A
STATISTICAL INQUIRY
INTO THE
FREQUENCY
OF
STONE IN THE BLADDER,
IN
GREAT BRITAIN AND IRELAND.

By RICHARD SMITH, Esq.

SENIOR SURGEON TO THE BRISTOL INFIRMARY.

COMMUNICATED BY

DR. LAIRD.

Read Jan. 18, 1820.

IN the year 1735, Bristol had the honor of setting to the rest of England the example of a Provincial Infirmary, supported entirely by the voluntary contributions of her citizens and neighbours. At that period there was nothing of the kind out of the metropolis. Indeed its foundation is nearly co-eval with, or precedes altogether by many years, every charitable institution for the relief of the sick and hurt poor, even in London, together with Scotland and Ireland; royal and chartered foundations excepted.

To this institution my father died senior surgeon, in 1791, having received from his predecessors a sufficient number of calculi to form a nucleus for a collection. Being elected myself in 1796, I have been enabled from time to time to add to those taken from my own cases the specimens removed by Messrs. G. Lowe, Noble, Yeatman, Metford, Allard, and Bowles.

It gives me also great pleasure to acknowledge that my friends and hospital colleagues, Messrs. Hetling, R. Lowe, Daniel, and N. Smith, have in the most liberal manner contributed the calculi from their several private and infirmary patients. I am also under obligations to Messrs. Goldwyer, Salmon, Estlin, Mortimer, Burroughs, J., C., and M. Yeatman, Jefferies, Griffiths, Sully, Soden, and Martindale; together with Doctors T. W. and Robert, Dyer, Dr. Felix, Dr. Wallis, and in a very particular manner to Dr. W. H. Gilby.

The books of the faculty at the house, have been kept from its foundation with a correctness which has enabled me to make out very readily the subsequent Tables, for an unexampled number of years.

The perusal of Dr. Marcet's treatise, which shows most lamentably the paucity of records, together with the general spirit of inquiry upon the subject, induced me to think that a few statistical

memoranda might not be unacceptable, since it is only by individual contribution that general results can be obtained. I thought it would also be desirable to inquire whether the complaint was more or less frequent than it used to be; and I conceived that no better means existed of approximating to a solution of the question than a research at the various public charities. Trusting therefore to the liberality of my professional brethren for credit that my motive was a disinterested one, I took the liberty of addressing a franked letter to every provincial hospital for information. I was not deceived. From the officers of each, my application met with the most polite, and in several instances, such friendly attention, that I should be very ungrateful if I neglected this opportunity to return to those gentlemen my best acknowledgments, and also to add, that it will give me great pleasure to make them any return in my power.

It also gives me great satisfaction to lay before the public a proof that those institutions are open to medical research upon proper application; but it cannot but be mingled with a regret, that in several instances the means of information did not keep pace with the wish to afford it. Let us hope that in future this neglect will be remedied, not only in the country, but also in the capital, where the great hospitals have set such an example of remissness in the non-preservation of chirurgical documents.

TABLE I.—Patients received into the Bristol Subjects came.

	Bristol City and County of itself.	Bath.	Somerset.
From the year 1735 to 1740	8	...	5
1740 to 1750	36	5	10
1750 to 1760	35	4	11
1760 to 1770	29	2	10
1770 to 1780	16	1	6
1780 to 1790	16	4	5
1790 to 1800	18	1	1
1800 to 1810	8	1	3
1810 to 1817	7	...	...
Total in 82 years, as nearly as can be ascertained. }	173	18	51
<p>The following List of places in the column of each County, indicates the precedence in order of frequency; thus, in Somersetshire, Shepton Mallet sent us the most; Frome the next; and Yeovil the least, &c. ; and so on of other places. We have had occasional Patients from most of the Counties in England, but it was not thought worth while to specify them.</p>			<p>Shepton Mallet. Frome. Freshford. Pensford. Stackton. Uphill. Chard. Publoe. Ashton. Ditcheat. Yeovil.</p>

Infirmary, exhibiting the Counties from whence the

Wilts.	Gloucester.	South Wales, together with Monmouthshire.	Devon.
2	3	...	...
6	7	6	..
9	6	6	2
9	7	4	...
4	3	1	1
4	2	4	...
2	3	6	...
1	2	2	...
1	2	...	...
37	35	30	3
Chippenham has sent as many as all the rest of the County. Bradford. Corsham. Devizes. Marlborough. Malmesbury. Melksham.	Kingswood. Marshfield. Bitton. Gloucester City. Wooton. Mangotsfield. Winterbourne. Upton on Severn. Stroud. Newport. Henbury. Westbury.	Neath. Chepstow. Newport. Carleon. Aberdare. Carmarthen. Haverfordwest. St. David's.	Topsham. Taunton. From N. Wales none. Herefordshire. From Leominster one in the year 1792.

When the Bristol Infirmary was founded, there was no Provincial Hospital in the Kingdom.

In 1736 was founded the Winchester, distant from us 73 miles.—In 1743, the Devon and Exeter opened, distant 76 miles.—The same year, the Northampton, 97 miles.—In 1747, the Shrewsbury, distant 103 miles.—In 1749, the Worcester, distant 62 miles.—In 1756, the Gloster, distant 35 miles.—In 1766, the Oxford, distant 70 miles.—In 1767, the Salisbury, distant 53 miles.—In 1775, the Hereford, distant 50 miles.—In 1779, the Birmingham, distant 87 miles.—In 1788, the Bath Casualty Hospital, distant 12 miles.—In 1792, the Bath City Infirmary and Dispensary.

The above memoranda of the dates of the several institutions are added, in order to assist the judgment in forming an opinion whether the defalcation in cases we have experienced of late years, may have been caused by patients going to other infirmaries.

TABLE II.—A Scale of relative frequency of Calculous Cases at various Periods during 82 Years, at the Bristol Infirmary.

PERIODS.	Numbers cut.	Number of both In and Out-Patients in that time.	Which is equal to One in
From 1735 to Dec. 1740	16	1665	104
1740 to 1750	61	13878	$227\frac{1}{2}$
1750 to 1760	83	29640	$356\frac{1}{2}$
1760 to 1770	62	38675	$623\frac{3}{4}$
1770 to 1780	40	37174	$929\frac{1}{4}$
1780 to 1790	36	40269	$1118\frac{3}{8}$
1790 to 1800	32	37517	$1172\frac{1}{4}$
1800 to 1810	16	30989	$1936\frac{3}{4}$
1810 to 1817, seven years	10	26632	$2663\frac{1}{2}$

In the year 1776, a Dispensary was established in Bristol, which has also received during the 42 years 43,184 applicants; the whole of whom would probably have otherwise come to the Infirmary. There was no stone case among them, for if there had been, it would have been sent there.

TABLE III.—A Scale of the Fatality of Calculus, at different Ages, at the Bristol Infirmary.

