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SAINT BARTHOLOMEW'S HOSPITAL REPORTS.

OBSERVATIONS ON ACUTE RHEUMATISM.

BY

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Volumes of Hospital Reports may be expected to contain some articles written by those who possess or have possessed the advantage of making their observations upon the most common diseases that occur in hospital, and this must be my excuse for turning out my dusty drawers and venturing to take stock at the present time of my hoarded notes. Now the following diseases form the staple commodity or raw material upon which the London practitioner, or, in fact, the European practitioner, of physic, exercises his handicraft.

"You will meet," said an old teacher of mine to me years ago, "nearly every example of every disease if you are long enough engaged in the wards of a large hospital; but the diseases you cannot fail to see most of will be acute rheumatism, continued fever, pulmonary consumption, renal disease, and scarlet fever." How true his words were may be seen in the table (I.) appended, which shows, for a period of seventeen years, the total number of medical cases admitted each year into St. Bartholomew's Hospital, and the relative number of cases of rheumatism, fever, phthisis, Bright's disease, and scarlet fever. The reader can see at a glance in what numbers the commonest endemic diseases of temperate zones enter our medical wards, and encouraged, perhaps, by the fact that the writer of this article upon rheumatism has enjoyed his share of this extensive experience, may follow his observations and inferences with interest.

The ratio borne by each particular disease specified in the table below, to the total number of medical cases admitted each year into the wards, may be readily ascertained by comparing together the figures contained in it.

TABLE I.

	1860.	1861.	1862.	1863.	1864.	1865.	1866.	1867.	1868.
		C. D.	C. D.	C. D.	C. D.	C. D.	C. D.	C. D.	C. D.
Rheumatism	...	267 2	298 0	361 1	322 7	308 0	222 2	259 2	425 10
Fever	...	138 20	234 36	117 16	139 32	159 40	146 29	107 22	129 30
Scarlet Fever	...	73 18	90 23	117 23	69 16	84 11	57 12	37 7	60 8
Phthisis	...	170 76	153 76	153 76	154 80	158 67	161 71	178 78	146 53
Bright's Disease	...	70 29	63 33	63 33	56 21	65 26	83 36	73 36	66 26
Total No. of Medical Cases entered in the Medical Wards	Not separtd.	Not separtd.	Not separtd.	2,292	2,261	2,294	2,224	2,123	2,554

	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.
	C. D.	C. D.	C. D.	C. D.	C. D.	C. D.	C. D.	C. D.	C. D.
Rheumatism	325 1	333 4	303 3	335 4	354 5	426 8	379 7	258 3	241 2
Fever	156 20	173 12	152 12	85 10	117 15	146 14	73 4	94 13	83 14
Scarlet Fever	128 26	83 12	36 5	17 1	20 0	114 13	81 12	82 7	58 9
Phthisis	150 67	132 53	139 52	137 59	139 55	124 53	136 48	140 47	102 34
Bright's Disease	99 37	121 46	116 32	117 45	109 36	136 43	93 36	97 35	111 33
Total No. of Medical Cases entered in the Medical Wards	2,343	2,317	2,366	2,204	2,382	2,496	2,333	2,496	2,290

C. = Cases. D. = Deaths.

My own observations as to the effect of season upon the admission of acute rheumatism into my own wards is not at present extensive enough for me to attach much importance to my figures. I publish them, however, that they may be referred to at any time for what they are worth, so far as they go.

Seasons in their Effect on Rheumatism.

Spring = April and May.
Summer = June, July, August, September.
Autumn = October and November.
Winter = December, January, Feb., March.

} Climate of London divided by months and seasons, showing how these have been apportioned.

TABLE II.

	Spring.	Summer.	Autumn.	Winter.
	1	1	7	1
	1	2	2	5
	0	6	3	1
	0	0	2	8
	2	6	0	2
	0	6	2	1
	0	1	2	1
	0	0	0	0
	4	3	0	1
	0	6	0	4
	3	0	1	4
	1	0	2	7
	2	2	2	3
	1		1	1
Totals	15	33	24	39
Grand Total . .		111		

Reckoning London to be, as most will allow, a temperate but wet and variable climate, the four winter months noticed above are the wettest and most variable.

The relative frequency and mortality of rheumatism at different ages was a subject upon which our exceedingly carefully compiled statistical tables gave me very ready and complete information. I have therefore abstracted in Table III. the subjoined records for fifteen consecutive years, which admitted of being compared together; and by adding the annual figures together we arrive at the sum totals of 88 cases entered occurring in children under 10 years, with 3 deaths, at which period of life, therefore, the disease has a mortality of 3·40 per cent.; between the years of 10 and 15, we have a total number of 399 cases and 6 deaths, a mortality of 1·5 per cent.; between the age of 15 and 25, 2051 cases occurred, among which 30 proved fatal, giving the disease during these ten years a percentage mortality of 1·4; between 25 and 35 years of age, the total

TABLE III.—TO SHOW THE RELATIVE FREQUENCY AND MORTALITY OF RHEUMATISM AT DIFFERENT AGES.

YEARS.	1861.		1862.		1863.		1864.		1865.	
	No. of Cases.	Deaths.	No. of Cases.	Deaths.	No. of Cases.	Deaths.	No. of Cases.	Deaths.	No. of Cases.	Deaths.
Under 10 years....	6	...	7	...	13	...	5	...	9	...
Between 10 and 15	22	...	26	...	33	1	25	2	30	...
,, 15 ,, 25	92	1	109	...	179	...	107	2	126	...
,, 25 ,, 35	68	...	71	...	76	...	93	2	73	...
,, 35 ,, 45	42	...	41	...	53	...	63	...	42	...
Above 45.....	29	1	40	...	29	...	29	1	28	...
Totals....	259	2	294	...	383	1	322	7	308	...

YEARS.	1866.		1867.		1868.		1869.		1870.	
	No. of Cases.	Deaths.	No. of Cases.	Deaths.	No. of Cases.	Deaths.	No. of Cases.	Deaths.	No. of Cases.	Deaths.
Under 10 years....	1	...	4	...	9	1	5	...	...	...
Between 10 and 15	15	...	25	...	28	1	27	...	31	...
,, 15 ,, 25	89	2	132	2	189	5	151	1	143	2
,, 25 ,, 35	52	...	56	...	121	2	71	1	58	...
,, 35 ,, 45	28	...	42	...	56	1	45	...	41	2
Above 45.....	37	...	27	...	32	...	30	...	29	...
Totals....	222	2	286	2	425	10	329	2	302	4

YEARS.	1871.		1872.		1873.		1874.		1875.	
	No. of Cases.	Deaths.	No. of Cases.	Deaths.	No. of Cases.	Deaths.	No. of Cases.	Deaths.	No. of Cases.	Deaths.
Under 10 years....	...	...	7	1	8	...	8	1	6	...
Between 10 and 15	25	...	22	1	25	...	43	1	22	...
,, 15 ,, 25	119	2	131	1	135	3	169	5	180	4
,, 25 ,, 35	77	...	70	1	102	1	115	1	100	3
,, 35 ,, 45	46	1	44	...	50	1	63	...	42	...
Above 45.....	36	...	33	...	34	...	27	...	29	...
Totals....	303	3	307	4	354	5	425	8	379	7

GRAND TOTAL.

YEARS.	No. of Cases.	Deaths.
Under 10 years.....	88	3
Between 10 and 15.....	399	6
,, 15 ,, 25.....	2051	30
,, 25 ,, 35.....	1203	11
,, 35 ,, 45.....	698	5
Above 45.....	469	2

number of cases is 1203, and the deaths amount to 11, or ·9 per cent.; between 35 and 45, 698 cases are recorded, with only 5 deaths, or ·8 per cent.; while at ages above 45 we still find a total sum of 469 cases, with 2 deaths, or ·4 per cent.

Table IV. The next to which I direct attention is again abstracted with some care from our annual volumes of Reports.

TABLE IV.—FORMS OF RHEUMATISM REGISTERED SEPARATELY.

