and constant retching. When first visited on the morning of March 5th, she was found with a bright expression of face, making complaint of bad pain in the lower abdomen on the right side and of complete anorexia. Her pulse was 80, of fair character; her mouth temperature 99·6°; her abdomen was somewhat full, but was only tender on pressure in the right iliac region, in which region a tumour having the characters of that observed in cases of peri-typhlitis was readily recognised. In the evening she was better; the vomiting had entirely ceased; the pulse was still 80, of somewhat fuller force; temperature 99·6°; and the region of tenderness had not increased in extent.—7th: Has passed a good night; facial expression good; pulse 75; temperature 99°; tumour in iliac region more distinct, and no increase in the extent of abdominal tenderness. In the evening she was visited in my absence by Dr. Helm, who found that she had just returned to bed after having been at stool (a procedure against which her nurse had been warned), where she had strained a good deal, and this without effect. While in this position the severe iliac pain reappeared, and was

¹ Read at a meeting of the Carlisle Medical Society, April 12th, 1888.

² Principles and Practice of Medicine, vol. ii., p. 175.