Ages.	Cured.	Died.	Females.	Periods of ten years.	Cured.	Died.	Total.	Equal to one death in
1	no case		...	Under 10.	106 including 2 females.	29	135	4½
2	1 case *		...					
3	11	6	1					
4	19	3	1					
5	16	4	...					
6	12	2	...					
7	13	4	...					
8	5	2	...					
9	20	5	...					
10	10	3	...					
11	8	3	...	From 10 to 20 inclusive.	52 including 3 females.	13	65	5
12	13	3	1					
13	8	2	1					
14	4	1	...					
15	3	1	...					
16	4	1	...					
17	2	...	...					
18	4	1	1					
19	4	1	...					
20	2	...	...					
21	5	2	...	From 20 to 30 inclusive.	30 including 1 female.	5	35	7
22	2	1	...					
23	1	...	...					
24	4	...	...					
25	3	1	...					
26	2	..	...					
27	4	...	...					
28	2	...	1					
29	4	...	...					
30	3	1	...					
31	3	1	...	From 30 to 40 inclusive.	27 including 1 female.	7	34	5
32	3	1	...					
33	3	...	...					
34	1	...	1					
35	2	1	...					
36	5	...	...					
37	3	1	...					
38	4	...	...					
39	2	1	...					
40	1	2	...					

* No operation.

Ages.	Cured.	Died.	Females.	Periods of ten years.	Cured.	Died.	Total.	Equal to one death in
41	4	...	...	From 40 to 50 inclu- sive.	26	11	37	3½
42	2	1	...					
43	3	1	...					
44	3	1	...					
45	2	2	...					
46	2	1	...					
47	2	...	...					
48	2	1	...					
49	2	...	...					
50	4	4	...					
51	2	1	...	From 50 to 60 inclu- sive.	22	6	28	4½
52	2	1	...					
53	2	...	...					
54	4	1	...					
55	1	...	...					
56	2	1	...					
57	3	1	...					
58	3	...	...					
59	1	...	...					
60	2	1	...					
61	1	...	...	From 60 to 70 inclu- sive.	11	7	18	2½
62	1	1	...					
63	1	3	...					
64	1	...	...					
65	1	...	...					
66	2	...	...					
67	1	...	...					
68	1	...	...					
69	2	1	...					
70	...	2	...					
71	...	...	...	From 70 to 80 inclu- sive.	1	1	2	2
72	...	...	...					
73	...	...	...					
74	...	...	...					
75	...	1	...					
76	...	...	..					
77	...	...	...					
78	...	...	...					
79	1	...	...					
80	...	...	...					
Total					275	79	354	4½

Several more patients were cut, but their ages are not known, and therefore they are not included in the above list.

CLASSIFICATION OF SPECIMENS IN THE COLLECTION.

IN the following numerical classification of specimens, it must be understood that none are perfectly pure ; many having occasionally a slight admixture of other substances, and all being more or less compacted by animal matter. Each is however put into that class to which the great bulk of the calculus belongs.

Lithic acid entirely (except animal mucus) . 74
The largest single calculus among these weighs $5\frac{1}{2}$ oz. ; a great number singly, 3 and 4 oz. In several instances 3, 4, 5, and 6 calculi were removed at one operation, weighing from half an oz. to 2 and 3 oz. each. All the *gravelly* specimens are invariably lithic acid, with one single exception.

Lithic acid nucleus, more or less thick, surrounded by earthy phosphates 12
In this class the late Mr. Godfrey Lowe cut a subject, aged 79, removed 3 calculi, and cured his patient in a few weeks. There is no specimen of a lithic acid nucleus coated by oxalate of lime in the collection. If this be the case

in other museums, there must be some cause for this curious fact.

Bone earth calculus, phosphate of lime 1
Several specimens of depositions in the lungs of phthisical persons, in the liver, and in the uterus, are all of this description.

Ammoniaco-magnesian phosphate, or calculus in which this triple salt prevails almost exclusively 1
It weighs an ounce, is very white, porous, and friable; it belonged to the late Mr. Morgan Yeatman.

Fusible calculi, being composed of the ammoniaco-magnesian phosphate mixed up with phosphate of lime 18
The largest weighs 4 oz.

Foreign bodies coated with the fusible matter. A pin, a piece of bougie, and 4 pieces of stick. The latter were thrust up the urethra during the agonies of retained urine 3
I have a calculus from a dog, which is very easily fusible.

Mulberry, or oxalate of lime, with the exception of animal matter, tolerably pure 33
The largest weighs an ounce and a half; from a patient of Mr. Henry Daniel's.

Oxalate of lime, coated with earthy phosphates 32

The largest was from a patient of my late father's, and weighs 2 oz. and a half.

Oxalate of lime, coated by lithic acid 29

I know of no instance amongst the calculi in which oxalate of lime prevails, where more than a single calculus was found in the same bladder. Qy. Is this *always* the case?

Alternating calculi, consisting of regular layers stratum super stratum 10

In one cut by the late Mr. F. C. Bowles, are beautifully displayed four regular deposits, viz. oxalate of lime, lithic acid, oxalate of lime and lithic acid mixed, and externally ammoniaco-magnesian phosphate of lime. In this class is one 5 oz. removed by the late Mr. Morgan Yeatman, from a lad about 16, A. D. 1788. The subject is now in Bristol, with a very large family in good health. In every instance in this class the nucleus is oxalate of lime. Qy. Is it so in other collections?

Compound calculi, in which the ingredients are mixed up together 8

Two of those, both cut by Mr. Richard Lowe, are curiously shaped.

Calculi from the prostate. One set consisting of

about 30, the size of a small pin's head ; they are phosphate of lime.

The kidney stones are some oxalate of lime, and others lithic acid. One given to me by the late Mr. J. P. Noble, appeared to have afflicted the patient thirty years.

The bezoars, from the intestines of horses, 30 in number, consist invariably of ammoniaco-magnesian phosphate. The nucleus in each is either a piece of an iron nail, or of lead, except in one large specimen given to me by Mr. W. Mortimer, where the nucleus is a stone of some fruit ; it was brought from Cadiz curiously encircled with brass, and dated 1682. It was always considered to have been a human urinary concretion, until I sawed it open, when its nature was no longer doubtful.

A kidney stone, weighing 5 oz., from a horse which was shot when 25 years old, is composed of carbonate and phosphate of lime.

Carbonate of lime. Of this substance, there are ten specimens taken from the urinary bladders of several pigs. The largest weighs an ounce and a half ; they are invariably compact, dense, ponderous, and capable of a good polish. Small ones of the size of peas, are common in these animals, and I have a great many of them.

