

ON THE OPERATIONS PERFORMED  
IN THE GENERAL INFIRMARY AT LEEDS,

DURING A PERIOD OF OVER SIXTEEN YEARS, FROM THE  
END OF NOVEMBER, 1852, TO MAY, 1869 ;

With Remarks Thereon.

BY

MR. NUNNELEY, F.R.C.S.E.,  
ONE OF THE HONORARY SURGEONS.

LONDON :  
ROBERT HARDWICKE, 192, PICCADILLY.  
LEEDS ; H. W. WALKER, BRIGGATE  
1870.

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# OPERATIONS PERFORMED

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## GENERAL INFIRMARY AT LEEDS.

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QUITE apart from the great temporary interest which has of late been so largely directed to the subject of large hospitals or no hospitals—big wards, where numbers are congregated, or simple cottage rooms, where each patient is isolated or takes his chance with the other members of his family,—the results of operative surgery always have been, and must always continue to be, a subject of the greatest importance, not only to the surgeons immediately concerned in the operations, but to the profession and public at large. Hence the statistics of operations done at different places, and under different circumstances, must always possess an abiding interest, as they form one of the most important sources, if not indeed the most important, whence general principles may be deduced and applied, which never can be superseded, however much our knowledge of surgery may advance. Under proper reservation, and a full knowledge of how far they are applicable, the circumstances under which they are compiled, what is included, and, still more, what is excluded, in them, they become grand landmarks, which must ever be referred to by those who aim at becoming teachers and leaders in the science and practice of surgery.

I may frankly state that I am not one of those who imagine statistics can ever take the place of personal observation, or that, however extended they may be, the results deduced from them can be dogmatically and unhesitatingly applied to the treatment of any individual case, which can only be determined by the peculiar features itself possesses. If they be so used, it is probable harm rather than good will result. But, on the other hand, I feel fully assured that when the results of a large number of cases, which are in all respects alike, or as nearly so as may be, are truly stated, and the larger the number so much the better, they cannot but be of the greatest benefit to the careful surgeon in assisting him, when considering any individual case, to form a correct opinion as to what is the best thing to be done, and how it may best be done. But in order to possess this value, far more of detail must be considered and allowed for than has always been attended to. Mere numbers alone are of very little use. It has been said, and not without some reason, by some very shrewd practical men, that any mortal thing may be

proved by statistics. Hence some are disposed wholly to reject reasoning which may be founded on numbers. Now, if all sorts and manner of things are brought together, and from their mere numbers are expected to carry conviction, certainly their rejection is not improper. If for instance, because so many operations have been performed, and so many deaths and recoveries have followed, this is to be taken as ruling what will follow under every and very diverse circumstances, the inference may be not only utterly valueless, but perhaps absolutely mischievous; and therefore the practical man may be perfectly right in his contempt for what his own experience has shown him to be fallacious. But if as many circumstances and facts as can be observed are noted in each case, and only cases which are as identical as may be, are grouped together, then, if the number be sufficiently large to allow of such small differences between them—for no two cases can ever be absolutely identical—to correct each other, the inferences deduced cannot, I imagine, be otherwise than of the highest practical importance. The more accurate the observer of each individual case, the more valuable will be the general result, and the more reliable will be the whole. Now, while I would not venture to assert that each case included in the tables now given is altogether free from mistake, or that the inferences I have drawn from them are faultless, I believe the first have been recorded under circumstances which are as little likely to lead to intentional error or misstatement as is possible; and I have taken all the care I could do to be correct in the deductions I have thought fairly to be drawn from them.

The records of operations only go back to December, 1852, and I have tabulated them to May, 1869, the time when the Old Infirmary was closed, after having existed 100 years. The building was erected from the plans of Mr. Carr, a well-known architect, and under the superintendence of that deservedly celebrated engineer, Smeaton, the builder of Eddystone Lighthouse (who was born in the immediate neighbourhood of Leeds). It may therefore be considered as equal to any hospital of that date. It had undergone various alterations and additions, but for the period over which these statistics range it had not undergone any change, and the number of patients admitted, with their circumstances, condition, and occupations, was, so far as is possible, identical; so that here we have an important element, for there can be no doubt it is an important element in such calculations, to start with. The record was kept by the resident house-surgeon for the time being; and as he was responsible to the whole staff for its accuracy, there is no doubt, as there could be no temptation for its being otherwise, that it is

substantially so. It is possible that some few of the larger operations may have been accidentally omitted, and it is certain that different house-surgeons somewhat differed in the fulness of their records of the smaller operations, such, for instance, as the removal of the smaller tumours, plastic operations, *nævi*, *fistulæ*, and such like ; but still this only affects the number and lessens it, but I believe it in no degree affects the comparative result. No cases treated as out-patients were entered, and this again materially diminishes the number of the smaller operations, but of course it does not affect that of the greater and, to our present purpose, important ones.

It is much to be wished that a careful record of every serious accident admitted had been kept, and the result, whether operated upon or not, had been carefully noted ; we should then, had the details been well observed, have had the means of making a comparison of the results between those cases which were treated without operation (conservative surgery) and those operated upon. I fancy such a record is hardly to be found, in an accessible form, in any large hospital ; and yet it would possess the highest interest and value, provided it were well and faithfully done. Thus many compound fractures into joints, smashed limbs, and the like, are at once amputated by some surgeons, which are attempted, and often successfully, to be saved by others ; many cases of fractured and depressed skull are treated by trephining by some surgeons, which by others are let alone ; and so on with other injuries. Now, if we only had a record of a large number of such injuries, in which details of the amount of force used in causing the mischief, the exact extent of it, the age of the patient, the amount of shock immediately on the receipt of the accident, and its duration, the loss of blood, the injury to other parts, his habits of life, and such other details as have an influence over the result, more than one important unsettled question in surgery would receive elucidation.

I will now give the tables, and afterwards add such deductions and comments as I think may be fairly made upon them.

#### AMPUTATIONS.

The total number of amputations was 660. Of these, there were—of the upper extremity, 285 ; of the lower extremity, 375.

##### *Upper extremity.*

Of the whole number, 285 amputations of the upper extremity  $7\frac{1}{2}$  recovered to 1 death.

Of the 285 upper extremity operations, 233 were primary and 52 pathological, or very nearly  $4\frac{1}{2}$  primary to 1 pathological.

Of the 233 *primary* upper extremity amputations, 200 recovered and 33 died, being fully 6 recoveries to 1 death. Of these primary amputations, there were—

Of the hand ... ..	102,	of which	99	recovered,	and	3	died.
„ forearm ... ..	60	„	56	„	„	4	„
„ arm... ..	62	„	40	„	„	22	„
„ shoulder-joint...	9	„	5	„	„	4	„

being equal, of the hand to 33 recoveries to 1 death; of the forearm, 14 recoveries to 1 death; of the arm, very nearly 2 recoveries to 1 death; at the shoulder-joint,  $1\frac{1}{4}$  recoveries to 1 death.

