

of men will serve temporarily all the practical purposes of the exact natural standard.

36. Now the mortality of men of the soldier's age in the healthy parts of England and Wales is such that, on an average, 8 die annually in 1000 living.

37. Recruits for India undergo careful examination; and when soldiers are attacked with consumption, or any disease that is not soon fatal, they are invalided. Thus their recorded mortality in peace, under such conditions as can be commanded for the army at home, should not exceed that experienced in the healthy districts of England, which, as regards their salubrity, are by no means perfect models.

38. Half the population of England and Wales is concentrated in town and city parishes, under many unfavourable conditions; and the annual mortality of Englishmen of the soldier's age is 9 in 1000.

39. The mortality of men of the same age in the unhealthiest towns of England, and in the unhealthiest trades, is at the rate of 12 per 1000.

40. Thus the mortality varies in different cases; and as it rises from 8 to 9 and 12, unfavourable sanitary conditions are discovered accounting for every degree of increase. The same principle holds in the mortality of the British army at home, which was at the rate of 17 per 1000 annually, and is now declining in proportion as the causes of disease are abolished or mitigated.

41. The mortality of non-commissioned officers and men serving in the British army abroad in the four years 1857-60 was at the rate of 41 per 1000; of the officers, the mortality was 30 in 1000.

42. The annual mortality of officers serving at home and abroad was 17, of non-commissioned officers and men 33 in 1000, during the years 1839-53 of European peace. Sir Alex. Tulloch gave, in his evidence, a series of War-office returns of the strength, deaths, and mortality of the Royal army in India during thirty-nine years, 1817-55; from which it appears that the mean strength in the three Presidencies was 20,332, and the registered deaths 55,584: so the annual rate of mortality was 70 per 1000. The Mahratta, Pindaree, Burmese, Affghan, Sindh, Sutlej, Punjab, and Chinese campaigns account, according to his estimate, for 10 out of the 70 deaths.

43. The difficulties of obtaining results at once exact and precise were enormous; and the medical returns for some time appear to have included only the deaths in hospitals. The Commission therefore selected for analysis the Nominal Rolls of strength and casualties at the India House relating to the late Company's European troops.

44. The collection of annual Casualty Rolls at the India House was "compiled upon the principle of accounting for every man becoming ineffective in the year." Verified by the signatures of commanding officers and adjutants of corps, the rolls are perfectly intelligible and substantially correct; they have therefore been analysed elaborately for the purposes of this inquiry.

45. The European troops of the Company, unlike the Royal army, served in India only, where they remained until death, or until they returned home. The deaths in the fifty-seven years, 1800-56, amongst all the Company's non-commissioned officers and men, including invalids in India, amounted to 40,420, out of an aggregate of 588,820 years of life, obtained by adding up the average annual strength in those years; so, the annual rate of mortality has been 69 in 1000 during the present century, up to 1856.

46. The rate of mortality was as high as 134 in 1804 in the first Mahratta war, and it was as low as 41 in 1852. It was high, again, in the years of the mutiny, and it has been subsequently lower than the Indian standard. From the rate 55 in 1770-99, the rate rose to 85 in the 30 years 1800-29; and the mortality fell to 58 in the 27 years 1830-56; so that the death-rate of the British soldier since the first occupation of the country down to 1856 has oscillated round 69 per 1000.

47. If the mortality is set down at 69 in 1000, it follows that, besides deaths by natural causes, 61, or, taking the English standard, 60 per 1000 of our troops perished in India annually. It is at that expense that we held dominion there for a century; a company out of every regiment was sacrificed every twenty months. These companies faded away in the prime of life, leaving but few children; and they were replaced at a great cost by successive shiploads of recruits.

48. The last accessible returns, and the experience of the mutiny, were in strict conformity with the statements of the Commission. With a strength of 30,662 British soldiers, who sufficed for all purposes, England lost for years 2134, or 69 per 1000 men annually by death; but, from the returns of 1861, it

appeared that there were then in India 75,759 men, including non-commissioned officers, besides 8324 commissioned officers. The proposed European establishment was to comprise 73,000 men, or a third part of the British army, of whom, at the rate of 69 per 1000, the loss by death would be 5037 annually. This was the prospect had matters remained as they were up to 1856.

49. The sick in hospital by one estimate would be 7300; by another, 6132. This was an alarming prospect to the country, and distressing, inasmuch as the deaths out of the same number of men at the soldier's age is only 657, or at the rate of 9 per 1000. Instead of losing 657 lives annually, there was a well-grounded fear that, should years of war, and cholera, and fever, and dysentery, and liver disease recur as they had in past times, England might be called upon to supply the places of 5037 dead soldiers by 5037 recruits. This it was felt would, in addition to other casualties, be an undue strain upon the military resources of the country.

Invaliding.

1. In addition to the heavy losses by death during the mutiny, there was great loss by invaliding of 81, 74, and 60 per 1000 in the three years of 1860-62 following upon it.