	Years.										
PART A.	1867	1868	1869	1870	1871	1872	1873	1874	1875	1876	1877
Rheumatism—											
Acute, without Cardiac Complications	104	168	130	117	85	79	99	184	189	194	186
Subacute, without Cardiac Complications	39	69	73	94	91	122	142	126	123	55	52
With Cardiac Complications.....	39	82	43	79	74	57	54	59	32	69	76
Pericarditis, notified separately	16	58	23	23	33	45	47	62	39	...	22
Lung Complication, notified separately.....	3	4	13	14	4	8	9	6	18	...	9
Gonorrheal Rheumatism	2	11	8	3	7	6	8	10	10	5	1
Chronic Rheumatoid Arthritis	4	5	19	14	17	19	19	20	6	8	9
PART B.											
Acute, without Complications.	104	168	130	117	85	79	99	184	189	194	186
Subacute, without ditto.	39	69	73	94	91	122	142	126	123	55	52
Total Rheumatisms without Cardiac Affection...	143	237	203	211	176	201	241	310	312	249	238
PART C.											
With Cardiac Complications...	39	82	43	79	74	57	54	59	32	69	76
Pericarditis.....	16	58	23	23	33	45	47	62	39	...	22
Total Rheumatisms with Cardiac Affection	55	140	66	102	107	102	101	121	71	69	98
Total without Cardiac Affection.....	143	237	203	211	176	201	241	310	312	249	238
GRAND TOTAL.....	198	377	269	313	283	303	341	431	383	318	336

It comprises a period of eleven years, and records and furnishes some clinical facts about rheumatism which are of interest when compared together.

The question is constantly being asked, What is the likelihood of the heart of a patient who has rheumatism being seriously damaged? If from Table IV. the two top rows of figures are taken and added together, as in Part B., we have the total number of cases that are annually discharged from our medical wards without having presented evidence of noticeable cardiac lesion. Part C. exhibits the total numbers who were observed to have had either endo- or peri-carditis. It is scarcely necessary to work out the sum for each one of the eleven years separately; the truth will be arrived at more satisfactorily by adding the sum totals for the eleven years together, when we find that out of 3552 cases of acute and subacute rheumatism, notable cardiac complications occurred in 1032 instances, or 29·8 per cent. of all cases presented some heart lesion.

The subdivision of rheumatisms into acute and subacute is perhaps a pitfall for the hasty in diagnosis. Acute cases, or what become such, begin sometimes insidiously. One of the worst cases of typhoid or cerebral rheumatism I ever saw, and which is recorded in the "Clinical Transactions" for 1873, began with no high temperature or severe articular inflammations; and, upon the other hand, not a few cases, acute to all appearance during the first three days of their illness, never suffer very severe articular pains after the fifth day, yet, after being allowed to get up and use their limbs, they complain so of aching and debility that they are kept in hospital convalescing for six weeks and more.

A more useful piece of refinement in diagnosis, as I hope to show later on, is made by separating the acute continued and the acute relapsing forms of rheumatic fever from each other.

It is about ten years ago that my attention was first directed to the natural history of acute rheumatism. The remarks of Niemeyer, in his chapter on the pathogenesis and etiology of this complaint, were then before me, and I marked with a large query his remarkable statement that the robust and sanguineous appeared more predisposed to it than the weak and anæmic. Niemeyer was not apt to hazard any statement that he could not substantiate, but this one my own experience has never yet quite endorsed.

I remained for some years of opinion that enfeebled children, lactating women, and men debilitated by overwork, sexual excesses, or living in foul atmospheres, were the favourite soil for the rheumatic poison, whatever this might be, to batten on.

If, however, Niemeyer had in view that continued form of the disease which gets well so quickly and spontaneously under favourable hygienic surroundings, as the cases recorded by Sir W. Gull and Dr. Sutton in the "Medico-Chirurgical Transactions" for 1869 amply testify, I am prepared to go along with him so far as to admit that no inconsiderable number of acute rheumatic cases are muscular and robustly-built individuals.

I apprehend the real truth to be, that few names for a disease have been more carelessly or indolently employed than rheumatism. Practitioners use it sometimes as a cloak under which to conceal their ignorance, or lack of data from which to form a diagnosis. Given an ache or a pain for which one must render some account to a patient or his friends, and if the name of rheumatism be attached to it, least offence will be given.

The task I set myself some years ago, and from which this article has sprung, was to tabulate all the cases of what could honestly be denominated rheumatism, to watch their course, and make certain observations upon them.

Altogether I possess observations upon 133 cases; but let me premise that these have been carefully weeded from a far larger number. I have excluded synovial rheumatism, chronic or acute synovitis, gonorrhæal rheumatism, and chronic osteo-arthritis from my list.

Lest any misapprehension arise upon the nature of the cases thus grouped together, I will define the form of disease I have selected as closely as I can.

My ideal of rheumatism has been a febrile disorder, characterised by pain, swelling, and tenderness about more joints than one, and attended by a distinct blush of inflammatory redness in the skin over the affected joints.

The fevers and local pains sometimes begin quite suddenly, but are more usually preceded by premonitory aches, sensations of chilliness, and sense of malaise, lasting for from twenty-four hours to three days. Although a distinctly febrile affection, and one in which notably high temperatures are occasionally attained, the rule is for the temperature not to rise much above 101·2° in a case where the joints only are the seat of inflammation. Dr. Warter, who made 142 observations, as he states in "Saint Bartholomew's Hospital Reports," vol. ii. p. 77, upon this disease, says that although "some of the cases were complicated with pericarditis, there was not one where the midday temperature exceeded 103°, whereas in 130 out of the 142 the temperature rose no higher than 102°."

Neither the pneumonic or pericardial complications of rheumatism ordinarily elevate the body heat above 103·5°.

There is little need to specify here the ordinary concomitant phænomena of an acute rheumatism, the white, furred, swollen tongue, the full, soft pulse, the perspirations with fermenting bread odour, highly coloured urine, beyond saying that I require them all in assuming my diagnosis.

But under the above-made description will still be collected cases which pursue a very different course, which have been separated as acute and subacute, sthenic and asthenic, and which I believe are best distinguished as the acute continued and acute relapsing forms of the disease.

At the period of a patient's admission into the hospital some guess may be hazarded as to the course the case will take in one of these two directions; but it is, I fear, not much better than a good guess that can be then made.

If one joint only—the knee, shoulder, or ankle—is implicated, and the pain and swelling are attended by no well-defined inflammatory blush, the case is far more likely to turn out one of synovitis, occurring perhaps in a rheumatic or scrofulous or gouty subject, than to be one of acute rheumatism.

The involvement of three or more joints simultaneously, and the shifting of the local pain and inflammation rapidly—*i.e.*, within twenty-four hours, from one joint to another, betoken the acute continued rather than the relapsing variety.

To some, perhaps, any separation of acute rheumatism into such forms will appear mere hair-splitting.

The acute relapsing form commences, like the continued form, by chills, malaise, anorexia, and slight fever; but so many joints are seldom inflamed together as in the latter, neither is the inflammatory blush so well marked or the tenderness to handling quite so great. The effusion is really more within than outside the joint; and so long as this is kept quite unmoved, the pain is seldom so great that the patient cannot get some rest without sedatives.

The subjects of the acute continued form are usually well nourished and quickly flushed by their fever; those of the relapsing variety appear out of condition, sallow or anæmic, and although at temperatures above normal, exhibit no cheek flush.

My observations teach me that it is the relapsing form which furnishes the largest contingent of permanent endocardial murmurs; the continued form which is most complicated by pericarditis and pneumonia.

My original observations were collected on sheets with printed headings, and comprised information especially upon remissions, relapses, duration, complications, treatment, and state of the heart on the patient's discharge; but I have sufficient regard for

my readers' time and patience to abstract the principal facts I fancy I have arrived at for their more easy perusal.

As to season and age, I can add nothing to what has been already adduced, but upon the number of the attacks I have arrived at some inferences.

The first question propounded for decision is, Does a previous attack of acute rheumatism modify the course or duration of a subsequent one?

The total number of first attacks recorded are 70. Of these, 25 exhibit entire subsidence of all pains within 14 days, 39 are really well on the 21st day, and 52 are convalescent by the 30th day from the commencement; 18 linger on for 6, 7, and even, in 3 instances, for 8 weeks.

The total number of second attacks of which I have full records are 38. Of these, 3 are free from pain by the 9th day; 12 by the 14th day; 20 by the 21st; 28 by the 28th day; 10 only of the 38 lasting on between 4 and 6 weeks from the date of their commencement;—but no single case attacked for the second time lasts longer than 40 days.