The average age of the patients subjected to primary amputation of the upper extremity was: of the hand, 21 years; of the forearm, 26; of the arm, 31; of the shoulder, 36 years.

The average age of recoveries and deaths in primary amputations of the upper extremity was—

	Years.		Years.
Of the 99 recoveries of the hand,	20;	of the 3 deaths,	48
„ 56 „ forearm,	$25\frac{1}{2}$ ;	„ 4 „	29
„ 40 „ arm,	23;	„ 22 „	44
„ 5 „ shoulder-joint,	36;	„ 4 „	36

Of the forearm amputations, one was a double amputation just below the elbow joint, both arms having been dreadfully lacerated in a flax mill by a large carding machine; the woman, aged 38, recovered well.

Of the 52 *pathological* amputations of the upper extremity, 47 recovered and 5 died; being nearly equal to 10 recoveries to 1 death. Of these were—

Of the hand.....	9;	all of which	recovered.
„ forearm... ..	21;	of which	18 recovered, 3 died.
„ arm .....	20;	„	19 „ 1 „
„ shoulder..	2;	„	1 „ 1 „
	<hr/>		<hr/>
	52		47
			5

The average age of the upper-extremity pathological amputations was—of the hand,  $31\frac{1}{2}$  years; of the forearm,  $37\frac{1}{3}$  years; of the arm, 30 years; of the shoulder-joint (only 2 cases), 23 years.

The average age of recoveries and deaths in the pathological amputations of the upper extremity was—

	Years.		Years.
Of the 9 recoveries of the hand,	$31\frac{1}{2}$ ;	no deaths.	
„ 18 „ forearm,	35;	of the 3 deaths,	44
„ 19 „ arm,	$28\frac{1}{2}$ ;	„ 1 death,	75
„ 1 recovery of the shoulder,	41;	„ 1 „	5



The shoulder of the child was amputated for malignant disease in the head of the humerus. It died from repeated hæmorrhage twelve days after the operation, when the wound was all but healed, and the ligature had been away several days. There was no clot or lymph in the artery, which was quite patulous.

A curious fact may here be noticed, that the age of the patients who underwent pathological amputations of the upper extremity is considerably greater than that of those who underwent corresponding primary amputations. This can hardly be a mere accident.

### *Lower Extremity.*

Of the whole number (375) of lower extremity amputations rather more than  $3\frac{1}{2}$  recovered to 1 death.

Of the 375 lower extremity amputations, 122 were primary, and 253 were pathological,—rather more than 2 pathological to each primary.

Of the 122 *primary* amputations of the lower extremity, 71 recovered and 51 died, or rather more than  $1\frac{1}{3}$  recoveries to each death. Of these primary amputations there were—

	Recovered.	Died.
Of the foot ... ..	23, of which 21	2
„ ankle ... ..	3 „ 2	1
„ leg ... ..	69 „ 41	28
„ lower and middle thigh ... ..	18 „ 5	13
„ upper thigh ... ..	9 „ 2	7
	—	—
	122	71
		51

Being equal, for the foot, to  $10\frac{1}{2}$  recoveries to 1 death; of the ankle, 2 recoveries to 1 death; of the leg,  $1\frac{1}{2}$  recoveries to 1 death; of the middle and lower thigh, 1 recovery to  $2\frac{1}{2}$  deaths; and of the upper thigh, 1 recovery to  $3\frac{1}{2}$  deaths.

The average age of recoveries and deaths in primary amputations of the lower extremity was—

Recoveries.	Years.	Deaths.	Years.
Of the 21 of the foot ... ..	23; of the 2	2	26
„ 43 „ ankle and leg ... ..	25 $\frac{1}{2}$ ; „	29	39
„ 5 „ middle and lower thigh ...	20; „	13	44 $\frac{1}{2}$
„ 2 „ upper thigh ... ..	6 $\frac{1}{2}$ ; „	7	26

Of the 253 *pathological* amputations of the lower extremity, 210 re-

covered, and 43 died, being equal to nearly 5 recoveries to 1 death. Of these there were—

Of the foot	...	...	45 ;	of which	40 recovered,	5 died.
„ ankle	...	...	8 ;	„	8	„ 0 „
„ leg	...	...	99 ;	„	84	„ 15 „
„ middle & lower thigh	90 ;	„	70	„	20	„
„ upper thigh	...	9 ;	„	7	„	2 „
„ hip-joint	...	...	2 ;	„	1	„ 1 „
			<u>253</u>		<u>210</u>	<u>43</u>

being equal, for the foot, to 8 recoveries to 1 death ; of the ankle, to 8 recoveries to no death ; of the leg, of nearly 6 recoveries to 1 death ; of the middle and lower thigh, of  $3\frac{1}{2}$  recoveries to 1 death ; of the upper thigh,  $3\frac{1}{2}$  recoveries to 1 death ; and of the hip-joint, 1 recovery to 1 death.

The average age of recoveries and deaths in pathological amputations of the lower extremity was—

		Years.		Years.
Of the 39 recoveries of the foot,	...	23 $\frac{1}{4}$ ;	of the 5 deaths,	41
„ 8	„ ankle	25 $\frac{1}{2}$ ;	„ no death.	
„ 84	„ leg	27 ;	„ 15 deaths,	36
„ 70	„ middle and lower thigh	20 $\frac{2}{3}$ ;	„ 20	„ 33
„ 7	„ of the upper thigh	23 $\frac{1}{2}$ ;	„ 2	„ 37
„ 1	„ hip-joint	18 ;	„ 1	„ 28*

It will be noticed that the relative proportions of primary and pathological amputations in the upper and lower extremities is curiously reversed. In the upper extremity, the number of primary is 233, of pathological only 52; while in the lower extremity the number of primary is only 122, of the pathological it is 253.

#### EXCISIONS OF JOINTS. (75 in number.)

Of these, 44 were of the *upper extremity*, of which 11 were primary, and 33 pathological. Of the 11 *primary* excisions, the average age was 24 years. There were 9 recoveries and 2 deaths— $4\frac{1}{2}$  recoveries to each

\* In this woman, amputation of the middle thigh had been done twelve months previously for long-standing malignant disease in the head of the tibia and patella. At that time she was a mere skeleton, since which she had grown very fat ; those large oily fat-cells, not uncommonly found in women having fungoid disease. Lister's aortic clamp was used. Hardly any blood was lost. But great pressure had to be used to close the aorta this gave her terrible pain, from which and the nausea of the chloroform she never rallied, dying within thirty hours of the operation.

death. The average age of the 9 recoveries was  $23\frac{1}{3}$  years; of the 2 deaths  $37\frac{1}{2}$  years. Of these excisions 2 were of the wrist, both of which recovered; 9 were of the elbow-joint, of which 7 recovered, and 2 died— $3\frac{1}{2}$  recoveries to each death.