Carbonate of lime is not enumerated by Dr. Marcet as a substance entering into the composition of human calculi. The fact, however, is indisputable. Dr. W. H. Gilby of Clifton, whose knowledge of the subject is unquestionable, and to whose friendly aid I am chiefly indebted for the various analyses, has detected it decidedly in four instances. A notice of it will be found in Mr. Tilloch's Journal for 1817, vol. 49, p. 188, in the account of a curious calculus given to me by Mr. G. M. Burroughs of Clifton; the nucleus of which is a common cinder, an inch and a half long, and one broad. Since the publication of that paper, Mr. H. Sully of Wiveliscombe sent me three oddly shaped calculi, which he removed from a lad, together with fifteen pea-sized ones previously voided by the urethra, which are entirely carbonate of lime, held together by animal mucus. To prevent all possibility of mistake, I sent a few to Dr. Marcet, who found the analysis correct, although from their appearance he at first considered them (as I did myself) to be oxalate of lime. I am not aware of any other instance in which gravel is not composed of lithic acid.

There is in the museum no specimen either of the fibrinous, or of the xanthic, or of the cystic-oxyd-calculus.

Amongst the models is one of a calculus weighing ten ounces and a half, and nearly ten inches

in circumference, removed from an elderly gentleman who was perfectly well in eleven weeks ; the date being 1740. What is the largest calculous case upon record which did well ?

Of secondary calculus, four instances only have come to my knowledge, a male and a female at the Chester Infirmary, by Mr. G. Rowland, and a man at the Bristol, by the late Mr. Godfrey Lowe, after an interval of four years. Sixteen years have now elapsed since the second operation, without any recurrence of the complaint ; both calculi are alike, being an oxalate of lime, nucleus in a segment of a circle, surrounded by fusible matter. The fourth is a lad from Wales, whom I cut about eight years since.

The late Mr. J. P. Noble cut the son, myself a daughter, from the same parents, which is the only instance that has come to my knowledge of more than one case in the same family, although my inquiries have been directed to this point ; and many of the boys cut, have belonged to numerous families.

At the infirmary, seven females only have been cut in eighty-three years ; and within the last thirty years, about four in private practice in, and near Bristol. In the last female case, the calculus was removed through the urethra by me with a pair of

pocket forceps very easily. It is triangular and about an inch wide.

In the fitting up of the cabinet, the following method has been pursued. Each calculus has been neatly sawed through the center, in the direction of the long flat axis, and every part of it chemically examined. Both pieces are then well cleaned and gummed to a card; one exhibiting the untouched nucleus and whole internal surface, and the other the coating, by which means the mutilations are concealed; the card is cut sufficiently large to hold commodiously the name of the operator and the date, the name of the patient, his age and place of residence, the weight and brief analysis of the calculus, and a minute of the result of the operation. Should there be any thing worthy of more detail or remark, it is written upon the back, and thus every card is in itself a complete epitome of the case.

Having cut through nearly three hundred calculi, my experience enables me to recommend the following method. Make the saw a fixed point between your breast, and an immoveable body, and holding the calculus evenly and steadily in the hand, rub it against the teeth. The blade *ought* to be as wide as the calculus, but if a common metacarpal is used, the danger of breaking the calculus is greatly lessened by thrusting a bit of card into the slit made by the saw. The teeth must be frequently cleaned, and I have found the best

means to be a constant drop of water made with a piece of rag over the lip of a jug, and acting as a syphon, and so placed as to drop pretty fast upon your work, which will then be very pleasantly and speedily performed.

The mulberry calculi, those from the hog, and some others, are so hard, that it will be requisite to have a small file, just to sharpen your saw now and then. Indeed, if you have many to divide, you will much shorten the labour by frequently re-touching a few of the teeth. The appearance and beauty of the calculus will be very much heightened by rubbing the flat surface with a little water upon a smooth even stone, and the harder specimens may be afterwards finely polished by friction against the palm of the hand ; but it will be in vain to attempt this with the soft ones ; even the latter, however, may be well, but gently, cleaned after the sawing with a common nail brush without any injury.

THE following is the result of the inquiry, as to the number of patients cut at the various provincial charities, and also in private practice.

BATH City, Inhabitants 31,496. All Somersetshire, Bath included, 303,180.

The population generally is taken according to the census of 1811, and certainly very considerably under the actual present amount.

The Casualty Hospital was founded in 1788 by Mr. James Norman, formerly one of the surgeons to the Bristol Infirmary. From this gentleman I learn that there was no case of lithotomy, until the year 1801 ; since which time there have been six. Mr. George Norman has also cut three private patients. At the General Hospital operations are not performed.

The Bath City Infirmary and Dispensary, opened in 1792. It makes up 20 beds ; the annual average number of in-patients, 191 ; out-patients, 1650. To this institution Mr. John Smith Soden is one of the surgeons, and from him I learn that the total number of stone cases from the commencement, are, one by the late Mr. Crutwell in 1810, and four others by himself. In one case 3xss of calculous

matter were removed from a pouch in the urethra, the bladder being free from disease. Mr. Soden has also had three private cases, in one of which the calculus weighed eight ounces. Mr. Richard Taylor has sent me urethral concretions from four patients. The above, together with a lady and a gentleman who died uncut, I have reason to believe make nearly, if not entirely, the sum total of calculous patients in Bath, for the last 30 years. Of the patients cut at Exeter, 2 in 10 years were from Somersetshire; and 6 in the same period of time were cut in Bristol.

GLOUCESTER City, Population 8280. The County, excluding Bristol, 209,081. (The Infirmary opened in 1756.)

Summary of a letter from Mr. Ralph Fletcher, the senior surgeon. From 1807 to 1811, there was one case in each year; in 1812, four; in 1813, three; in 1814, one; in 1815 and 1816, three; in 1817, five, one a female. Of these, eight were cut by Mr. Fletcher. There are no records preserved for a longer period. The annual average of in-patients is about 170, and the out 560. Mr. Fletcher succeeded the late Mr. Trye in 1814. The latter cut 40 patients in the preceding 25 years; of which number 4 were private. This gentleman had acquired celebrity as a lithotomist, and had in consequence a much larger portion of the infirmary cases, than his colleague, the late Mr. Nayler.

Dr. Dobson's report, published in 1779, states, "Out of 12,490 patients since the commencement of this infirmary, 21 have been cut; that is, 1 in 594." Dr. Cheston in his letter to Dobson, says, "May not the difference of the numbers cut at the County Hospitals, depend upon the reputation of the several surgeons, from their inclination or disinclination to lithotomy, more than from any provincial cause? At a County Hospital now established some years, no patient was cut until lately, the surgeons sending them all to London." Dr. Dobson replies, "the circumstances here pointed out, have been particularly attended to through the whole inquiry."

HEREFORD City, 7306. County Population, 89,073.

Summary of a letter from Mr. J. Cam. In 1804 succeeded his father, who had been elected at the commencement of the charity in 1775; from which period to the present, there has not been one single applicant with stone, although there have passed the books, 16,248 patients. The average yearly numbers in the house at a time are 30 or 40; and 60 or 70 out.