The total number of third attacks are 12, but in one case only do the acute symptoms subside so early as the 14th day. The several dates on which the cases began to convalesce were as follows:—On 22d, 23d, 24th, 25th, one case for each date; three cases end on the 28th day, one on the 31st, one upon the 40th, and one on the 46th.

I have four cases only which were attacked for the fourth and fifth times. They convalesced on the 13th, 22d, 28th, and 15th days respectively.

It is obvious from this that a person's having had a previous attack of acute rheumatism has very little influence upon succeeding ones. The materies morbi or rheumatic virus is one to which the human body remains susceptible again and again, and second or third attacks may be milder, as bad, or worse than the first.

I next asked myself, Does the age of the individual modify the severity or duration of the case? The question was one among many answered by the late Dr. Sibson to this effect, that his observations led him to conclude that the younger the patient was the earlier his articular pains subsided. I am afraid an analysis of my cases does not make this quite so certain. It is true that in my youngest case at 5 years the joint affections lasted only 13 days; but at 11 years are two cases lasting 31 days; at 13 years, one lasting 40; at 14 years, 29, 35, and 41 days respectively.

Indeed, the real answer to the question of how age modifies the disease is shown by Table V., which puts the relative frequency

of the complaint at different periods of life beyond dispute. Between 14 and 35 years of age is the life-period most prone to acute rheumatism. The severest cases, *quâ* length of illness and number of complications, fall within these twenty-one years.

TABLE V.

Age. Years.	Days of Duration of Articular Pains.
5	13.
9	22.
10	21, 6.
11	31, 31.
12	17, 5, 14, 21.
13	40.
14	17, 29, 35, 7, 12, 9, 41.
15	32, 13, 21, 32.
16	15, 12, 14, 27.
17	28, 14, 18.
18	13, 21, 34, 7, 15, 22, 32, 9, 21, 14, 23, 10.
19	31, 9, 21, 12, 12, 21, 19, 18, 40.
20	54, 38, 19, 29, 21, 17, 32, 22, 20.
21	9, 17, 36, 14, 30, 13, 35, 21.
22	25, 46, 36, 14, 28, 30, 14, 32.
23	53, 25, 9, 13, 14, 17.
24	54, 6, 22, 15, 24, 38.
25	35, 24, 21, 14, 49, 46.
26	11, 25, 15, 9, 27.
27	10, 13, 28, 22.
28	30, 28, 22.
29	
30	35, 22, 15, 28.
31	28, 14.
32	14.
33	9, 32, 27.
34	15, 23, 24, 55.
35	
36	31.
37	
38	42, 12, 28, 29.
39	35.
40	43, 28.
41	
42	
43	25.
44	
45	
46	34.
47	19.
48	10.
49	
50	
51	
52	
53	
54	27.

Every case of rheumatism is not prostrated with like rapidity. One individual has aching pains and stiffness when he wakes in the morning; before mid-day his joints are too painful for him to stir; then perforce he must keep his bed or his couch, for he is completely helpless. Another has lassitude, no appetite, bad nights, with chills and stiffness for three or four days before his joints strike work altogether.

The invasion of the complaint, then, may be gradual or rapid. I wished to know if the mode of invasion signified anything, or was valuable at all in prognosis. To ascertain this I laid down the following precise limits:—Cases which took to their beds within forty-eight hours of first symptoms I classified as of acute invasion; all others for me were gradual.

I am able to separate 95 cases as of acute invasion. Of these, a large proportion, 24, presented pericarditis; 32 either had endo- and peri-carditis or endocarditis; 7 only had any relapses at all; 2 only relapses worthy of distinct notice; 1 case died;

while 32 presented no complication whatever, and left the ward with perfectly sound hearts.

48 cases are recorded as having been of gradual invasion. Of these, 6 had pericarditis alone; 23 had peri- and endo-carditis; 7 had well-marked relapses; 12 had no complications of moment. The results may as well be tabulated for easy comparison.

TABLE VI.

	Invasion Acute.	Invasion Gradual.
	No. of Cases.	No. of Cases.
Pericarditis	24	6
Peri- and Endo-carditis	32	23
Relapses	7	7
No Complications	32	12
Totals	95	48

The results, I am afraid, scarcely repay the trouble. The Table shows that the cases of acute invasion are more numerous than the gradual invasions; that pericarditis is more likely to complicate a case that begins acutely than one which begins gradually, but that gradual invasion does not at all exclude the possibility of pericarditis. Proportionally more relapses, and certainly more serious relapses and more endocarditis, are attached to the cases which commence gradually and insidiously. The state of the heart on the discharge of the patient from the hospital is certified as sound in 36 out of the 95 acute cases, while 21 still exhibited distinct endocardial murmurs; while out of the 48 insidiously commencing cases there existed a murmur on the patient's discharge in 15 cases, and no murmur in 26.

The next question I sought to answer was that of critical days. Has rheumatic fever its cyclical periods, like erysipelas, pneumonia, typhoid, and ague?

The more we watch disease, the more we learn that nature is orderly even in her disorderly actions. It may not be so easy to discern the methodicity of rheumatism at first sight, because the complications, the accidents of moving in it, are likely to be so numerous and disturbing to the rule of the fever; I felt, however, that it would be strange indeed if it had no rule. The human body is like a test tube with a fluid in it; the same reagent

applied by way of disease produces the same or a similar reaction. To imagine anything otherwise would be contrary to our experience.

To the facts, however. If a sufficient number of cases are collected, and the days ascertained upon which acute symptoms subsided, we might speedily decide if any one day in the course of the fever was a favourite or critical one for the malady to subside or turn upon.

Nothing can be clearer than that we find no such sudden lysis as in pneumonia or typhus fever. The temperature in the uncomplicated disease attains no great height; neither does it descend very abruptly. The rule appears to be for the articular pains to abate, leaving stiffness and painfulness upon attempts at movement; then stiffness without pain, and, finally, perfectly free movement. Some cases, the youngest more especially, regain painless movements pretty quickly, as Dr. Sibson in his observations justly enough noticed. In them improvement is sudden rather than gradual. When the improvement is most sudden, the articular pains and the temperature may subside together, but the rule appears to be for the joint pains to disappear a day before the temperature remits. So that convalescence becomes a somewhat difficult period to fix, and a dangerously movable day, according to the whim of the patient or will of the observer, if the latter have any pet theory of his own he desires to substantiate, either as regards the disease or the effects of remedies upon it.

Yet, for all this, taking the date of convalescence to mean the day upon which all pains had completely disappeared not to reappear, we find that out of 133 cases—

TABLE VII.

7	convalesced	entirely	on the	9th day.
5	„	„	„	12th „
5	„	„	„	13th „
12	„	„	„	14th „
8	„	„	„	21st „
5	„	„	„	28th „
5	„	„	„	32d „
4	„	„	„	35th „

In 51 cases however only, out of the 133, could the convalescence be said to be at all a sudden change, a recovery by crisis.

I pursued my further inquiry into critical days by noticing in each case the date of the fever upon which the highest tempe-

rature was attained, reckoning the first day in bed as the first day of the disease.

TABLE VIII.

Days.	Date of Highest Temperature recorded in the course of each Case of Rheumatic Fever.	Totals.
1st	102·5	1
2d	102·2, 101·5	2
3d	104·5, 103, 102·2, 102·5, 100·4, ...	5
4th	100·2, 103, 100·5, 104·2, 102·2 ...	5
5th	102·2, 103, 104, 102·3, 100·5, 103, 102·8, 103·6, 102, 103, 102·8, 102·4, 102·2, 102·7, 102·4 ...	15
6th	101, 102, 102·8, 101, 102·2 ...	5
7th	102, 102, 100.4, 105·8, 101·4, 104·6, 103 ...	7
8th	100·2, 102·8, 103·8, 100·1, 103·8, 101, 104, 102·3, 104, 104·2, 103·4, 102·1, 101·8, 102·7, 102·5, 103·5	16
9th	103·2, 103.4, 102, 102·1, 100·8, 102, 101·2, 102 ...	8
10th	101·4, 101, 104·4	3
11th	103·8, 102·2	2
12th	101, 103	2
13th	101·3	1
14th	103·5, 99·8, 100·4, 102·5, 100·6, 101, 101 ...	7
15th	... ...	...
16th	101	1
17th	101·4	1
18th	101·4	1
19th	... ...	...
20th	... ...	...
21st	102	1
22d	... ...	...
23d	104·4	1

The total cases in which this highest temperature was recorded appears to be 84. 8 out of the 15 who attained their highest temperature upon the 5th day of the disease had pericarditis: 10 out of the 16 who reached their highest temperature upon the 8th day also had pericarditis.