Of the *pathological* excisions of the upper extremity there were—Of the hand and wrist, 2, both of which recovered; of the elbow-joint, 26, of which 25 recovered, and 1 died; of the shoulder-joint 5, all of which recovered.

The average age of the 2 hand and wrist was 20 years; no death. Of the 25 elbow-joint,  $19\frac{1}{2}$  years; of the 1 death, 30 years. Of the 5 shoulder-joint,  $17\frac{1}{2}$ ; no death.

Of the 31 *lower extremity* excisions, 5 (all of the foot) were primary, and 26 were pathological. Of the 5 *primary* foot excisions, 4 recovered, and 1 died. The average age of the four recoveries was 38; the one death was 34 years old.

Of the *pathological* excisions were—  
 Of the foot ... 9, of which 8 were cured, and 1 relieved,  
 „ knee-joint 10, „ 7 „ „ 1 died, and 2 were followed by amputation.  
 „ hip-joint 7, of which 6 were cured, and 1 died from a very malignant attack of diphtheria four days after excision.

The average age of the pathological excisions of the lower extremity was—

	Years.		Years.
Of the 8 foot recoveries,	$20\frac{1}{2}$ ;	of the 1 relieved,	9.
„ 7 knee-joint „	18;	„ 1 death,	25.
„ 6 hip-joint „	13;	„ 1 death,	13.

These results of excision of joints, whether primary or pathological, especially of the larger and more important joints, being—even including the two knee-joint excisions which were followed by amputation, and both of which then recovered—only six deaths out of the seventy-five operations, contrast very favourably with the corresponding amputations; and, when added to the returns of these amputations, as must in all fairness be done when comparisons are made with the returns of such amputations from other hospitals and private practice, will be found materially to reduce the apparent difference between the two returns. Moreover, when it is recollected that in the great majority of these excisions, the patients were left with most excellent limbs, and nearly every one of the remainder with very useful limbs—far excelling any mechanical substitute hitherto contrived,—I cannot but think they go far to show, in properly selected cases, the great superiority of excision of joints over the corresponding limb amputations.

## STONE

(137 operations).

Of these 112 were lithotomy, and 25 lithotrity operations.

Of the 112 *lithotomy* operations, 98 recovered, and 14 died : equal to 7 recoveries to 1 death, or 1 death in every 8 cases.

	No. of Cases.	Recoveries.	Deaths.
Under 10 years old ...	55	51	4*
Above 10 and under 20	19	18	1
" 20   " 30	18	6	2†
" 30   " 40	3	2	1
" 40   " 50	10	8	2
" 50   " 60	15	12	3‡
" 60   " 70	2	1	1
	122	98	14

Of the 25 *lithotrity* cases, 20 recovered, and 5 died : equal to 1 death to 4 recoveries, or 1 in 5. Of these there were—

	Cases.	Recoveries.	Deaths.
Under 10 years of age ...	2	2	0
Above 10 and under 20	0	0	0
" 20   " 30	4	2	2
" 30   " 40	6	5	1
" 40   " 50	2	2	0
" 50   " 60	3	3	0
" 60   " 70	6	5	1
" 70   " 80	2	1	2
	25	20	5

It should be stated that this record ought not to be used for the purpose of comparison with other returns of lithotrity, nor for contrasting

\* Of these cases, one was that of a child four years old, whose case was an easy and simple one. He died, on the third day, in a convulsion, when, for the first time, his mother said she had often expected him to have died in a convulsion, to which he was very subject.

† One of these fatal cases was a small girl of weak intellect, who had an enormous stone, upon which the bladder was closely fitting. The stone measured five inches in its short circumference, and six inches in its long. It resisted all possible attempts to break it by lion and other forceps. Though the urethra had been for two days dilated with laminaria sticks, and three incisions were made in it at the time of operation, sloughing followed.

‡ One of these men died instantaneously, while sitting up in bed eating his breakfast, when nearly well. The heart was loaded with fat. He had been a great gin-drinker.

the results of it with lithotomy, inasmuch as the greater number of deaths occurred when the operation was first practiced in the Infirmary. The later operations have been much more successful than the earlier were.

#### PERINEAL SECTION.

Of this operation 47 cases are recorded, of which 39 were successful, 3 failed, and 6 died. In all these 5 fatal cases, rupture of the urethra and large effusion of urine had occurred before admission into the Infirmary. Of these there were—

		Cases.		Recoveries.	
Under 20 years of age	... ..	13	... ..	10	... 3 failed
„ 40 „	... ..	12	... ..	11	... 1 died
„ 50 „	... ..	9	... ..	7	... 2 „
„ 60 „	... ..	8	... ..	7	... 1 „
„ 70 „	... ..	5	... ..	4	... 1 „
		47		39	5

It may here be proper to explain that the large number of perineal sections as compared with the very small number of paracentesis of the bladder—and the contrast would have appeared still greater had the return been brought down to the end of the present year, for 7 perineal sections have been done within the last six months,—arises from our finding what complete and (with due subsequent attention to passing an instrument) permanent success attends the section.

I find recorded only 2 cases of *tapping the bladder*. Both were done through the rectum, in old, broken-down men: one was relieved, the other died.

#### STRANGULATED HERNIA.

Of operations for this affection there have been recorded 111; of which 53 were for inguinal, 54 for femoral, and 4 for umbilical.

Of the 53 cases of inguinal, 34 recovered, 19 died

„ 54 „ femoral, 37 „ 17 „

„ 4 „ umbilical, 2 „ 2 „

Of the 34 successful cases of inguinal hernia, the average age was 35; of the 19 fatal cases it was 47.

Of the 37 successful cases of femoral hernia, the average age was 53, and of the 17 fatal cases it was also 53.

The average age of the 2 successful and the 2 fatal cases of umbilical hernia was alike—50 years.

There was only 1 *colotomy*, aged 53, which was unsuccessful.

I believe that the greater proportion of successful femoral than of inguinal hernia operations is to be accounted for by the more acute and painful symptoms in strangulated femoral hernia inducing earlier attention and treatment than are given in the often long-standing inguinal form, in very many cases of which long delay and repeated violent attempts at reduction had induced gangrene of the gut before the patient was sent to the Infirmary.

Unfortunately, there is no record sufficiently precise to be depended upon of the cases in which the peritoneal sac was opened or not. In a considerable number it was not opened, and I feel sure with the effect of very greatly diminishing the fatality. If possible I never open the sac unless there be reason to suspect gangrene of the gut has already taken place, or is impending, and the gut will probably give way. I can hardly recollect a case where the sac has not been opened in which the patient has not quickly recovered.