Mr. Thomas Griffiths, now practising in Bristol, was Apothecary to the charity many years, and confirms the statement. I am not aware of lithotomy having been performed in the county. Dr. Dob-

son's report from Dr. Cam, is to the same effect.

WORCESTER City, 13,814. Population of County, 160,546. (Infirmary opened. 1749.)

Summary of a letter from Mr. William Sandford, senior surgeon. Has been at the charity 25 years, during which time, there have been at irregular periods, 9 cases, and Mr. S. had cut three private patients, all males. Number of in-patients about 460, and out 1500 yearly. The house holds 62 persons.

Dr. Dobson's report. "During the last 12 years, 25 patients have been cut here out of 7752 persons, that is, 1 in 310." "I do not recollect," says Mr. Russel, the doctors' correspondent, "that any one case came from Herefordshire, and I believe that the disease is less frequent there than in this, or the neighbouring counties."

SALISBURY City, 8243 inhabitants. County of Wilts, 193,828. (Infirmary opened, 1767.)

Summary of a letter from Mr. Henry Coates. No records. During the 14 years Mr. C. had been surgeon, he had cut five, and his colleague, one, all males; only one case in private practice within his knowledge; considers the disease rare in his neighbourhood. Three of the above persons came

from a considerable distance. In-patients yearly 503, out 998.

Mr. W. H. Goldwyer of Bristol, has a cabinet containing 92 calculi, the greater part the result of operations by his great grandfather, who died in 1748, after practising at Salisbury during 54 years. But they were not all patients in the neighbourhood, since some of them are marked, Andover, Kingswood, Southampton, Bristol. Mr. G. considers that he possesses only the wreck of the collection, as no care was taken of them before they descended to him. I am under great obligations to this gentleman for many valuable contributions to my museum.

OXFORD. Exclusive of 2000 students, 11,813 inhabitants. The County 119,191. (The Radcliffe opened 1770.)

Summary of a letter from Mr. W. Tuckwell. In ten years, 12 cases, all males. Six children and six adults. One case only died. Mr. T. has sounded eight persons in the neighbourhood; four will probably undergo the operation.

DEVON and EXETER. The population of the city is 18,896. (Opened in 1743.)

The following valuable document will speak for itself:

May 3, 1818.

DEAR SIR,

THE Surgeons of this Hospital have endeavoured to send you a correct account of the number of stone cases admitted into it during the last 12 years. The return is made from a careful examination of the Hospital books of admission, aided by their recollection, and particularly by that of Mr. Luscombe, the Senior Surgeon to the Charity. There may possibly be some omissions, but they believe very few cases had been passed over. They wish they could have sent you a return in every respect satisfactory.

I have also returned 10 years' averages of the number of in-patients since 1746, with corrected averages of the whole number of patients since that period. This Hospital may be considered as embracing very nearly all the stone cases amongst the poor of this county, and of some part of the adjoining counties of Somerset, Dorset, and particularly of Cornwall. Operations for the stone, out of the Hospital, are *very rare*.

The population of Devon in 1811, was 383,000. One may fairly calculate the Hospital to have within its circle the stone operations (with very few exceptions) of a population of 600,000. The population of Cornwall exceeding 200,000. I have

not heard of one instance among the richer classes; of 20 patients, 6 came from the neighbourhood of Dartmouth or Brixham, 4 from Exeter and its immediate vicinity, 2 from Somerset (Taunton and Wellington), 2 from Cornwall, 2 from Okehampton, 4 from other parts of the county.

YEARS.	Patients Total Average Yearly.	In- Patients Average Yearly.	Number of Stone Cases discharged as cured.	Average in each year.	Propor- tion to	Whole number of Patients.	In- Patients.	Greatest Number in any year.
1746 to 1756.....	566	375	30	3	1	188	125	6 in 1751
1756 to 1766.....	965	660	17	$1\frac{7}{10}$	1	568	391	3
1766 to 1776.....	1038	706	21	$2\frac{1}{10}$	1	494	336	4
1776 to 1786.....	1142	837						
1786 to 1796.....	1455	991						
1796 to 1806.....	1158	788	6 or 7 in 1803, 4 and 5					
1806 to 1816.....	1084	712	16, perhaps 18 (2 females)	$1\frac{6}{10}$	1	677	445	4 in 1809
1811 to 1818.....	1095	744	9	$1\frac{2}{3}$	1	942	577	3 in 1811

THE return from 1811 may be considered as quite correct. Of 9 patients admitted the whole were discharged cured, no death having occurred. In the 5 years prior to 1806, no death occurred to the best of my recollection whilst a pupil. From 1806 to 1816, 2 deaths happened, which would make the number admitted 18 instead of 16, but I have calculated to the latter number, as the early returns from 1746 to 1776, were of patients cured only. Since 1806 there have been 3 females, of the ages of 5, 15, and 46. Should you wish for any farther information in respect of the contents of this letter, or should you wish me to institute any other inquiries, I shall have much pleasure in complying with your request.

The decrease of the proportion of stone cases, to the general population, and the patients in this hospital, within the last few years, is, from the foregoing table, very obvious. Of any plainer cause for such decrease, I am ignorant. Cyder is certainly less a liquor in use amongst the poorer classes than formerly, from the failure of crops, the high price, and the greater market for it in London. Many of our patients however were children who probably rarely tasted cyder. I do not know if the proportion of stone cases to the population brought within the sphere of the hospital, is greater than in other parts of the kingdom;

but this might be easily ascertained perhaps by the returns of other hospitals.

Your faithful Servant,

SAMUEL BARNES.

Dr. Dobson's report in 1779. "Dr. Glass informs me that 'stone and gravel are common diseases amongst the lower classes in this county; at the Infirmary, out of 26,606 patients, 75 have been cut,' that is, 1 in 355."

WINCHESTER City, Inhabitants 6705. Hampshire, 245,080. (Founded in 1736.)

Summary of a letter from Mr. Mayo. No records older than ten years. Messrs. Lyford and Wickham both concur with Mr. M. in the opinion, that stone cases are much less frequent than formerly, and that they have gradually declined in nearly the same ratio as at Bristol. From 1808 to 1817 there were cut 14, all males, ages from 6 to 60. One female died, in whose bladder a calculus was found. A boy was also admitted *in articulo mortis*, whose bladder was nearly filled with calculous concretions. Mr. Lyford has operated upon a few private cases, and there are in the neighbourhood 2 or 3 persons, known to have calculi who will not submit to any operation.

BIRMINGHAM City, 85,753 inhabitants. Warwickshire, 228,735.

Summary of communications from Mr. George Freer, and Mr. J. Hodgson, and Mr. Jukes. Opened in 1779. Patients cut in 38 years, including 5 females, 72; cured 59; died 13; 1 in 5 and 8 over; less than 1 in 6 died. In 38 years, 31010 in-patients; making less than 1 stone case in 430. The greater number of cases occur in 1814, when 5 were cut. In 4 scattered instances there were 4 annually; in all the rest, the numbers are 3, 2, 1, and 0, in the year; the average number cut, being rather less than 1 yearly. Lithotomy has more frequently been performed in private practice in the neighbourhood than formerly.