A highest temperature attained upon the 8th day of the disease usually indicates the acute continued form of rheumatic fever with its ordinary attendant pericarditis; and if the temperature falls gradually upon the 9th, 10th, and 11th days by gradual defervescence, the convalescence may generally be predicted to be likely to be complete and continuous.

The next date or day I inquired after was the first day of remission of the febrile temperature to normal. Here I possess in all 83 observations.

TABLE IX.

First Day of Remission to Normal Temperature.	Number of Cases.	
5th	1	Convalescence steady.
6th	1	Do.
7th	12	With 4 relapses.
8th	2	With 2 relapses.
9th	4	With 1 relapse.
10th	2	Convalescence steady.
11th	3	With 2 relapses.
12th	6	Convalescence steady.
13th	3	Do.
14th	18	With 5 relapses.
15th	4	Convalescence steady.
16th	1	Do.
18th	1	Do.
20th	2	Do.
21st	11	With 2 relapses.
22d	2	Convalescence steady.
23d	2	Do.
26th	1	Do.
28th	4	With 1 relapse.
32d	1	Convalescence steady.
33d	1	Do.
36th	1	With 1 relapse.
Total .	83	

We perceive that if the remission to a normal temperature takes place on the 7th day, the probability of a relapse is considerable; if upon the 12th day, recovery is uniform; if on the 14th day, about a third of the cases have a relapse. Two relapses took place out of 11, whose temperature fell to normal on the 21st day. For other days we possess too scanty records to form any prognosis from them as regards relapses.

The next matter I desired to make out was whether the mode of defervescence, gradual or sudden, had any relation to the course of the complaint, or distinguished the short continued from the long relapsing form.

It is obvious that we shall best discover if a defervescence of fever is gradual or sudden by calculating the number of days which elapse between the date of highest temperature and that of first remission to a normal temperature. Table X. extracts this information. It shows that relapses took place in 10 out of 14 cases in which the defervescing period was three days or less.

When the defervescing period is protracted to eight days, relapses are less common—4 only occur out of 17 cases; and when the defervescing period extends to nine days or over, only 2 relapses happened out of 15 cases.

TABLE X.

Date of Highest Temperature.	Date of First Remission to Normal.	Duration of Defervescence.	Relapses.	Total Days in Hospital.	Date of Highest Temperature.	Date of First Remission to Normal.	Duration of Defervescence.	Relapses.	Total Days in Hospital.
Day.	Day.	Day.			Day.	Day.	Day.		
12th	14th	2	2	41	9th	15th	6	0	43
9th	12th	3	1	36	14th	21st	7	0	13
5th	21st	16	0	36	7th	14th	7	0	44
4th	28th	24	1	55	6th	8th	2	1	16
6th	14th	8	2	52	6th	7th	1	3	30
9th	11th	2	2	58	6th	7th	1	1	25
7th	15th	8	0	21	14th	21st	7	0	...
8th	9th	1	0	20	3d	14th	11	0	...
7th	11th	4	0	...	5th	7th	2	3	...
4th	12th	8	0	...	5th	7th	2	0	32
10th	22d	12	0	...	9th	28th	19	0	38
14th	33d	19	0	44	6th	7th	1	3	31
7th	21st	14	1	26	9th	14th	5	0	31
8th	12th	4	0	...	8th	14th	6	2	45
8th	11th	3	3	66	5th	14th	9	0	34
5th	14th	9	0	33	14th	28th	14	0	30
6th	12th	6	0	28	5th	9th	4	3	25
5th	21st	16	0	...	3d	14th	11	0	28
5th	15th	10	0	...	8th	10th	2	0	22
7th	14th	7	0	...	6th	14th	8	2	44
3d	7th	4	0	28	8th	10th	2	0	15
3d	21st	18	0	25	13th	26th	13	0	37
9th	14th	5	0	...	5th	7th	2	1	41
8th	16th	8	0	45	7th	20th	13	0	30

It is conceded that the observations here are scanty, but the negative evidence they afford is still of some value. Just as high temperatures are quite exceptional in rheumatic fever, so are abrupt temperature-falls; in three cases only, out of a total of fifty, did the temperature fall from highest to lowest within twenty-four hours, and in all those cases the acme temperature was a low one—101·2°, 102·8°, and 101°.

Quite contrary, too, to what might have been imagined, the cases which begin most acutely, in whom the temperature attains some height early, the continued form with pericarditis complications *par excellence*, who only rarely exhibit anything like a

relapse, are just those in whom the defervescence or declension of the fever is most gradual.

Certainly the axiom "slow and sure" holds good for the defervescence of the fever in rheumatism; and the figures of this table, together with the corresponding tell-tale story in the Hospital column, bid fair to prove beyond contention that a short period of defervescence, or a sudden remission and an early remission, betoken the relapsing form of the disease, and the likelihood of frequent relapses, as well as of slow ultimate recovery, in the direct ratio as this defervescence has been early and abrupt.

There remain a few things more to be advanced about the relapsing variety. The fact of the fever remitting so often in it upon particular days—the 7th, 14th, 21st, and 28th—already noticed,* and this wholly independently of treatment, as well as the constant occurrence of relapses in cases that have neither been allowed meat nor permitted to get up, forbids my holding the view that either a nitrogenous diet or too early movement causes the relapses. They are as much a feature of the disease as are the articular pains, the endocarditis, the white, swollen tongue, and the early decomposing sour perspirations.

I must call attention to one further table (Table XI.), which I have compiled to try and make out if season, age, or treatment could be shown to have any influence upon the relapses or the relapsing form.

15	of the 30 relapsing cases occurred in	winter.
7	„ „ „	autumn.
4	„ „ „	spring.
4	„ „ „	summer.
3	occur under the age of 14.	
8	„ between 14 and 20.	
10	„ „ 20 „ 30.	
7	„ „ 30 „ 40.	
2	„ above 40.	

So far as an analysis of treatment in a table can be given, it has been attempted here; but my treatment of rheumatic fever has always been more general and rational than specific until latterly, when I have tried the salicylate of soda in a more definite and precise manner. No case entered in this table has been dosed with salicylate of soda quite so largely as I venture now to give this remedy. Exact observations, however, upon salicylate of soda in the treatment of this disease are being instituted, and

* It is also advisable I should state here that the articular pains often subside twenty-four hours before the fever remits; a point to mention lest inaccurate inferences be drawn from it.

TABLE XI.

Season.	Age.	Treatment.	Relapses.
Spring	21	Sod. Salicyl.	1
,,	43	Sod. Salicyl. Quin.	1
,,	18	Sallic. Ammon. Cit. Acon.	2
,,	28	Salicyl. Ammon. Morphia.	2
Summer	19	Alk. and Pot. Iod.	1
,,	11	Fer. Perchlorid.	2
,,	33	Sod. Salicyl. Quin.	1
,,	21	Salicyl. Sod. Quin. and Pot. Iod.	1
Autumn	14	Alk. and Pot. Iod.	1
,,	25	Alkalies.	1
,,	20	Alkalies.	1
,,	31	Alkalies.	1
,,	20	Alkalies.	2
,,	19	Alk. Quin. and Pot. Iod.	1
,,	25	Sod. Tart. Quin. and Pot. Iod.	3
Winter	12	Alkalies.	1
,,	23	Sod. Sulph. and Tart.	2
,,	40	Alk. Colchicum.	1
,,	20	Alk. Opium. Pot. Nit.	1
,,	34	Alk. and Fer. Am. Cit.	3
,,	38	Alkalies.	2
,,	22	Sod. Salicyl.	1
,,	46	Quin. and Pot. Iod.	2
,,	15	Quin. and Pot. Iod.	1
,,	34	Sod. Sulph. and Tart.	2
,,	14	Sod. Salicyl.	1
,,	22	Salicyl. and Pot. Iod.	2
,,	25	Sod. Salicyl.	1
,,	34	Alk. Sod. Sulph. Quin. Pot. Iod.	3
,,	18	Sod. Sulph. and Tart. Pot. Nit.	2

will, I hope, shortly be ready for publication. It will be seen, however, that ten cases of the thirty were treated with salts of salicylic acid. No one, however, has, I think, been enthusiast enough to maintain that this treatment obviates relapses.