2. The soldiers who were invalided from the Royal army and from the Company's force included many who laboured under slow fatal diseases, such as chronic dysentery, and other diseases which were contracted in the service. The Commission did not bring them into account. Yet the returns showed that, while the annual deaths during fifty-seven years was at the average rate of 69 in 1000, the other casualties were 82 in 1000; making a total of "casualties" from all causes, including invaliding and discharges, of 151 in 1000. The Commissioners only brought 69 per 1000 into prominent account.

3. The change from long periods of service to the short limit of ten years in the general army has tended, of late years, to reduce the apparent rate of mortality in India, inasmuch as unhealthy men are got rid of when their term of service expires, and only the healthy, well-behaved, seasoned soldier remains, if he chooses to volunteer for a further term.

4. Sir Alexander Tulloch, who estimated the annual mortality of the Royal army at 70 deaths in 1000, referred 10 to casualties in the field; and the Commission was of opinion that more than 10 out of the 82 men discharged for other casualties, including chronic maladies, would die of diseases induced by India.

P.S.—I may here observe, in reference to medical statistics generally, but especially to allegations occasionally made as to exaggerations in reckoning mortality in armies, that my friend, the late Major-General Sir Alexander Tulloch, K.C.B., often stated to me, as the result of his unequalled experiences in the preparation of his great work on the medical statistics of the British army over thirty years, and comprising a review of the health-history of more than a hundred thousand men, that any investigation such as that conducted by the Royal Commission of 1857, by whomsoever carried out, must necessarily eventuate in an under-statement of mortality; inasmuch as a certain number of deaths occur annually in an army—especially when scattered abroad in the manner of the military forces of this country—which cannot be traced. More or less of this kind of inaccuracy—the very reverse of exaggeration—must, indeed, attach to all such examinations and reports.

ON

LITHOTOMY BY A SEMILUNAR EXTERNAL INCISION.

By JOHN E. ERICHSEN, F.R.C.S.,

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HOLME PROFESSOR OF CLINICAL SURGERY.

SIR W. FERGUSSON, in the very interesting and valuable lecture on the above subject, published in the last number of THE LANCET, has broached several questions of great practical importance. It is not my object to enter into a discussion of these, for in the main I agree with all that has been written by that distinguished surgeon on the subject. But as I removed last summer a large calculus through the semilunar external incision, I have thought that a record of that case might not be an uninteresting addition to the remarks that have appeared in this journal on that subject. Like Sir William, although

practising, as a rule, lateral lithotomy by Cheselden's method, as modified by Liston, I have for a long time had grave doubts whether it was really the best way of getting into the bladder, and more especially of extracting a large stone out of it.

These doubts led me to determine to adopt the Transverse Bilateral method in the first favourable case that presented itself, and which was as follows:—

A. G.—, sixty-seven years of age, was sent to me at University College Hospital by Mr. Willing, of Great Wakering, Essex. He had suffered from symptoms of stone in the bladder for three years, and had much muco-pus in the urine. The report from the case-book is as follows:—

Aug. 1st.—Mr. Erichsen passed a sound into the bladder, and detected a large stone, apparently two inches or so in length. The patient being in good health otherwise, it was determined to perform lithotomy.

The operation was performed on the 7th of August. The patient having been placed under the influence of chloroform, Mr. Erichsen passed a grooved rectangular staff into the bladder; and the stone being at once felt, he proceeded to perform the operation after the bilateral fashion. A transverse crescentic incision was made in the perineum. The centre of the incision was half an inch above the anus, and each extremity of it about the same distance from the tuber ischii. The dissection was carried down in the line of the superficial incision to the central point of the perineum, so as to separate the bulb from the rectum. The scalpel was then thrust onwards into the groove of the staff, through the membranous urethra, and just in front of the prostate, its blade being directed upwards. The knife was now drawn backwards out of the wound, cutting upwards as it was withdrawn, so as to form a vertical incision in the superficial structure, of about an inch in extent, in the middle line, and communicating with the centre of the crescentic cut originally made. The knife being withdrawn, a lithotome caché was introduced along the groove of the staff; and by the withdrawal of this (the handle of the instrument being at the same time depressed) both lateral lobes of the prostate were divided to the extent of about three quarters of an inch—the distance to which the instrument had been previously adjusted. The lithotomy forceps was then introduced into the bladder, and the stone was at once seized. The withdrawal of the forceps was effected with some little difficulty, owing to the large size of the stone, and to the necessity of changing the direction of its axis in their blades. The calculus on removal was found to be of an oval form, with a long diameter of about two inches and three quarters, and nearly two inches in a transverse direction, and from its surface several irregular nodules projected. It weighed three ounces and one drachm. Its external surface was composed of uric acid. A tube was passed into the wound, and left for about forty hours, the urine coming away freely through it.

Aug. 10th.—The report continues as follows: Pulse 84; the patient going on well. From this time he progressed uninterruptedly (with the exception of a slight attack of diarrhoea, which was easily checked), taking his food well, sleeping well, and suffering no pain whatever.