At COVENTRY, the city and county population of which amounts to 23787, Mr. J. S. Soden of Bath, cut a patient in 1812. He says "the disease is there so rare that I believe lithotomy has not been performed more than once during the preceding 50 years."

CAMBRIDGE City, 11,108. County 101,109.

Addenbroke's Hospital opened in 1766. A. D. 1817, in-patients, 446; out, 434.

Cambridge, Jan. 25, 1818.

SIR,

I AM requested by my colleagues Messrs. Thomas Bond, C. Lestourgeon, John Oakes, and L. S. Abbott, to answer the queries you favoured us

with relative to calculous patients ; and this request is made, because, as I have been more than forty years surgeon to Addenbroke's Hospital, and as I am likely to have heard of every operation in the county, they have been pleased to consider me as better acquainted than any other person with the subject of your inquiries.

It appears to me that calculous complaints prevail very little in this county and much less in the southern than in the northern part of it. As far as I can recollect, of the patients who have offered for lithotomy, both in private practice and in the Hospital, during the time I have been surgeon to it, the average is rather less than four patients annually, and by far the greater part of that number have come from the northern part of the county ; besides, those which are included in the average, I have to state, that in the Hospital, four females have been operated upon by opening the meatus urinarius laterally, and one by dilatation of it. See *Medico-Chirurgical Transactions*, Vol. VIII. Part II. In private practice, a female was delivered from three very large calculi, which by their magnitude, I presume had produced sphacelus of the whole of the meatus urinarius ; and from another female two very large calculi were removed after the division of a few fibres of the meatus ; the girth of the larger one at its long axis $5\frac{1}{8}$ inches, at its short axis $4\frac{1}{8}$ inches, of the smaller one and its long axis $3\frac{3}{4}$ inches, its short axis $2\frac{1}{2}$ inches. From a male after death, a calculus of prodigious size was taken

away, it measured in girth at the long axis $9\frac{1}{8}$ inches, and at the short axis $7\frac{1}{8}$ inches. It may be useful to observe, that this last patient had taken for 20 years all the various remedies called solvents. Our Hospital is on a small scale, yet large enough at present for the number of patients who offer, and I have inclosed a statement of the number which have been admitted in the different years since its opening, and as I imagine that every circumstance relative to your inquiry may be interesting to you, I have gone further than your letter expresses, and I have only to add, that of those operated upon, not more than one in twenty has died, and that calculous complaints seem to keep their usual standard in this county. I beg to ask, whether the decrease in calculous patients at your Hospital, may not originate in the increase of Hospitals, and that, owing to the general improvement in operative surgery, more operating surgeons are spread over this country?

With the most respectful compliments of my colleagues,

I am, Sir,

Your very obedient Servant and Friend,

T. V. OAKES.

Dr. Dobson reports in 1779 "that out of 6600 ins and outs, 4 only have been cut, that is, 1 in 1650.

NORTHAMPTON, City 8427. County 141,353.
(Infirmary opened in 1743.)

Extract of a letter from Mr. J. Elderton. No records ; but Dr. Kerr, and his colleagues, Dr. Lock and Mr. J. Rudsdell, have remarked for some years, a defalcation in about the same ratio as at Bristol. There have been no private operations. The Establishment accommodates about 84 persons ; and there are as out-patients in attendance about 110. In 1817, ins and outs, 2665. The cases from Huntingdon where the population is 42,208, are probably shared between this Hospital and Cambridge.

CANTERBURY, City 10,200. Kent 373,093.
(The Infirmary opened A. D. 1793.)

Extract of a letter from Mr. T. Culling, house-
surgeon and apothecary.

	Cases.	In and out patients.	
During the 1st five years	3	amongst	40
Do. in the 2d	3	.	100
Do. 3d	6	.	120
Do. 4th	8	.	150
Do. 5th	7	.	170

} yearly.

In the last four months 4 Besides 2 persons in whom the operation was not thought advisable. It has seldom occurred in private practice.

NORWICH, City 37,256. Norfolk, 291,999. Suffolk, 234,211. (Opened in 1771.)

The report published by Dr. Marcet is so honorable to this Infirmary, and so satisfactory, that I considered it unnecessary for me to trouble the

surgeons upon the subject. In the last 40 years 506 operations were performed, that is, $11\frac{1}{2}$ yearly. Of these 70 have died, that is, 1 in $7\frac{1}{4}$, or 4 in 29. The proportion of females to males is 1 to 17. Mortality in children 1 in 18; in adults 4 in 19, or quadruple. The number of persons annually admitted as in-patients in the last ten years, amount to 530; [in the preceding ten, 440; and before that, the average was about 428.

Cases of Stone.

From 1772 to 1782	.	100
1782 to 1792	.	120
1792 to 1802	.	116
1802 to 1812	.	137

So that there appears to be no increase in number. Do the numbers of private cases keep pace with the public ones? I am happy to learn by a letter addressed to me by Dr. Yelloly, late Physician to the London Hospital, that he has availed himself of his removal to Norwich, to inquire into the principal facts relative to the occurrence of calculus in Norfolk, with a view to ascertain whether any light can be thrown on the circumstances producing a liability to that disease.

SHREWSBURY, City 18,583. County of Salop 194,298. (Opened in 1747.)

Extract of a letter from Mr. H. E. Burd, house-surgeon. Average number about 2 in 3 years; the private cases are in the same proportion; all males.

From one old subject, 28 calculi were removed. 700 in, 1500 out patients yearly. In the opinion of the surgeons, stone cases are rare in Shropshire. Mr. William Sandford, now of Worcester, was house surgeon to this Institution from 1777 to 1784, during which 2 males and 1 female were cut.

Dr. Dobson's account. Out of 13,167 patients, 8 have been cut, that is, 1 in 1646. Those patients were, 1 a townsman, 4 from the country, and 1 from Montgomery.

STAFFORD, City 4868. County 295,153. (Opened A. D. 1766.)

Extract of a letter from Mr. Henry Somerville. No official records; but in the opinion of Mr. Hughes, who has been attached to the Institution 50 years, the cases about the middle of that period, annually amounted to 5 or 6. Mr. Somerville has been surgeon these 18 years, at the earlier part of which it was usual to have 3 or 4 operations annually; but latterly, although the number of applicants to the institution has more than doubled, there have been only 4 in 4 years. Each of the above gentlemen has cut 2 private patients, which appear to be all which have occurred. There has been no female case. The subjects have been chiefly from 4 to 12, and from 65 to 76 years of age; scarcely any in the middle periods of life.

A. D. 1798 in-patients 336, out 870.

1817 . . . 749, . 946.

LEICESTER, Borough 23,146. County 130,087.
(House opened 1771.)