It is time, however, that I concluded my article.

My observations have taught me that both for prognosis and towards estimating correctly the value of any particular treatment, or of physiological rest and no treatment at all, it is advisable to distinguish clinically between the acute continued and the acute relapsing varieties of rheumatism. Both are affections of youth and early manhood, rather than of childhood, middle or old age.

The acute continued form attacks the muscular and robust; it presents, doubtless, an abatement of suffering when the individual is in bed, and the joints are freed so far as they can be from muscular strain upon them; but in it we seldom observe, except from the action of sedatives, any marked remission of pain or of fever before the 8th or 9th day of the disease; up to this date the temperature chart is a pretty steadily maintained one—at 101.5° or 102° (barring pericarditis). The articular inflammations then subside suddenly and the temperature slowly defervesces, the patient usually being fit to go about again about the 21st day from that of first invasion.

The cases published by Sir W. Gull and Dr. Sutton in the "Medico-Chirurgical Transactions," vol. lii. p. 43, ably testify to the natural proclivity in this form of the disease for the acute symptoms to subside from causes wholly irrespective of treatment between the 8th and 10th days, when, as they also notice, the patients usually convalesce gradually and without drawback, getting up for the first time on or about the 19th day, and being strong enough to be discharged from the hospital a few days later.

The observations of Dr. Sibson, published in an article communicated to the "British Medical Journal," August 13, 1870, led him to the conclusion that in a fourth of all cases the joint affection lasted over twenty-one days, and that half of his cases presented relapses.

Dr. Wade, in his "Notes on Clinical Medicine," Birmingham, 1864, mentions the tendency of acute rheumatism to relapse. "Out of 109 cases," he writes, "25 relapsed, some several times."

Dr. Da Costa, in the "Pennsylvania Hospital Reports," gives analyses of 30 cases treated by ammonium bromide, which he thought diminished the severity of his cases and the tendency to relapse,—circumstances, however, which his statistics scarcely support.

My observations teach me that proportionally more relapsing cases occur in winter than during other seasons; that they principally affect anæmic cachectic individuals, whose health has suffered.

What is quite characteristic of this variety is its apparent yielding to any treatment which is adopted. Once rested in bed, the patient sleeps without sedatives, and loses nearly all his acute pain upon the 7th day of the disease. The temperature falls to normal in a large proportion of these cases; the patient then desires more food, wants to get up, and often does so. After three days or more, often upon the 3d day, back come the articular pains, and the fever lasts for varying periods—two, three, or seven days, but seldom beyond this; for on the 14th day, in far too large a proportion of cases to be accidental, and too independently of any particular treatment for the circumstance to be due to this, the pains and fever again somewhat suddenly remit. This remission may be permanent, and usually is a longer remission than the first, but it may be succeeded by a second, a third, or even a fourth relapse.

Experience has taught me that each relapse of the disease, instead of proving milder, is usually, and especially in the cases treated by alkalies or iron, more severe; the fever runs higher and the articular pains last longer, while very few of the cases which have two relapses fail to present cardiac murmurs and permanent valvular lesions.

Treatment has appeared to me to exert no inconsiderable influence upon those relapsing cases, whether directed to relieving pain or preventing relapses. Large doses of quinine, administered every other night during the remission, has seemed in my hands, quite lately, to obviate relapses, or to reduce their length and severity in no small degree.

Almost every practitioner has his own pet treatment for rheumatism, and, just as with particular religionists, seeks usually to proselytise according to the fulness of his faith and the degree of his zeal; sure proof, as Sir Thomas Watson has truly said, of the obstinacy of the complaint and the lack of any absolute specific for it. If my experience does not enable me to speak quite as highly in commendation of salicylate of soda as my friend Dr. J. Pollock and some others have done, who have been singularly fortunate with this remedy, or less tutored by statistical investigation of the disease otherwise treated than I have been, I am still prepared to allow this much, that it has in my hands never caused any more than temporary inconvenience, and has always appeared to clean the tongue and to relieve the articular inflammations when administered in sufficient doses.

The following indications for treatment have guided me in my practice upon acute rheumatism for some years, and I give them for the help of younger practitioners:—

To relieve the local pains; to reduce the fever; to diminish the gravity of the various complications most usually incidental; to promote early and complete convalescence.

I will not waste time in any speculations upon the materies morbi, nor the mode of its elimination; it is certainly not eliminated by either sweating or purging.

A spring-bed with a tightly-stuffed horse-hair mattress over it is that which rests and supports the trunk and limbs and relieves the joints most, and what I recommend for my patients.

Painting the affected joints in the acute continued form with a mixture of equal parts linimentum iodi and tincture of iodine has appeared to me to procure all the benefit advocated by Dr. Davies for his blister treatment, without producing the unnecessary pain of open blister wounds, or risking the production of acute nephritis or cystitis. The linimentum alone is for most skins too strong; the tincture of our Pharmacopœia for nearly all useful purposes too weak.

I am no advocate for, and have never allowed, my patients to be placed between the blankets instead of the sheets; neither will I permit flannel bed-shirts to be worn. The object I have in view is to keep one uniform temperature about them, which the bed provides for, but not to keep the patient swathed in flannel reeking and saturated with decomposing perspiration. As a matter of fact, I observed that a large proportion of hospital rheumatic patients were persons who habitually wore thick flannel shirts and undershirts, and did not change them very often. Cotton shirts and cotton sheetings are better suited than linen to rheumatic people.

My practice has been to keep my rheumatic cases cool rather than hot; they are certainly easier in consequence. As to baths, a tepid wash-bath at 98° or 96°, into which they can be dropped in a sheet and lifted similarly back into bed, comforts them and secures their cleanliness.

I will not go so far as to say that purgatives are to be entirely avoided in acute rheumatism; but the old routine practice of calomel and jalap, because a patient's tongue is furred and his bowels have not acted for twenty-four hours, is in my opinion the crudest medicine. I occasionally order a dose of castor-oil or of Carlsbad salts if the abdomen is full, but more frequently employ simple enemata than purgatives to unload the bowels.

The alkaline treatment or peppermint-water is equally well adapted for the acute continued forms; but it appears to me that

alkalies, unless pushed to the full and frequent doses first urged by their original proposers, are wholly useless in relieving pain, while, when they are given in half-drachm or drachm doses of bicarbonate of potash every two or three hours, they quickly reduce the strength and render the patient extremely anæmic. They appeared to me, thus employed, to diminish, perhaps prevent pain, but to retard convalescence not inconsiderably.

Salicylate of soda appears to lower the pulse, to diminish the temperature, and to relieve the articular pains; but to secure these effects it has to be given in moderately large and frequent doses. I usually give 15-grain doses of it every two hours until 60 grains have been taken, and then keep up the effect of the drug with 15-grain doses every four hours.

If pericarditis is present, I usually give small doses—five drops—of liq. opii. sedativ. with each dose of the salicylate.

My experience of the perchloride of iron treatment, as recommended by Dr. Russell Reynolds, is not favourable to the employment of this drug at all. In the acute continued cases it has been associated too frequently with hyperpyrexia for me to regard it as altogether free from danger; and in the relapsing forms I found its administration neither shortened the cases nor prevented relapses.

The relapsing forms may be kept upon salicylate of soda very well for the first seven days; but the opportunity of the spontaneous remission which then generally takes place, and is indicated by the thermometer and the patient's own sensations, should be seized to shake the periodicity of the complaint. This quinine, I think, has the power of doing, given in the proper doses, as in ague, and at the proper date. I give two 10-grain doses at two hours' interval, between 5 and 7 P.M. on the evening of the 7th day, and repeat the dose on the evening of the 9th day again.