The small number of umbilical hernia operations is well accounted for by the fact of so many cases in the end yielding to treatment; the great proportionate mortality in this form when the sac has to be opened, and the frequently chronic character of the symptoms, inducing every effort to be made to avoid operation.

Only 38 cases of TAPPING FOR OVARIAN DISEASE are recorded, though I believe the number must have been greater. Of these 10 are entered as fatal.

OVARIOTOMY was performed 25 times; 12 of the patients recovered, and 13 died. Here it ought to be mentioned that the success has been greater in the latter than in the earlier period over which the record extends.

There were 16 cases of VESICO-VAGINAL FISTULA operated upon, of which 2 were cured, 11 more or less improved, and 3 failed; and 4 cases of *Recto-vaginal* fistula, of which 1 was cured and 3 failed.

PLASTIC OPERATIONS are entered as numbering 174. Of these, 75 were for hare-lip, single or double; 4 for cleft palate, 2 of which were cured and 2 greatly improved; 3 were rhinoplastic operations, 2 of which were tolerably successful, considerable improvemet being gained, and 1 only partially so. The remaining 91 operations were nearly all for contracted cicatrices after burns: of these, 49 were of the face and neck, of which 40 are entered as cured, 7 as improved, 1 no better, 1 dead; 2 were of the chest, both of which were improved; 40 were of the upper extremity, of which 32 are entered as cured, 6 improved, and 2 failed.

I feel bound to say that I suspect this record is too favourable, arising

from the fact (which is a difficulty common to all hospitals) that the entries of the results have been made at the time the patient left the Infirmary, and have not been corrected after subsequent observation of them, which is essential for arriving at accurate conclusions. Satisfied as I am of the immense value of the operation, I can hardly believe the number of positive cures is so great as is recorded. I should prefer to have said "relieved" to more, and "cured" to a less number of the cases.

Of NÆVUS only 60 cases are recorded. Probably five times this number have been treated; but as only the larger and more serious forms have been taken into the Infirmary, only these have been entered. Of the 60 entered, 54 were situated on the head or face, 52 of which were cured, 1 relieved, and 1 (in which enucleation was practised) died; 4 were on the body, which were cured, as were 2 on the lower extremities. These numbers are sufficient to confirm what indeed is well known, how commonly nævi are situated on the head and face as compared with the trunk, and still more so with the extremities, particularly the upper. They were treated by excision, ligature, subcutaneous ligature, setons, nitric acid, nitrate-of-silver probes, and occasionally by enucleation, according to their position and extent, and the size and activity of the bloodvessels involved.

TUMOURS of all kinds removed by operation are set down as 312, nearly all of which were removed by excision. Of these there were situated—

On the head... ..	20 ;	of which 19 recovered,	1 died.
„ face and neck ...	93 ;	„ 91	„ 2 „
„ breast ... ..	84 ;	„ 78	„ 6 „
„ back... ..	21 ;	„ 21	„ 0 „
„ body ... ..	34 ;	„ 34	„ 0 „
„ upper extremity,	38 ;	„ 37	„ 1 „
„ lower extremity,	22 ;	„ 20	„ 2 „
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	312	300	12

The age varied from 1 year to 72, 75, 77, and 80, all the 4 latter recovering. The ratio of recoveries to deaths is as 25 to 1; or, excluding those of the breast, the majority of which were large operations for malignant disease, where the proportion of recoveries was 13 to 1 death, and the deaths in operation on the lower extremity, which were for the removal of very large and deeply-seated fungoid tumours, 1 death to 51½ recoveries. Surely such important operations as these—large plastic, lithotomy, excision of joints, and the like—cannot pass for

nothing when the question of hospitalism is discussed; they must be included in the calculation of proportions of failures to recoveries.

Of TRACHEOTOMY and LARYNGOTOMY only 14 cases are recorded. The ages varied from 1 to 66 years. Of the 14 cases, 7 were cured, 2 relieved, and 5 died.

Of EXCISION OF THE JAW only 10 cases are entered; of which 6 were of the lower and 4 of the upper jaw; the average age of the former being 40 years, that of the latter 54 years. Of the lower-jaw cases, 3 recovered and 3 died; of the upper-jaw, 1 recovered and 3 died. In these cases there must have been some exceptional cause for the unusual mortality, for, during the same period, I have operated in private upon 13 cases, with 12 recoveries and 1 death.

The ENTIRE TONGUE has been removed 8 times in the Infirmary (not including ten or twelve cases in which greater or less portions were taken away) and 7 times out of it, with uniform success so far as the operation itself is concerned.

The PENIS has been amputated 29 times, in each instance for malignant disease. 28 cases were successful; 1 was fatal.

The TESTIS is entered as having been removed in 10 cases, 8 of which recovered, and 2 died. The average age of the 10 cases was  $32\frac{1}{2}$  years.

During this period there were many cases of *Hæmatocele*, which are only partially recorded, where the scrotum and tunica vaginalis were freely laid open and the fibrinous clots turned out, with, so far as is recorded, uniform success.

TREPHINING for fracture and depression of the skull was done in 19 cases; 2 of which were simple depressed fractures, 11 were compound, and in 6 the dura mater was torn and the brain wounded. Of the 2 cases of simple depression, 1 recovered and 1 died; of the 11 cases of compound fracture only 2 recovered, 9 died; of the 6 cases in which the dura mater was torn and the brain lacerated, 5 died, and only 1 (a boy aged 12) recovered. So that out of the 19 cases in which the broken and depressed bone was removed, only 4 recovered. In some of the cases the brain was extensively lacerated. During this period a much larger number of cases, of both simple and compound fracture of the skull, were admitted, but, not being operated upon, no record of them has been kept, at least in an accessible form. I may, however, speaking from recollection, say that a larger proportion of those recovered where no operation was done than in those operated upon. This, most probably, is to be explained by the fact of trephining having been practised only in the most serious and unpromising cases.



Three cases of *trephining fractured spinal columns* have been done : 2 of the lower dorsal vertebræ, and 1 of the upper. One of the former cases recovered, and lived for nearly three years, when he died from consumption, to which his family are prone ; the others died, and in both the medulla was found to have been torn.

ANEURISM.—28 cases of operation for aneurism are recorded. Of these, 2 were of the subclavian artery, both being fatal ; 9 were of the common carotid, 7 of which recovered, and 2 died ; 17 were for aneurism of the external iliac, femoral, or popliteal arteries, of which 9 recovered and 8 died ; the average age of the successful and fatal cases being very nearly the same.

23 cases of *Varicose veins* were operated upon, almost exclusively by placing pins under the veins and twisting thread or wire over them. All the cases were cured. Of these, 4 were varicocele ; 19 varicose veins of the lower extremity, and in most instances of both legs. The average age of the 4 varicocele cases was  $20\frac{1}{2}$  years ; of varix of the lower extremity it was 38 years.