Summary of a letter from Mr. J. Marshall, house surgeon. Average number of last 12 years, 3 every year. In patients, yearly, 686 ; outs, 3680.

Dr. Dobson's account. Since its opening, amongst 1912 patients, 3 have been cut ; and in the bladder of another, who had no previous symptoms, a calculus was found ; these 4 make 1 case in 478 patients.

CHESTER City, Inhabitants 16,140. Cheshire 227,631. (Opened in 1755.)

Summary of a letter from Mr. G. Rowlands, the senior surgeon. During the 32 years, Mr. R. has been at the charity, the number of cases have been in 1787, 1791, 1795, 1796, 1813, 1815, one in each year ; of those, 1 was a girl, 2 cases were natives, and 4 came from North Wales. In private practice Mr. R. cut 5 males and 1 female, the latter, and one of the men had been cut before ; 3 of the private cases were cut 70 miles from Chester, in North Wales, where there were two other old subjects labouring under the complaints. In-patients,

yearly, 625; out, 1691. The house contains 70 at a time.

Dr. Dobson's account. Dr. Haygarth informs me that from his own observations and from extensive inquiries, he is enabled to state, that in Cheshire, during the last 12 years, 5 have been cut, and 2 died without the operation. In the Infirmary, since its establishment (24 years) 1 only has been cut out of 12,334 in and out-patients during that time. If to this statement, says Dobson, we add 1 from Chester cut at Manchester in 1763, the proportion will be 2 in 12,334, or 1 in 6167. Dr. Haygarth adds, "minute inquiries authorize me in stating that in North Wales, calculus is a very uncommon disease, as I cannot learn that more than one has been cut and six died who were supposed to be afflicted with the disease."

DERBY, the Borough 13,043. County 185,487.

Summary of a letter from Mr. R. B. Godwin one of the surgeons. House opened 1810. No case until 1812. Since which there have been 6, all males. Mr. G. operated upon 3 of those in 1816. Patients last year, in, 254, outs, 427. The cases had probably, previously to 1810, been distributed between Chester, Stafford, and Nottingham.

NOTTINGHAM, Town 34,252. County 162,900.
(House opened in 1782.)

Summary of a letter from Mr. Robert Thompson, secretary. In 36 years, 64 cases chiefly operated upon by Mr. J. Attenburrow, who has also cut in private practice between 30 and 40. Mr. John Wright has also cut a few in private practice. Patients last year, in, 433, out, 1340. Patients in 36 years, 40,742.

Lancashire, the County population 828,309.
Contains 2 Infirmaries, Liverpool and Manchester.

LIVERPOOL, population of the Borough, 94,376.
(House opened in 1749.)

Summary of a letter from Dr. L. J. Jardine. During the last 10 years, 8 or 9 have been cut. Patients during 1817, in, 1314, out, 1623. Attached to the Infirmary is a Lunatic Asylum which contains 86 persons.

Dr. Dobson says, I have, from the observation and experience of 20 years, ascertained that in this place, and the western parts of Lancashire, stone is an unfrequent disease. Out of 26,073 hospital patients, 6 only have been cut ; that is, 1 in 4,345.

MANCHESTER, Town 98,572 Inhabitants. (House

opened in 1752. “Infirmary and Dispensary.”)

Summary of a letter from Mr. Thomas Bingham, house apothecary. Mr. William Simmons, the senior surgeon, and his colleagues, Messrs. G. Hamilton, Thorpe, Ransome, Ainsworth, and Thorpe, jun. report that stone cases are by no means so numerous as they were, which they attribute to the Establishment set on foot at Sheffield nineteen years ago, and also to the number of private surgeons of talent and enterprise now resident in Lancashire, who operate upon cases which would otherwise come to the Infirmary.

From the year 1809 to 1818, the cases were year after year, 2, 5, 3, 2, 3, 2, 7, 1, 2, 2; of these there was cut 1 patient at the several ages of $2\frac{1}{2}$, 6, 9, 12, 17, 19, 20, 36, 42, 46, 47, 50, 52, 61, 66, and 67 years, 2 at the ages of 4, 5, and 13, 3 aged 8 each, and 4 at 15. Total number of patients placed upon the books, from June, 1816, to June, 1817, 14,360. A number so large, compared to other charities, that until I was favored with a printed statement, I had considered my correspondent to have been in error; but I found it correct.

Dobson's account. Out of 34,565, in 26 years 62 have been cut; that is, 1 in 557. Of this number, 12 were townsmen, 8 from Sheffield, 4 from

Halifax, 3 from Congleton, 3 from Ashton, 3 from Wigan, 2 from Derby, 2 from Bolton, 1 Bury, 2 Rochdale, 2 Lancaster, 1 Chester.

LINCOLN, City and Liberty, Inhabitants 8861. County 208,557. (House opened in 1769.)

Summary of a letter from Mr. J. Swan, one of the surgeons. No regular records. During the last 5 years there have been 5 cases; ages, 22, 52, 64, 74; the man at 64 died; the 3 others were cured; the fifth would not submit to an operation. 400 persons in all apply for relief to the charity yearly. It is the opinion of Mr. Boot, the senior surgeon at the Establishment, and the oldest surgeon in Lincoln, that there are not many private operations in the neighbourhood.

YORKSHIRE. Population, East Riding, 167,353. — North, 152,445. — West, 654,313. — Total, 974,117.

YORK, N. Riding. City, Inhabitants, 18,217. Neighbourhood very populous. (House opened in 1740.)

Summary of a letter from Mr. James Atkinson. No regular records. About 15 cases in about 16 or 20 years; 2 only died; of the 15 Mr. A. cut 10. The surgeons are of opinion that cases were more frequent formerly.

Dr. Dobson's account in 1779. In this hospital out of 23,735, 50 were cut for the stone, that is, 1 in 474.

SHEFFIELD in West Riding, Town 35,840. (House opened 1798.)

Summary of a letter from Mr. William Starnworth. From the commencement to this time, 17 persons have been cut. In A.D. 1817, the in and out-patients were 2,233. Previous to the foundation of the Charity Mr. S. had, in a private practice of 24 years, cut 40 patients. Among the 57 there were two females.

LEEDS, W. R. Town and Liberty, Inhabitants 62,534. (House opened in 1767.)

Summary of a letter from Mr. Josias Stanfield, the senior surgeon, being a correct copy from the surgeon's book. Since the commencement of the charity to September, 1817, there have been placed upon the books, 76,386 persons. The Establishment has been a few years since enlarged, and now makes up 100 beds.

Stone Cases. Cured. Died.			
From 1767. to 1777.	24	16	2
1777 to 1787.	62	32	8
1787 to 1797	23	8	3
1797 to 1807	42	19	7
1807 to 1817	46	29	8
In fifty years 197	104	28	

Sixty-five would not undergo the operation. In the whole number there were 9 females, but only 2 were cut. The ages of the patients were :

83 ten years old and under.