On the 22nd the urine ceased to flow through the wound, and came entirely by the penis.

The wound granulated healthily, and, occasionally being touched with nitrate of silver, was almost entirely healed when he left the hospital on the 11th of September.

It will be seen by a reference to this case that I performed the operation by Dupuytren's method. This plan, as is well known, is the original "bilateral" operation by means of the "lithotome caché," a most beautiful and ingenious instrument devised expressly for it. Civiale modified this operation by making the external cut perpendicular in the mesial line, but retaining the double section of the prostate; and Sir W. Fergusson has still further modified it by confining the section in ordinary cases to the left lateral lobe of the prostate.

The principle of all these three operations appears to be the same—namely, to reach the neck of the bladder through the mesial line, where it is nearest to the surface. The difference in the details is, however, great, and I think most important.

So far as *external* incision is concerned, Sir W. Fergusson adopts Dupuytren's method—the crescentic transverse; thus getting wide space, enabling the rectum to be fairly separated from the bulb and well depressed, and cutting below or rather behind the arteries of the perineum. In all these respects I think this incision is preferable to the perpendicular external cut of Civiale and Allarton.

In the internal incision—that through the prostate and neck of the bladder—Civiale nearly follows Dupuytren, making the

cut equally into both lateral lobes by means of a lithotome caché; whilst Sir William confines his cut, except in certain cases, to the left lateral lobe, and makes it with the scalpel.

To my mind the double cut appears the preferable method, as by it an equal extent of incision can be made in the prostate with less danger of passing beyond its limit. Suppose, for the sake of argument, that to extract a calculus it is desirable to make a cut eight lines long into the prostate. If one lobe only is incised, the cut must go to the full extent in it. If both lobes are cut, only four lines need be divided in each of them; and so proportionately to any extent. As the whole under-surface of the prostate is exposed by the transverse external cut, it is as easy to divide both lobes as one. This may be done with the scalpel, and, in such dexterous hands as those of Sir William Fergusson, with perfect safety; but for a less expert master of our art I think the lithotome caché a safer instrument, as by it the extent of incision can, without possibility of error, be regulated to a hair's breadth.

There is one practical point in all these mesial operations of lithotomy—whether Allarton's, Civiale's, or Dupuytren's—which I consider of some little importance. It is the use of the rectangular in preference to the ordinary curved staff. I have now used it several times in Allarton's and Civiale's, and look upon it as possessing three very decided advantages over the curved staff. The first is, that its angle can be placed directly in the membranous part of the urethra, and held there until the knife enters its groove. Thus it becomes an unerring guide to the exact part of the urinary canal that we wish to open. The second advantage is, that it carries the urethra away from, instead of, as the curved staff does, down against the rectum. And the third is, that from the angle onwards the course of the groove is straight and direct, so that the beak of the lithotome or the point of the scalpel is carried on in a straight instead of a curved direction.

Cavendish-place, Jan. 1868.

NOTES ON AN

INTERESTING CASE OF MIDWIFERY.

By W. H. TAYLER, M.D., M.R.C.S.

On the 22nd of April, 1865, I was called to attend a woman, aged twenty-nine, in labour with her first child. Finding the pains were very slight I left. I called again in the afternoon, and made an examination, but could not feel the os. I began to suspect there would be some difficulty in the case, but, as the pains were about the same, I went away, telling the nurse to send for me as soon as they became stronger. About eight P.M. I was summoned, and now found the pains were of the right sort. I made an examination, but could neither detect any presentation, nor find the os. I felt about for some time, and at last detected a very small indentation (not an opening) about the size of a pea. This I considered must have formerly been the os, and that I had a case of occlusion of it. I also found the pubes projecting very much inwards, making the antero-post diameter very narrow, and altogether rendering it a case in which I did not feel justified in acting without a second opinion. I therefore sent for my friend, Dr. Stilwell, of Beckenham. He came, and agreed with me as to the nature of it. We also came to the conclusion that nothing remained but to make an artificial os, and overcome the pubic projection by forceps or craniotomy. I informed the husband of the difficulties of the case; he suggested further advice from town, but I told him the confidence we had in each other by reason of our having acted together in several most difficult cases which had occurred in our respective practices, made us feel quite equal to any emergency, and that we declined the assistance of a physician-accoucheur from London.

First, to make an os, I passed one of the blades of a pair of long scissors through the indentation in the uterus, and made several notches round it, which enabled me to introduce the point of the forefinger into the uterus. We then waited to see the effect of the pains. It did not dilate much. Then, by degrees, I introduced the middle finger, and by stretching the edges, somewhat increased the opening. After three hours' work I managed to get two fingers in, and could feel the head presenting. After manipulating for another two hours the opening was sufficiently dilated to render it advisable to rupture the membranes. This being done, the head, after a time, came down as low as the pubic projection would admit; but