DISLOCATIONS.—The great proportion of dislocations of the upper extremities being treated as out-patients, only an imperfect record of the number has been kept. I find in all only 65 entered. Of these 32 were of the shoulder, 28 of which were reduced by manipulation—the heel in axilla, and the pulleys in a few instances ; 2 cases, of some standing, could not be reduced, but, the adhesions having been partially broken down, motion was improved. In 2 cases, which were of many weeks' (three months or more) standing fracture of the humerus, just below the neck, occurred before any great force had been used. In both the bones united by ligament ; and, as more motion was obtained, both patients thought themselves rather improved than otherwise by the attempt made. 4 dislocations of the elbow were easily and successfully reduced. One case was a dislocation of the knee backwards, in which the condyles pressed so greatly upon the popliteal artery and vein that the leg was becoming gangrenous fifteen hours afterwards ; reduction, so as to gain an excellent but not completely straight leg, was effected. 28 dislocations of the hip occurred. The oldest man was 73 years of age, the youngest boy only  $2\frac{1}{2}$  ; both cases were easily reduced by manipulation. Of the remaining cases, 11 were reduced by manipulation, 12 by the pulleys, and 2 could not be reduced, or, being reduced, the head of the bone immediately got displaced again. In these there was probably fracture of the acetabulum also. However, both patients, the one a man, the other a woman, after some weeks of bed, recovered good limbs so as to resume their usual occupations, using a high-soled shoe.

**EXTIRPATION OF EYEBALL.**—I have not thought it necessary to include in these returns operations upon the eye and its appendages, which, however delicate, can hardly be called important as affecting the ratio of hospital mortality, with one exception, which should be included among the more serious—extirpation of the eyeball, and, not unfrequently, of the entire contents of the orbit as well. This operation appears to have been done 35 times, with 34 recoveries and only 1 death.

I omitted to insert in its proper place one important operation, that of **EXTIRPATION OF A VERY LARGE FIBROID UTERUS.**—The woman, aged 38, I had on three different occasions admitted for lengthened periods into the Infirmary, on account of incessant vomiting, and constant profuse hæmorrhage. So long as she remained in the horizontal position these exhausting symptoms were kept in abeyance, but on her getting up and moving about they returned, and defied all treatment. With a full knowledge of the danger of the operation, she begged to undergo it. It was easily accomplished, and, so far as the removal of the diseased uterus was concerned, successfully. On the administration of chloroform, such intense retching set in, that the anæsthetic had to be at once suspended; but the retching continued for two days, during which nothing whatever remained on the stomach, when she sank from the exhaustion, as it appeared, so occasioned, rather than from the ablation of the fibroid mass.

#### MORTALITY.

That the mortality after operations in hospitals is much influenced by many causes altogether unconnected with the hospital itself, some of which are as yet beyond our control or even knowledge, the following varying rates for different periods in the Leeds Infirmary will show.

From May 1st to the end of October, 1865, 21 deaths occurred out of 100 recorded operations, being at the rate of 21 per cent. In the next six months, from November 1st, 1865, to the end of April, 1866, there were 23 deaths after 118 operations, which is nearly in the same ratio; while in the following six months, to November, 1866, there were only 10 deaths after 115 operations, being less than one-half the percentage of the previous half-year; and in the six months from October 1st, 1868, to the end of March, 1869, out of 140 operations there were only 6 fatal cases, being less than 1 in 23; and in the last half of these six months, January, February, and March, only 1 death occurred out of all the operations; and this, be it recollected, was the last period of the occupation of the Infirmary which had been in use for 100 years.

To show that these varying rates of mortality were not dependent

upon the less severity of the cases treated in the different periods, I append a list of the more important operations performed.

From May 1, to Nov. 1, 1865.	From Oct. 1, 1868, to March 31, 1869.
Compound fracture of skull ... 2	Amputation of hip..... 1
Amputation of thigh..... 6	"    thigh..... 7
"    leg..... 8	"    leg..... 9
"    shoulder ..... 2	"    shoulder ..... 1
"    arm ..... 6	"    arm ..... 3
"    forearm..... 1	"    forearm ..... 5
Strangulated hernia ..... 4	Excision of hip-joint ..... 1
Excision of entire tongue ..... 1	"    knee-joint ..... 1
"    knee-joint ..... 1	"    elbow-joint ..... 1
"    elbow-joint ..... 5	"    lower jaw ..... 1
"    wrist-joint ..... 1	"    entire tongue ..... 3
"    upper jaw ..... 1	Strangulated hernia ..... 4
Lithotomy ..... 2	Ablation of contents of orbit... 3
Cæsarean section ..... 1	Lithotomy ..... 7
Ovariectomy ..... 1	Perineal section ..... 6
Ligature of subclavian art..... 2	
—	—
44	53

That these varying results do not depend exclusively, or even mainly, upon what has been called mere "hospitalism" is, I think sufficiently shown by this statement. One such positive fact is enough to negative many plausible suppositions. I am not about to deny that the conditions and arrangements of an hospital are without influence upon the result of cases treated within it, and to which I shall presently allude; but I do deny that the size of an hospital and the mere number of patients it contains stand so directly in relation to the results of treatment as to be the sole cause of its effects, as has been declared.

What, then, are the causes which influence the rate of mortality after operations in hospitals, as compared with that which occurs in private practice, about which so much has been said during the last few years, and which it is of so great importance accurately to ascertain? Before this serious matter can be definitely settled, it seems to me that there is one most important preliminary question which it is essential to determine, but which has been in a great degree overlooked by more than one of those who have spent so much labour in the inquiry; and yet, as I venture to think, it lies at the very threshold of the inquiry—namely, are there any general, universal causes which influence the results of surgical operations, altogether apart from accidental circumstances?

Such, for instance, as the more or less favourable position as to locality, food, nursing, &c., and, above all, skilful or unskilful surgical treatment, and suchlike secondary influences. I think there are, and that the time has arrived when, from the accumulated evidence we possess, there need be no hesitation in declaring that at least some causes are general, and may be regarded as natural; yet, as I have said, they are often overlooked, if not ignored, and one secondary circumstance alone, important though we may admit it to be, is regarded, to the exclusion of many others, which, not unlikely, may be of at least equal importance in influencing the result.