The natural relapse is then postponed, and the patient may be permitted better nourishment, and given a little pepsine and acid with his dinner to ensure its better digestion. Should no relapse happen, again on the 14th and 16th days full doses of quinine should be given; but it is not until the 32d day is past that all risk of a relapse is over. During convalescence, although the patients are anæmic, I seldom recommend iron: the mineral acids and tincture of nux vomica promote appetite and digestion far better. Chloroform and belladonna liniment, as recommended by the late Dr. Sibson, is an excellent pain-relieving local application in either the acute or relapsing form of the disease, if the patients are hyper-sensitive to pain, or the articular affection is inordinately severe.

Quinine and iodide of potassium has long been a favourite

draught of mine in treating the anæmic relapsing forms. Two grains of quinine are combined in it with five of iodide of potash; and this draught I generally order to be taken after the 14th day every four or six hours.

It is, however, quite beyond my intention to enter more fully here into the treatment of rheumatism and its complications. Having, as I hope, fairly distinguished the features of the two subforms of acute rheumatism, it appeared to me necessary to show that a better acquaintance with them, and the treatment they severally indicate, would or might lead to clearer views upon the value of drugs in the therapeutics of this most common malady.

ON THE

CERVICAL OPISTHOTONOS OF INFANTS.

BY

SAMUEL GEE, M.D.,

AND

THOMAS BARLOW, M.D.

The twenty-five cases narrated in this paper illustrate a form of disease which affects infants under two years of age, and which is characterised by a holding back of the head. This holding back of the head is the essential sign of the disease which we describe. In tubercular meningitis, and some other diseases of childhood, holding back of the head is an accidental symptom.

Sex and age.—Ten of our patients were male and fifteen were female, thus distributed, according to the age at which the disease began:—

	From Birth.	1 Month.	7 Weeks.	2 Months.	10 Weeks.	4 Months.	5 Months.	6 Months.	7 Months.	8 Months.	9 Months.	10 Months.	12 Months.	15 Months.	19 Months.
M.	1	...	...	...	...	1	2	...	1	1	1	1	1	...	1
F.	4	1	1	1	1	1	1	1	3	...	...	...	...	1	...

Onset.—The onset seemed in some of the cases to be gradual; in others it was sudden.

In the cases of sudden onset the opisthotonos occurred alone (Cases XIII., XIV., XXIII.), or was accompanied by marked symptoms. The attendant symptoms of the onset were—Fever (II.), vomiting (III., XXII.), rigidity of the limbs (IV.), convulsions (I., V., XI., XX., XXI.).

The holding back of the head was in some cases (VII., IX., XI., XIX.) an inconstant symptom, that is to say, it was wholly absent at times, and in one case (XIX.) ceased entirely about a month before the death of the patient. The holding back was a tonic contraction; it became more pronounced as the patient was raised.

Associated symptoms.—The symptoms attendant upon the confirmed disease which we will refer to are rigidity of the limbs, epileptiform fits, and hydrocephalus.

I. Rigidity of the limbs, or of some part of them, is common. All the limbs may be affected in this way (IV., XII., XVI., XX.), or the arms only (IX.), or the legs only (XIX.), or the left arm only (XI., XIII.), or there may be nothing more than a drawing-in of the thumbs upon the palms (V., X., XXIII.).

II. Epileptiform fits, attending the course of the disease, and not only its onset, were noted in four cases (VIII., IX., XI., XX.).

III. Hydrocephalic enlargement of the head ensued in four cases (XIII., XIV., XVII., XIX.), after the opisthotonos had lasted for some time.

Termination.—In eleven cases the result is unknown: in most of them the disease was clearly chronic. In the remaining fourteen cases the result is known, and is such as to show the grave nature of the disease. Only three of the fourteen children recovered.

I. Recoveries. The manner in which the opisthotonos remits from time to time in some cases renders it not absolutely certain that the recoveries were permanent. However, one child seemed to recover after five days' duration (II.), one after four weeks (XIV.), and one after five weeks (XVIII.).

II. Deaths. The duration of the disease before it ended in death was as follows:—Twenty-seven days (XXIV.), one month (XXIII.), five weeks (III.), six weeks (XXII.), two months (XXI.), three months (XX.), four months (XV. and XIX.), fourteen months (IX.), nineteen months (XI.).

Post-mortem Appearances.

Brain.—No tubercle found in membranes or brain substance in any case.

Membranes.—Basic meningitis in all cases.

In XIX. thin speckled lymph; glueing of cerebellum and medulla.

XX. Opaque lymph, rather thick, greenish; glueing of cerebellum and medulla.

XXI. Firm coherent lymph, not green; glueing of cerebellum and medulla.

XXII. Greenish patch of lymph only round one auditory nerve; extreme hyperæmia of pia mater.

XXIII. Thin greenish lymph; glueing of cerebellum and medulla.

XXIV. Thin firm lymph, not greenish; glueing of cerebellum and medulla.

Our colleague, Dr. D. B. Lees, allows us to mention two other cases under his care, where, during life, chronic cervical opisthotonos was the main feature, and where basic meningitis and glueing of cerebellum and medulla were found.

Lateral Ventricles.

XIX. Effusion considerable; clear fluid.
XX. Effusion slight; green flakes in fluid.
XXI. Effusion moderate; green flakes in fluid
XXII. Effusion moderate; almost clear fluid.
XXIII. Effusion very slight; clear fluid.
XXIV. Effusion moderate; green flakes in fluid.

Brain substance only in one case (XXII.) much softened.

Spinal cord not examined in three cases. In one other (XIX) natural; in two (XX. and XXI.) spinal meningitis.

Cranium.—No bare bone discovered; no fracture.

Internal ear.—Otitis interna, double, in XXII., XXIII.; healthy in XXIV.; not examined in XIX., XX., XXI.

Other Viscera.

XIX. Natural.
XX. Not examined.
XXI. Natural.
XXII. Natural.
XXIII. Natural.
XXIV. Natural.

Ætiology—(*a.*) In five cases the disease existed from birth, but in none of them was any post-mortem obtained. One of the five had been a footling presentation, but that is the only suggestion of any injury during parturition which can be offered.

(*b.*) Cases III., IV. (*certainly*), and XXIV. (*probably*), were the subjects of congenital syphilis, but no post-mortem was obtained.

We wish here to refer to two cases not included in our category because there was no head retraction, but which bear on the question of congenital syphilis as a possible cause of localised meningitis.

A girl aged three years, admitted into the Hospital for Sick

Children, under Dr. Gee, with marasmus. No history could be obtained of the child, but she had definite signs of past congenital syphilis. At the post-mortem a patch of old meningitis the size of a florin was found. It was situated very far back on the surface of the right middle lobe behind the motor zone, so that there had been no localising symptoms during life.

At the post-mortem of a girl, aged eight months, who had been under the care of Dr. Barlow, extensive chronic meningitis on the convexity, with a little on the temporo-sphenoidal lobes and at the optic chiasma, characteristic changes in small arteries and choroidal disease were found. This child had had signs of congenital syphilis when one month old. (Path. Trans. 1877, p. 287.)

In view of these two cases, we think it possible that congenital syphilis may have been the cause of the brain disease in Cases III., IV., and XXIV.

(*c.*) In none of these cases was there any reason to associate the lesion with the acute specific diseases, or with pneumonia or Bright's disease, in all of which it is well known occasionally meningitis occurs.

Some of the acute cases, as far as their symptomatology goes (and especially their cardinal symptom), resemble isolated cases of the disease commonly called "Epidemic Cerebro-Spinal Meningitis." In none of our cases, so far as we know, were other members of the respective families attacked.

(*d.*) *Traumatism.*—We wish to guard ourselves from an over-estimate of the importance of falls on the head in children. One of us has seen a large depression measuring $1\frac{1}{2}$ inch in two directions, and $\frac{1}{4}$ inch deep on the frontal bone of an infant, undoubtedly caused by a fall on the pavement, but without giving rise to any symptoms at the time or subsequently, at all events up to seven months after the fall.