21 between 10 and 20

21 : 20 : 30

12 : 30 : 40

28 : 40 : 50

21 : 50 : 60

9 : 60 : 70

2 : 70 : 80

The result of a calculation is that they have one case and a fraction in 387 persons.

Mr. S. thinks there are not many cases in private practice, but that the disease has considerably increased of late years, among the lower orders, several persons being cut at the Halifax Dispensary. In consequence of this information, a letter was addressed to that charity.

Dr. Dobson's account of the disease at Leeds in 1779. Out of 7851 patients, 23 have been cut, that is, 1 in 340.

HALIFAX. General Dispensary opened in 1808 ; receives no in-patients ; the outs are about 2000 annually. There was 1 operation during the first 5 years. From 1812 to 1819 inclusive, 21 submitted, of which number 9 were upwards of 50, the oldest 75. In one female the urethra was success-

fully dilated ; two refused permission. There are now 7 cases of calculi upon the books ; 1 a child of two years old, upon whom an immediate operation will be performed. About two years since, a gentleman from Halifax was cut in London ; and 2 paupers went to Leeds.

Private cases ; one in 1814, and one in 1819, — in 1818 ; one case was cut near the borders of Lancashire.

Messrs. J. Sunderland and W. Garlick, from whose favor I extract the above, say, “ We are jointly consulted by 6 or 8 annually.”

By the census of 1811, the parish of Halifax contained 75,000 inhabitants, it is now raised to 80,000. Halifax itself has about 10,000 souls.

HULL in E. R. Inhabitants 21,229. (Opened 1784.)

Summary of a letter from Mr. J. Young, the senior surgeon. Since 1801, 10 cases. Previous to that time, no operations for 10 or 12 years. In and out patients on the books at a time about 295. Very few private cases. Mr. Y. is not aware that patients now go elsewhere to be relieved, but previously to the establishment of the Infirmary (as this gentleman learns from the elder practitioners) there was no surgeon for at least half a century in the

neighbourhood of Hull bold enough to undertake the operation.

NEWCASTLE. United Infirmary for Northumberland and Durham, opened in 1751. The town itself, inhabitants 27,587. Northumberland 172,161. Durham 177,625. Receives cases from a population of 349,786, with the exception of those who go to Sunderland, where no case has occurred for the last twelve years at least.

Summary of a letter from Mr. Thomas Leighton, the senior surgeon. In 1798, there were 9 cases; after which until 1817 the numbers yearly in succession were 4, 3, 0, 1, 5, 2, 2, 2, 3, 2, 2, 3, 4, 3, 0, 3, 0, 1, 5; 2 were females, making 54 cases in 29 years. Average number of patients in and out for the first 10 years, 1113. During the latter years, 1486. From April, 1816, to April, 1817, 909; out 767. Cumberland and Westmoreland, together with the borders of Scotland, probably contribute also from a population of at least 200,000.

Dr. Dobson's account published in 1779, says, "Out of 26,619 patients in this Infirmary, 93 have been cut for the stone, that is, 1 in 287."

EDINBURGH. Royal Infirmary opened 1741.

From my late pupil, Mr. Henry Goldwyer, I learn that the admissions are about 2000 yearly,

and this is the only Institution in the neighbourhood where operations are performed. The number of cases are about 3 or 4 in as many years. Dr. Duncan's letter to Dr. Marcet says, "there are not more than six in the last six years."

ABERDEEN. Mr. A. C. Hutchison says "in the last 5 years 10 operations."

The shire contains 135,075 inhabitants.

Of ST. ANDREWS and GLASGOW I have no information.

The population of all Scotland is about 1,600,000.

IRELAND. Population about 4,250,000.

Dr. Thomas Egan, of Dublin, physician to Simpson's Gouty Hospital, says, "considering the extent of our population, the stone is of relative rare occurrence; so much so, that the late Mr. Dease, with all his well-deserved celebrity as a lithotomist, never operated upon more than 60; a small number indeed, if we consider that the operation is seldom, if ever attempted in the country." The Doctor has however unfortunately not mentioned the duration of Mr. D.'s career as a lithotomist, which prevents us from drawing any statistical inferences. See Vol. X. of Royal Irish Academy

Transactions, in 1805. He adds also, "our students are astonished at the frequency of the operation in London."

My friend Mr. Thomas Peall, Veterinary Professor to the Dublin College, made inquiries for me of Mr. Crampton, Dr. Collis, the Anatomical Professor, and of several other gentlemen of eminence in Ireland; and their general opinion was, that the disease is comparatively unfrequent in that country, but there are no authentic records.

I had lately the pleasure of shewing Mr. R. Carmichael our Infirmary, and his guess is, that the average number annually cut at Dublin is 8, and about 4 for all the rest of Ireland.

At Sligo, Mr. Bell cut two in 10 years.

From Dr. Gibbons, who has long resided in Cork, I learn that there have not been 6 cases during the last 20 years.

A

GENERAL SUMMARY

RESPECTING THE

FREQUENCY OF CALCULOUS DISORDERS IN
GREAT BRITAIN, ACCORDING TO THE
PRECEDING REPORTS*.

Bristol.—At the Infirmary during the last 82 years there have been cut about 361 persons ; but if we make divisions of this period we shall see that the numbers have regularly diminished in a very remarkable degree, so that at present we have from 3 to 4 in two years, and formerly there have been more than 6 in one year.

	Years.	Cases.	That is about
From 1735 to 1770	. 35	. 222	. $6\frac{1}{3}$ yearly.
1770 to 1800	. 30	. 108	. $3\frac{1}{2}$
1800 to 1817	. 17	. 31	less than 2

Within the last 20 years, not more than 10 private operations have been performed either in the city itself or within a circle of 8 or 10 miles around its boundaries, although we are surrounded on all sides by exceedingly populous villages, and lie on the borders of two large counties ; add to this the easy and constant communication with Wales, which gives us almost an exclusive preference for the whole southern parts of the principality.

* It is to be presumed that several operations were performed not included in the records.

About a year ago, a patient was cut at Monmouth, which I believe to be the only operation ever performed on the other side of the Severn.

Bath ;—18 in 20 years ; not one annually for all the rest of Somersetshire known to have been cut ; there were 12 at Exeter, and 6 at Bristol in 10 years, making less than one annually. All the county, therefore, Bath included, gives about 1 and $\frac{4}{5}$ every year.

Glostershire ;—for the last 61 years average 1 and $\frac{5}{6}$ yearly.

Worcestershire ;—from 1767 to 1779 averaged 1 and $\frac{1}{3}$ in two years. During the last 25 years the cases averaged a fraction more than 2 annually ; a considerable increase.

Wiltshire ;—sent to Bristol from 1750 to 1770, 18 cases ; and from 1770 to 1790, 8 cases. Probably several were cut at Salisbury also in the above 30 years. In the last 14 years the county sent to Bristol 5 cases, and 7 were cut at Salisbury, but of these, 3 came from elsewhere. The total, however, will not make one yearly.