Let us take the inferences which, I think, may fairly be drawn from the foregoing results of the surgical practice for a little more than 16 years (16½ years), from December, 1852, to April, 1869, at the General Infirmary at Leeds. These inferences will, I believe, be found to be in strict harmony with those of almost every other hospital where the results have been tabulated and laid open to observation. If we wish to obtain general laws, it will not do to select one kind of operation alone, to the exclusion of all the rest,—as amputations, for instance; nor will it do to include in one group every case which has the same name, under whatever circumstances it may occur, and then to suppose, the result thus obtained—first, by neglecting all but the one kind of operation, and, secondly, by including all, however diverse, of this one kind in the calculation—as applicable to, and as showing an accurate result of, operations for every kind of surgical injury and disease. So long as this is done much labour will be expended, and very great ingenuity may be exercised, but certainly no reliable general law will be established. That most important information has been gained is certain; that great good will follow these inquiries no one can doubt; that the construction of hospitals will be much more in accordance with common sense, and less regulated by the very crude and incomplete notions which have been so pertinaciously and dominantly put forward during the past few years by some enthusiasts, who have only considered one side of the question, is devoutly to be hoped; and that much less money will be spent in obtaining greater efficiency is to be expected; but that the whole truth will be so arrived at I do not believe. Many things must be determined before this can be accomplished. While we may not adopt as incontrovertible all the propositions deduced by Sir James Simpson from his laborious investigations, we cannot but warmly admire the zeal and ability which he has expended on the subject, which must be attended with benefit in the obtaining better results in the arrangement of hospital buildings, whereby more value will be got from a smaller outlay of money.

I venture here to mention three general laws, which may now be taken as established.

1st. *That age alone exercises a most important influence over the results of injuries and operations.* This is to be observed in every kind of operation, after early infancy, when the vital powers have become developed. This is clearly illustrated in the three kinds of operation which are best adapted for observation, inasmuch as both adult and young are subject to them in numbers sufficiently large for comparison—namely, amputations, excision of joints, and lithotomy; where it is shown that, *ceteris paribus*, mortality increases with the age of the patients. This is true not only as a whole, but it is equally true in the details. Thus these tables show, and so do many others, that under 10 years of age lithotomy is hardly to be regarded as a dangerous operation. As age advances it becomes increasingly so. Thus out of 74 cases of lithotomy under 20 years of age, 69 recovered; and only 5 died from all causes, and even some of these could hardly be said to essentially depend upon the operation—equal to only 1 death in every 14 cases; while of 27 cases above 40 years old, no less than 6, or 1 in every  $4\frac{1}{2}$ , died. Of excisions of joints the tables show a like condition. The average age of successful excisions of the knee-joint is 18 years, of the unsuccessful 30 years; of the successful elbow-joint excisions it is  $19\frac{1}{2}$  years, and of unsuccessful 30 years. The much larger number of amputation cases exhibit this even more strikingly. Thus of the 99 recoveries of primary hand amputations the average age is 20 years, of the unsuccessful it is 48 years; of the pathological hand amputations all recovered. Of the 56 successful primary forearm amputations the average age is  $25\frac{1}{2}$  years, of the deaths 29 years; of the successful pathological forearm amputations it is 35 years, of the deaths 44 years; of the successful primary arm amputations it is 23 years, of the unsuccessful 44 years; of the successful pathological arm amputations it is  $28\frac{1}{2}$  years, of the unsuccessful 75 years. The lower extremity still better proves the same thing. Thus, of successful primary amputations of the foot the average age is 23 years, of the unsuccessful it is 26; of the successful pathological it is  $23\frac{1}{4}$  years, of the unsuccessful 41 years. Of successful primary amputations of the ankle and leg 25 years is the average age, of the unsuccessful it is 39 years; of the successful pathological it is  $25\frac{1}{2}$  years, with no death. Of successful primary lower and middle thigh amputations the average age is 21 years, of the unsuccessful it is  $44\frac{1}{2}$  years; of the successful lower and middle thigh amputations it is  $20\frac{2}{3}$  years, of the unsuccessful

33 years. Of the successful primary upper thigh amputations it is  $6\frac{1}{2}$  years, of the unsuccessful 26 years ; of the successful pathological upper thigh amputations it is  $23\frac{1}{2}$  years, and of the unsuccessful 37 years.

It may be alleged, with some truth, that in some of these calculations the number of cases included is too small to speak very positively upon ; and that two or three patients, whether successful or unsuccessful, who happened to be very young or very old would alter the average age of recoveries or deaths. No doubt this objection is not without its weight, and if such single table alone formed the basis for our deduction it would be very important ; but as each table shows a like result, they must be taken together, and as forming one, when it will be admitted that the number of cases is sufficient to be perfectly reliable as excluding such source of error, and to prove that the result must depend upon a general law, and not be accidental. Besides, these tables do not stand alone, but are in agreement with most of those which have been prepared from other materials by other writers.

2nd. The second proposition which I would venture to state as a general law is, *cæteris paribus, that in proportion to the size of the injured part, or that of the part removed by operation, so does the danger to life increase* ; or, in other words, that the danger to life increases in direct ratio to the size of the part removed. This proposition has, I think, been less commonly recognised than the previous one, of the relation of age to the result ; and though the truth of it has been for long past gradually dawning, and is fully supported by the statistics of amputations lately published, its importance is not even now fully recognised by many surgeons. Nothing is more common, when an amputation is about to be done, and how to get flaps is considered, than to hear said, "Oh, take plenty ; the removal of an inch or two is of no consequence !" Yet that it is of great consequence a study of the results here recorded will prove. I do not mean to assert that the desire not to remove a bit more of a limb is to override every other consideration ; but this I do mean to declare, that unless some decided advantage is to be gained by the removal of more of a limb than is necessary to leave a good stump, we ought always to remove as little as may be requisite for the attainment of this end, and that every inch of a limb unnecessarily sacrificed is a positive wrong done to the patient by increasing, *pro tanto*, the danger to his life. Thus out of 111 operations, in which (excluding the minor operations) the whole or a considerable part of the hand was removed, 108 recovered and only 3 died, being 36 recoveries to 1 death ; out of 81 amputations of the forearm, there were 74 recoveries to 7 deaths,

or  $10\frac{1}{2}$  recoveries to each death ; of 82 upper arm amputations, 59 recovered and 23 died, being rather more than  $2\frac{1}{2}$  recoveries to each death ; of 11 shoulder amputations, 6 recovered, while 5 died, or  $1\frac{1}{8}$  recoveries to 1 death. Of 68 foot amputations (excluding the minor), 61 recovered and 7 died, or nearly 9 recoveries to each death ; of 10 recorded (there must have been more) ankle-joint amputations, 9 recovered and 1 died ; of 168 amputations of the leg, 125 recovered and 43 died, being nearly 3 recoveries to each fatal case ; of 107 amputations in the lower or middle thigh, 74 recovered and 33 died, being nearly  $2\frac{1}{4}$  recoveries to 1 death ; of 18 upper thigh amputations, 9 recovered and 9 died ; and of 2 amputations at the hip-joint, 1 recovered and one died. Thus it will be seen that not only is the mortality greater in proportion to the size of the part of an extremity removed, but that it is also greater for each of the corresponding portions of the lower extremity than it is for those of the upper extremity. These proportions are too constant to allow of their being accidental or mere fortuitous coincidences : they must depend upon a general cause.