In the exceedingly rare cases of fracture of the cranial bones in infants, no doubt the accident is of graver import, as the following case will show. A child, aged two years and ten months, who had fallen ten feet from a window on to the pavement, was brought to hospital with slight puffiness over the right frontal region. There was a little blood oozing down the right nostril and also from the mouth. The child rather irritable; pupils normal; no compression signs. He vomited without effort a little blood-stained stuff during the night and next day, and continued irritable and restless. On the third day the vomiting ceased. On the fourth day there was marked tonic retraction of the head and slight arching of the back, the child lying on its left side moaning and frowning considerably. The left

pupil contracted, the right normal. Temp. 100° at 10.30 P.M. On the 5th day there was still head retraction, but not quite so marked. Irritable. Pupils equal. Pulse, 3 P.M., 88. Temp. 100.2°. Died at 6 P.M.

At the post-mortem there was a small depressed fracture of the right frontal, a little in front of the fronto-parietal suture at its outer end. This passed into a fissured fracture which extended through the squamous and petrous portions, ending at the jugular foramen, and striking through both the Eustachian tube and the internal auditory meatus. There was no reason to think that the depressed fracture had done any harm. There was no blood extravasation or laceration of the brain. There was a little greenish lymph along the right edge of the pons, and opacity of the pia mater along the posterior part of the base of the brain. Also, on slitting up the theca of the cord, there was marked distension, with puriform fluid, right down to the lumbar region. The lateral ventricles of the brain, however, were natural, and the brain substance was not altered. It seems likely that the cerebro-spinal meningitis was in this case started by inflammation propagated along the sheaths of the nerves, either at the meatus internus or at the jugular foramen, which were both cracked. (*Cf.* Case XXII.)

But there remains the *quæstio vexata*, Can meningitis be caused by a fall where no solution of continuity can be demonstrated? In Cases XXI. and XXIV. the symptoms observed by the relatives followed one day and three days respectively after the alleged fall. No fracture of skull or spine could be found, and no laceration of brain.

(*e.*) *Recession of a rash.*—With respect to this alleged cause of meningitis in children (*vide* Barthez and Rilliet, vol. i. p. 129), we can only refer to Case I., where, according to the statement of the friends, the drawing back of the head came on suddenly after the disappearance of a rash.

(*f.*) *Dentition.*—A consideration of the period at which the disease began will show that in more than half our cases the physiological function of teething cannot have been the cause. Moreover, in the cases where teething took place during the disease, there were no local conditions to prove any special severity of the process. We should be the last to deny that catarrh is exceedingly common during teething, and considering the proneness to extension of catarrh in infancy, we suspect the Eustachian tube, and the tension set up by inflammatory products in the internal ear, are more at fault than the often-invoked but somewhat vague factor "reflex irritation."

(*g*.) *Otitis.*—In two cases there was thin fluid in both tympana; in one the fluid was nearly colourless, in the other purulent.

In both the tympanic membranes were intact. The importance of latent otitis (without bone disease) as a cause of meningitis has been pointed out in the 8th vol. of the "Hospital Reports" (p. 25). Amongst the different paths of propagation, the sheath of the seventh nerve would seem to be exceedingly important.

DR. GEE'S CASES.

Case I.

Lætitia F., aged 10 weeks; seen July 9, 1866.

Head held back for three weeks past; opisthotonos began suddenly after the disappearance of a rash (probably strophulus). She was "convulsed" much during the first week of her illness; she has never been unconscious. She has vomited several times of late. The head is simply held back; she can move it well from side to side; there is no swelling; she moves her limbs well. There are no further notes of her case.

Case II.

Miranda P., aged 15 months; seen July 26, 1866.

Losing flesh for three months. July 22, began to complain of mouth. July 25, in the afternoon, became stiff in the back; she was more feverish. July 26, stomatitis; not rickety; back notably stiff; limbs natural; universal tenderness; pupils small and equal; no squint; no vomiting; no convulsions; bowels open naturally. July 30, seems well.

Case III.

Joseph W., aged 9 months; seen March 11, 1867.

Suffering from hereditary syphilis, with coryza, and condylomata at the anus. March 27, vomiting and constipation began. April 1, vomiting persists; head held stiffly back for the first time; no rigidity of the limbs; condylomata have healed. April 13, vomiting persists; head not held back stiffly now. April 18, vomiting persists; wasting, is very lean; spleen just palpable; head still held back stiffly, but not so much as before; no rigidity of limbs. April 29, child had just cut two teeth, and had seemed better, when he died suddenly this morning. No post-mortem examination.

Case IV.

David B., aged 3 months; seen March 28, 1867.

Suffering from hereditary syphilis, with roseola about face and body; snuffles since birth. He was improving until June 4, when rigidity of the back and limbs were first noted; these rigidities were persistent. June 20, it is noted that the back and limbs are still rigid, "no doubt cerebro-spinal meningitis;" pupils equal. June 27, much the same; pupils small and equal; legs, arms, and neck are still stiff; fontanelle natural; mother supposes the child cannot see. July 1, much the same. After this the child was not brought.

Case V.

Anna L., aged 5 months; seen April 8, 1867.

One month ago she had a "fit;" none before or since. Ever since the fit she has held her head back. No cause for the fit could be assigned. Since April 6 has vomited; bowels open three or four times daily. Thumbs turned in upon palms; limbs are not stiff, and are said never to stiffen; fontanelle seems full; pupils small and equal; no squint. The opinion was set down that it was probably a case of cerebro-spinal meningitis. April 13, head still held back, but seems to be more movable; no stiffness of limbs; no more vomiting. April 18, head still held back; no rigidities; starts when touched; vomiting since April 14; bowels confined. Child attended no longer.

Case VI.

Henry J., aged 11 months; seen September 5, 1867.

Head held strongly back for seven weeks past; dorsal spine arched, not very rickety. Sept. 12, seems better; perhaps mere muscular weakness.

Case VII.

Lily N., aged 14 months; seen January 14, 1869.

Almost ever since birth she has held her head back; often throws herself into posture of opisthotonos. She is suckled only; looks pretty healthy. Bowels very irregular, stools unnatural; passes much wind at times, and then seems easier; so that the question rose whether the rigidity might not be in some way a symptom of colic. Jan. 28, not better; very much troubled with wind; stools very solid. Feb. 4, much the same; mother says that "when the back is not stiff, she is so limp that she cannot sit up

at all." There is marked rickets, although the child's face looks healthy enough; so that the question of mere muscular weakness arose in this case as in the last. Week by week she remained much the same until, on April 23, it is noted that stiffness was very nearly gone. May 7, opisthotonos quite gone. May 25, very much better. July 30, still very weak in neck. Dec. 6, opisthotonos as bad as ever; tendency of thumbs to be drawn in upon palms; only six teeth, child 15 months old. Did not attend longer.

Case VIII.

Walter D., aged 4 months; seen January 14, 1869.

Has had three epileptiform fits, the first on Jan. 3 and the last on Jan. 13. Child is slightly rickety; in a state of opisthotonos; arms stiff and rigid; no evidence of tubercular meningitis. Jan. 18, has had several fits, but is better; opisthotonos much less. Jan. 25, one fit since last note; much less stiff, can move head forward. Feb. 1, has had two fits; less stiff. Feb. 8, no fits; remains less stiff. Not seen again.

Case IX.

Jessy S., aged 9 months; seen January 25, 1869.

Since birth has been in a state of opisthotonos; constant, no remission; occasionally has "fits, in which the left side is twisted;" perhaps pleurosthotonos. Arms tend to be rigid. Nothing discoverable about head; fontanelle open; no otitis; pupils and eyeballs natural; no teeth; not rickety. Child said to be stiff during sleep. Said to have been a footling presentation. Feb. 23, much the same. The opisthotonos passed off shortly after the last note, but recurred in June. Child died on June 23, of what was called "tubercle of the brain;" but there was no examination of the body.

Case X.

Alice D., aged 6 months; seen December 29, 1871.

Marked opisthotonos; thumbs drawn in upon palms. No other notes.

Case XI.

T., female, aged 10 weeks; seen by Dr. Gee with Dr. Part on June 14, 1874.