Oxfordshire ;—12 cut, and 8 uncut ; call them 20 in 10 years, will be 2 annually.

Devonshire and Cornwall ;—from the year 1745 to 1775, 30 years, 65 patients, that is, $2\frac{1}{4}$ annually.

From end of 1802 to end of 1805, 3 years, 7, that is, 2 and $\frac{1}{3}$. From 1805 to 1816, 11 years, 18, that is, 1 and $\frac{2}{3}$.

Hampshire;—from 1808 to 1817, 9 years, 20 cases, that is, $2\frac{1}{9}$ annually.

Warwickshire;—during the last 38 years, less than 1 annually at the Infirmary. Perhaps after the same rate in private practice.

Cambridgeshire;—from 1766 to 1799, 4 only, that is, rather more than 1 in 4 years; during the last 40, about 4 annually, a great increase. Probably this Infirmary and the Northampton include the cases from Huntingdonshire.

Northamptonshire;—from 1 yearly to 3 in 2 years; occasionally 2 in the year.

Norfolk;—during the last 40 years, $11\frac{1}{2}$ yearly.

Kent;—during the last 25 years, about 1 and $\frac{1}{3}$ yearly.

Salop;—from 1747 to 1779, 13 years, 8 were cut; of late about 4 in 3 years, that is, 1 and $\frac{5}{3}$ annually, a considerable increase.

Staffordshire;—for some years before or after the year 1792, there were 5 or 6 *per annum*; about 1800

it fell to 3 or 4 ; and of late amounts to 1 yearly. The disease here lessens very considerably.

Leicestershire ;—from 1771 to 1779, 8 years, 3 cut, that is, $\frac{3}{8}$ in a year ; during the last 12 years, there have been 3 annually ; a very great increase.

Cheshire ;—from 1755 to 1779, one only at the Infirmary. Private cases 6. From 1787 to 1817, in all 12 ; making in 30 years, 12 cases, equal only to $\frac{6}{15}$ in a year. Even the greater part of these, came from North Wales, the cases from which Chester appears to have exclusively.

Derbyshire ;—6 in 7 years, that is, not one annually.

Nottinghamshire ;—in 36 years, 64 public, and 40 private, 104, nearly 3 annually ; the proportion of private exceeds apparently any other county.

Lancashire ;—Liverpool. From 1749 to 1779, 30 years, there were 6 cases. For the last 10 years there were about 9 ; being rather less than 1 a year.

Manchester ;—from 1752 to 1779, 26 years, 62 cut, that is, 2 and $\frac{2}{3}$ yearly. From 1809 to 1818, 10 years, 29 cut, nearly 3 *per annum*. All Lancashire therefore was formerly rather more than 2 and now is nearly 4.

Lincolnshire ;—one annually.

York city ;—from 1740 to 1779, 50 cases, being 1 and $\frac{1}{4}$ annually, or 5 in 4 years. There are now about 15 cases in 20 years, that is, not one a year.

Sheffield ;—from 1774 to 1798, 40 cut, rather less than 2 a year. From 1798 to 1817, 17 were cut, less than one annually.

Leeds ;—from 1767 to 1817, 197 cut, and 65 uncut ; total in 50 years, 262 ; $2\frac{1}{4}$ annually. Any division of this time contains nearly the same average of patients.

Halifax ;—during the last 7 years, 24 cases ; more than 3 annually.

Hull ;—from 1801 to 1817, 10 cases in 16 years.

In all *Yorkshire* there are cut about 8 or 9 annually, according to the reports sent to me.

Northumberland, Durham, and probably a great part of *Cumberland* included ;—from 1751 to 1779, 28 years, 93 cases ; being rather less than $3\frac{1}{3}$ annually. From the year 1798 to 1817, being 19 years, there were 29 cases, which is nearly $1\frac{1}{2}$ yearly.

THE CONCLUSION.

IN the several counties of England and Wales, the numbers which have come under my cognizance, are about 60 *per annum*; let us take also half of that number to cases of which I have no record, and we shall have 90 for county operations.

London is surrounded by counties which have (with the exception of Kent) as far as my information extends, no public institutions where lithotomy is performed; their population therefore must probably resort in time of need to the metropolis.

From Dr. Marcet's book we learn that the numbers are yearly upon the average, of St. Bartholomew's about 11; at Guy's 10; at St. Thomas's 6; here that gentleman's list ends. I have therefore troubled Dr. Laird to procure for me farther information, and the result of his inquiries is this: that there are cut yearly upon an average, at St. George's 5; at the London between 4 and 5; at the Westminster 3; at the Middlesex 3; and at the various other dispensaries or charities perhaps from 4 to 5; the sum total therefore of public cases in London will be about 47.

Being quite unable to make even a guess at the

number of private operations, I addressed a letter of queries to Dr. Marcet, who had kindly promised me any assistance in his power. The following is an extract from his reply :

August 18, 1819,

MY DEAR SIR,

Your letter reaches me at my native place, Geneva, where I shall pass the winter, which will prevent me from introducing your paper as I promised, to our Society.

I remember distinctly once making a rough calculation on the number cut in London, with Mr. Astley Cooper. I guessed the whole at 100, but Mr. A. C. doubted whether there were so many as 50 private cases. Regretting I am not able to stand godfather to your paper,

I remain, &c. &c.

The opinion of the gentleman whom Dr. Laird consulted upon this point is, that there are not more than 30 cases in private practice ; making the total for the metropolis about 77. Mr. A. C. Hutchison's valuable paper has satisfactorily proved that in our three great naval depots at Haslar, Plymouth, and Deal, it amounts to only one patient in two years ; and that at Yarmouth and Peignton, as also at Jamaica, Antigua, Barbadoes, Gibraltar, Malta, the Cape, Madras, and in our foreign possessions

generally, the operation has never been performed.

I do not think that in Scotland the yearly amount is more than 12, and the same number may be reckoned for Ireland. Finally then, it will follow if the premises be correct, that 191 will be the sum total of cases in lithotomy both at home and abroad, and I verily believe that if we take them, for the sake of round numbers, at 200, we shall have the very extreme point of calculous cases for our whole population.

This communication already occupies too great a length to add to it much comment, but one cannot help being struck with the curious fact, that certain districts abound in cases, whilst in others the disease is scarcely known. Let us instance Norfolk and Hereford; and again it is a surprising truth that in the hospital at Norwich alone the numbers are as great as either in all Ireland or Scotland.

Surely there must exist some cause for this, and as an inquiry may lead to some practical knowledge in what is at present I fear an opprobrium medicorum, I cannot but hope that it will be made.

For myself, if in this paper I have produced a

statistical nucleus for the accumulation of future facts, I shall consider myself very sufficiently repaid for my labour, having no other views than to contribute my mite to the general professional information upon which the comfort and happiness of our fellow creatures are so exceedingly dependant.