3rd. The third general law appears to be, *that operations performed immediately on or very shortly after the receipt of an injury* (primary operations, as they are commonly now called) *are more fatal than are those which are performed, at a subsequent period or for disease* (secondary or pathological operations). I now simply state this as a fact, without attempting to go at any length into the causes of this difference. Whether it be that the body in rude health is, as it were, taken by surprise, and so resents the mischief in a more violent manner than when it is, so to speak, accustomed to disease ; that visceral complications are more prone to be set up when the system is suddenly altered from its ordinary healthful condition, than when it has become accustomed to confinement and toned down by previous illness ; or that the shock of amputation, following so shortly upon the shock of injury, occasions the fatal result, as may be contended by those who argue for one or other theory (probably all of these causes are contributory),—the fact seems to be undeniable. There are also two other important considerations which must not be overlooked. The first is, that accidents which are followed by immediate operation not unfrequently occur when a person is in a drunken bewildered, condition, or in those who are habitual drinkers, whose system is constantly bordering on disease, and is unable to withstand the least disturbing cause, so that the injury itself, without the operation, is sufficient to produce fatal mischief, and hence to run up the death-rate abnormally beyond what is simply due

to the operation itself. The second consideration also has, I believe, a very important influence over the result—namely, that an injury to a limb which renders immediate amputation of it necessary often is not the only mischief inflicted. Other limbs may at the same time have been seriously hurt, or one or more of the viscera may have been injured, so that the patient might with fairness be said rather to die of these injuries than because of the amputation of the limb; or the two causes together may overpower the system, when one injury alone would have been recovered from. Besides this, injuries requiring primary amputations of nearly identical parts, and of so similiar a character as to involve classification under the same head, may really be of very different gravity and danger. Thus, very recently, within one month, I have had three cases in which the left arm had been torn off just below the shoulder-joint, and in which a like primary operation was performed, but in which, from the first, it was evident a very different amount of danger had to be met. In No. 1, a child got its arm entangled in the spokes of a revolving cart-wheel; the arm was twisted off immediately below the shoulder-joint, all the integuments covering the scapula being likewise detached; these all sloughed, and the stump had to cicatrise by slow granulation, the child long remaining in a critical condition. No. 2 was a man whose arm was twisted off in precisely the same part by a very rapidly revolving shaft; but the integument not being detached above, he recovered so rapidly as to be able to leave the Infirmary in eighteen days. No. 3 was a boy whose arm had also been twisted off by a machinery shaft in a similar part and manner; but in him not only the integument over the scapula had been detached, but that over the whole pectoral muscle and clavicle as well; this all sloughed. He never fully rallied, and died on the sixth day.

Of primary amputations of the upper extremity there were 233; of which 200 recovered, 33 died: 6 recoveries to 1 death. Of these, 102 were of the hand; of which 99 recovered, being equal to 33 recoveries to 1 death. Sixty were amputations of the forearm; of which 56 recovered and 4 died, being 14 recoveries to 1 death. Of 62 arm amputations, 40 recovered and 22 died—nearly 2 recoveries to 1 death. While of 9 shoulder-joint amputations, 5 recovered and 4 died; being at the rate of  $1\frac{1}{2}$  recoveries to each death.

Of the 52 pathological upper extremity amputations, 47 recovered, 5 died; or 9 recoveries to each death. Of these, 9 of the hand, all recovered; of 21 of the forearm, 18 recovered, 3 died—6 recoveries to 1 death; of 20 amputations, 19 recovered, 1 died; and of 2 shoulder amputations, 1 recovered and 1 died.



Of the lower extremity primary amputations there were 122 ; 71 of which recovered and 51 died ; hardly  $1\frac{1}{2}$  recoveries to each death. Of these, of 23 foot amputations, 21 recovered and 2 died, nearly 11 recoveries to 1 death ; of 2 ankle-joint amputations, 1 recovered and 1 died ; of 69 leg primary amputations, 41 recovered and 28 died,  $1\frac{1}{2}$  recoveries to 1 death ; of 17 middle and lower thigh amputations, only 4 recovered, while 13 died, or rather more than 3 deaths to 1 recovery ; and of 9 upper thigh amputations, only 2 recovered, while 7 died, being  $3\frac{1}{2}$  deaths to 1 recovery.

There were 253 pathological lower extremity amputations ; of which 210 recovered, 43 died ; equal to 5 recoveries to 1 death. Of these, 45 were foot amputations ; of which 40 recovered and 5 died, or 8 recoveries to 1 death. There were 8 amputations at the ankle ; all of which recovered. Out of 99 leg amputations, 84 recovered and 15 died, being rather more than  $6\frac{1}{2}$  recoveries to each death ; of 90 middle and lower thigh amputations, 70 recovered and 20 died, or  $3\frac{1}{2}$  recoveries to 1 death ; of 9 upper thigh amputations, 7 recovered and 2 died, or  $3\frac{1}{2}$  recoveries to 1 death ; and of the 2 hip-joint amputations, 1 recovered and 1 died.

These statistics will thus, I think, clearly prove how little worth are all comparisons as to the relative results of amputations in different places and circumstances, unless these three general laws of age, size of part removed, and period of amputation are distinctly estimated and allowed for. When such has been done, the influence of the secondary circumstances under which amputations have been performed may fairly be considered, and the advantages and disadvantages of isolation or aggregation, domestic or public hospital treatment, compared ; the manner of operating ; the arresting of hæmorrhage by ligature, torsion, acupressure, or forceps ; the shape of the flaps—circular, single flap, double equal-length flaps, a long and a short one, whether right-angled or ovoid ; dressing or no dressing, water or grease ; and lesser, but not unimportant, matters discussed. That domestic, or perhaps I should rather say isolated, treatment in serious and acute surgical diseases and important operations (and many medical affections also) in some respects possesses great advantage over large wards, in which many strange patients are congregated, whether they be crowded or not, is, I think, perfectly certain ; and that a greater proportion of acute diseases, great surgical injuries, and major operations, will recover in the former than in the latter I believe to be absolutely true ; but that the results depend exclusively upon the size of the wards, or the poisoning of its walls, floors, furniture, or air, I do not believe. There are many other causes which

in my opinion exert at least as great, if not far greater, influence than this mere hospitalism. In fact, the argument that the result depends upon the hospital, and that the fatality is in direct ratio to the size and age of the hospital, proves too much. No consideration is given to the position, construction, size of the wards, whether large or small, their arrangement, whether crowded or not, the kind of bedding and other furniture, but merely to the size of the hospital and the gross number of the patients it admits; yet in some instances the patient in a large hospital must be in a more isolated position than he possibly could be in most crowded cottages, and all the surrounding circumstances must be far less likely to induce "hospitalism" than what must often be the condition in what is described as "cottage treatment," where many inmates are crowded together in close juxtaposition, and where fresh air, cleanliness, seclusion, due attention to diet, and such necessaries are absolutely impossible. Here must be the circumstances which are supposed to induce hospitalism, pyæmia, and other terrible results; and yet we are told they never happen. If the mere age of an hospital were the important cause of fatality which it has been declared by some, to be owing to its floors, walls, ceilings, and furniture gradually becoming more and more saturated with disease-producing germs, the mortality within it should be in proportion to its age independent of other things; yet that this really is not so is within the knowledge of every hospital surgeon, and as the tables of mortality after operations at different periods in the General Infirmary at Leeds, given just above, will show.

A large portion of the Birmingham General Hospital has been in use for ninety years; the other part is quite modern, where the wards are not only more lofty, but afford a larger cubic space per bed than the older wards do; yet, in a recent visit to it with my friend Mr. Oliver Pemberton, I could not learn that operations were more successful, or that erysipelas, pyæmia, and such affections were less prevalent, or less fatal, in the new wards than in the older. This is also, I believe, true in the large hospitals in Bristol, Liverpool, and Newcastle. Some time ago, when visiting the Hôpital Lariboisière with Mons. Verneuil, he told me (which was repeated to me by one of the resident medical officers quite independently, and, indeed, unknown to each other) that in the old Hôtel Dieu, formerly a monastery, in the most crowded part of the centre of the city of Paris, with its low arched stone ceilings, used as it has been for many centuries as an hospital, they cured a greater number of bad surgical cases than he and other surgeons could in the costly and

magnificent, extravagantly built Hôpital Lariboisière,\* situated on high ground, in the outskirts of Paris; remarking, in answer to my expression of surprise at the beauty of the place, "*Oui Monsieur; très beau, mais très mauvais.*" At Lyons, where the old town Hôtel Dieu contrasts in every possible respect with the large modern hospital placed on the high elevation of Croix Rouge, it is also the case. I was told the same account in Switzerland, where I compared the low crowded wards of the old town hospital of Lausanne with the splendid new suburban Cantonal hospital at Geneva. The one is an ancient, ill-arranged, crowded, converted monastery; the other, a splendid new building, erected with all the requirements of modern skill.

When a severely injured person is at home, surrounded by his friends, where his old habits, associations, and tastes are attended to, I believe his mental condition is calmer and more quiescent than when he is placed in a large bare ward with thirty or forty entire strangers, who for the most part are far too much engrossed with their own troubles to care greatly for his; and the mere presence of severe injuries, operations, and deaths has an appalling influence upon him. I have seen more than one patient so palpably injured, and one undoubtedly frightened to death, by two dreadfully mutilated men being on the same day placed in contiguous beds, where they very shortly afterwards died, that I always, as far as is possible, insist that two bad cases shall never be placed side by side. In every hospital there must be days (commonly two in the week) upon which friends are admitted to see the inmates. Now, suppose a ward contains 30 patients, it will usually lead to the noise and confusion of nearly 100 visitors tramping about, which, in my opinion, cannot but be most prejudicial to anyone who is seriously ill or injured, or who has lately undergone a capital operation. It is also, in large wards as now constructed, on the hypothesis that too much light and air cannot be admitted, quite impossible to adjust the light, heat, and ventilation so as to be what is best for every case in it. See how in these respects a large ward, constructed on these notions, contrasts with what every one insists upon in private practice, where, in similar cases, seclusion from light, noise, and all disturbing influences is rigidly enforced. If this be proper in the one case, I cannot imagine how the opposite can be so in the other. True, these and analogous things, are, in my mind, unanswer-

\* The Hôpital Lariboisière is the prototype of the Leeds New Infirmary, the wards being of the same size and general arrangement, if not of the exact measurement; except that the former has the advantage of having two small wards attached to each of the large ones.

able arguments against placing a very serious case of injury or operation in a large ward amongst many strangers, and especially where there is not the least privacy; but they by no means prove that large wards are to be abolished for chronic or convalescent cases, or that the skill and experience of hospital surgeons are of no avail whatever, or that a man who has successfully performed two or three operations in a cottage is on a par with the man who for years has seen and done the work of a large hospital. Some statisticians would seem to show, and even to prove, that experience and practice in operative surgery are useless, and form an exception to every other department of human knowledge.

There is yet another circumstance, which it is impossible to reduce to tables, but which I believe plays a most important part in influencing the ratio of recoveries and deaths after operations, and which is special and peculiar to each operation itself,—the kind of cases which are submitted to operation, and what are treated without. Many an injury for which one surgeon will remove a limb will be treated without operation by another; and many another injury which one surgeon will consider so serious that he will not operate upon the patient, another man will think it right to operate upon, so that he may give the sufferer what he fully knows is a poor chance for his life, but still the only one. I little doubt that in our Infirmary many cases are treated without operation, with the desire to save the limb, which in some places would at once be amputated, conservative surgery being carried out to its full extent; while many other cases, where the injuries are of so serious a character as to render them of the greatest danger, are operated upon, and which some surgeons would decline on account of their severity. Such differences in practice must render the numerical result apparently much worse where one idea of treatment prevails than where the other is adopted; but obviously the worse result is only apparent, and not real, and if all the facts could be fully known it might so far reverse the numbers. I think that I shall be supported by the concurrent opinion of the great majority of surgeons who are familiar with the practice in rural surgery as well as that in large hospitals, that such differences really do prevail, and, from the necessities of the situation, always have prevailed, and probably always will.

My beau ideal of an hospital is the combination of large, cheerful wards, having plenty of air and light, with enough space for exercise, in which chronic and convalescent cases, minor injuries, operations, and diseases may be advantageously placed; with a sufficiency of small and different sized wards, capable of accommodating from one to six or eight

patients. In these I would place every serious injury, capital operation, or acute disease, and more especially all offensive and contagious affections, which, as now usually put in the large wards, are, I believe, not only disgusting to the other inmates, but the not unfrequent cause of "hospitalism" and death to them. To place a sufferer from a large scald or burn, an old stinking ulcer, a gangrenous wound, cellular erysipelas with large fetid sloughs and suppuration, cases of incontinence of urine or fæces, and such-like affections, as has now to be done in the Leeds and some other new hospitals, is, in my opinion, contrary to all propriety, and so injurious as to seriously militate against the philanthropic object for which such enormous outlay has been made—varying from at least £400 in the Leeds Infirmary, to considerably more in others, for each bed occupied.

LEEDS, *January*, 1870.