A healthy child until two weeks ago, when convulsions began,

and have continued since; no other signs of cerebral disease; no rickets. On June 14 the fits stopped, and soon afterwards marked opisthotonos was noted; not constant; sometimes the neck seemed quite limp. The child screamed a great deal; was often sick, vomiting the milk and water upon which she was fed; motions unnatural and full of curd; no otitis. Colic and constipation next prevailed; the disposition to opisthotonos continued. Dec. 22, laryngismus began and lasted for one week. Jan. 25, 1875, convulsions again began. They were very frequent, and affected chiefly the left arm and side of face. Feb. 2, I saw the child in a fit; it lasted about a minute; no great change in the colour of the face; she made a snoring noise in her throat, inspiratory and expiratory, not laryngismus, but stertor; eyes turned to right; some nystagmus; eyelids opened and shut as if deliberately; slight contractions of muscles about mouth; no foaming; child had a staring look; reflex excitability of eyeballs remained; child kept clawing at the nurse's face with her right hand, half voluntarily, as it seemed; left arm not changed from the habitual condition about to be described. The fit passed off gradually. These fits were very frequent; associated sometimes with clonic movements of arm. For the last week, between the fits, there has been a persistent marked spastic rigidity of the left arm; child does not try to use it; fingers clenched over thumb; arm pronated so that back of hand looks forwards or even inwards; elbow flexed or extended. Left leg nothing noteworthy. Persistent internal strabismus of left eye; pupils equal; no ptosis, no lagophthalmos. Persistent drawing of mouth and nose to left, unquestionably due to spasm of the left muscles, and not to paralysis of the right muscles; this is proved when the child sucks. Left eye perhaps less widely open than right. Still some disposition to opisthotonos. Slight rickets; two lower central incisors have been cut for three months; anterior fontanelle natural; no otitis; does not look idiotic; no heat of skin; no vomiting; fæces white and solid; much tympanites. July 7, 1875, still has occasional fits; intelligence reported to be defective. Jan. 1876, I heard that the fits had become more frequent, and the child was dying. No post-mortem examination.

Case XII.

Nelly P., 4 weeks old; seen September 6, 1875.

Never suckled; vomiting and green undigested fæces almost from birth: parasitic stomatitis; opisthotonos since birth; arms and legs go stiff. No more notes.

Case XIII.

Mary Ann Rogers, 10 months old. Admitted into the Hospital for Sick Children, March 8, 1876.

Dec. 18, 1875.—Was taken ill with a cold; has held head back ever since; has never sat up since; left arm turned in two weeks ago.

March 13, 1876.—1. No rickets; not emaciated; no teeth. Many glands on left side of head enlarged; one or two on right side. Temperature, taken night and morning from March 11 to September 27, always natural, excepting slight rises whilst an issue was in the neck.

2. Holding back of head very marked, neck stiff; when child is laid on back, she rests on occiput and loins, the back being arched between. No evidence of vertebral disease.

3. Anterior fontanelle widely open and slightly bulged; coronal and sagittal sutures open for some distance. Shape of head approaching that of ventricular hydrocephalus, that is, high at vortex, prominent at forehead, and with a somewhat circular outline on perpendicular antero-posterior section.[1] No depression of eyeballs; fundus of eyes natural by ophthalmoscope.

4. Left arm paralysed from shoulder downwards; slight rigidity of muscles; arm strongly rotated inwards at the shoulder; arm lies straight alongside body; thumb drawn in upon palm; fingers flexed; muscles act well to faradism; no other paralysis of limbs, face, or eyeballs; no dysphagia.

The child stayed in the hospital until September 28; no change took place for the better or the worse. She was seen afterwards, and was much the same.

Case XIV.

Elizabeth H., 8 months old; seen April 25, 1877.

Holding back of head noted for three weeks past; is very stiff in neck. Slight rickets; thin; no teeth. Head looks full, especially the anterior fontanelle; sagittal suture open throughout, but perpendicular antero-posterior section natural in shape; eyeballs rather protuberant; irides partly covered by the lower eyelids. May 2, holding back of head gone; neck lithe; eyeballs natural; child seems much better.

Case XV.

——— P., a girl, 4 months old; seen by Dr. Gee, with Mr. Knight Salter, on December 13, 1877.

[1] St. Bartholomew's Hospital Reports, vol. vii. p. 13, 1871.

Fed on condensed milk since birth; vomiting, and green curdy stools throughout. Born easily. Since birth has held head back almost constantly. No paralysis or rigidity except of neck. No signs of hydrocephalus or cerebral disease. Thin; no rickets; never had fits. No injury known of. Dec. 19, two epileptiform fits. Dec. 23, much as on 13th. Dec. 27, died. Post-mortem examination by Mr. Salter; a good deal of clear serum at base of brain. Brain preserved; lamina cinerea and septum lucidum broken down; ependyma natural; ventricles did not look as if they had been distended; nor were the convolutions of the cerebrum flattened; unfortunately, all the membranes had been stripped off the medulla oblongata, but the medulla itself and all other parts of the brain seemed natural.

Case XVI.

——— B., a boy, 13 months old; seen June 13, 1878.

Has been stiffish in limbs since birth. Born easily, but three weeks before time; no injury known of. No teeth, yet no rickets, and child well grown in respect of length. Intelligence backward, that of a child of four or five months old; can see and hear; no otorrhœa; cannot sit up. Head held stiffly back, even when the child lies on its belly. Arms rather stiff; held back, and inverted at the shoulder; legs rather stiffly extended, toes separated. Head natural, fontanelle nearly closed. Rigidity both of neck and limbs, not constant; sometimes child seems better, and then they go away for a few days. No convulsions.

Case XVII.

James S., 5 months old; seen March 27, 1878.

Head held back for four days; no other symptoms of disease. May 22, slow marasmus; holding back of head persists; head enlarging. June 19, much the same; head still enlarging, and sutures separating. July 13, no doubt of hydrocephalic head; opisthotonos persists.

Case XVIII.

Robert T., 13 months old; seen May 11, 1878.

Head held back for three weeks; screaming fits for two weeks; strabismus; vomiting. May 25, has been taking bromide of potassium; is much better; sits up well; no holding back of head or stiffness of neck; no vomiting or screaming.

DR. BARLOW'S CASES.

Case XIX.

Mabel A., æt. 8 months, brought as an outpatient to the Children's Hospital, July 11, 1876. Stated to have been healthy until she was five months old, then began to "hold her head back tight and throw her legs out stiff." So more or less ever since. Repeated vomiting. No fits. When the child was brought the head was strongly retracted, but the spasm of the limbs had passed off. There was a slight external squint in the right eye. The right fundus oculi was seen with the ophthalmoscope and was natural. No otorrhœa. She was greatly wasted and her tissues very flabby; the mother was unable to suckle her. Lime-water was ordered to be added to the milk, and one grain of iodide of potassium given thrice daily. Subsequently cod-liver oil ordered to be rubbed in and castor-oil mixture given for constipation, which was marked throughout. August 7, it is noted that for the first time the fontanelle is tense; the eyes are half closed; the child more torpid than before; the head *no longer retracted.* She takes food; is still costive, but the vomiting is much better. After this the child improved a little, but on 5th September she got a recurrence of the vomiting. On the 11th the fontanelle was slightly depressed, and she became quite torpid, and died apparently from sheer inanition.

The head retraction, which had been so marked a feature up to the 7th August, was not present after that date.

At the post-mortem made on the 12th, *i.e.*, about twenty-four hours after death, the fontanelle would hold the tips of three fingers, but there was no gaping of the sutures, nor were the eyeballs depressed.

There was some flattening of the convolutions as in tubercular meningitis, but no notable thinning of them. The corpus callosum was intact. The corpora striata seemed natural, but the optic thalami and corpora quadrigemina were somewhat wasted. The soft commissure was intact; the choroid plexuses firm, a hard nodule in one of them. The lateral ventricles were distended with clear fluid; the third ventricle was certainly enlarged, the iter doubtful. The cerebellum and medulla were very closely glued together by a thin firm adhesion, which had a finely speckled appearance, as though it had been dusted slightly with meal. The 6th, 7th, 8th, and 9th pairs were also invested with firm, thin, probably old, lymph.

On the under surface of the temporo-sphenoidal lobes there was also some slight speckled opacity of the pia mater.

The pons, crura cerebri, and medulla appeared natural to naked-eye inspection.

There was no change to be made out in the upper part of the cervical region of the cord.

Beyond the general wasting there was nothing abnormal in the viscera. In the intestines there were a great many scybala.

It is to be regretted that the internal ear on either side was not opened.

The history seems to associate the head retraction and vomiting when the child was five months old, with the limited meningitis in the region of the medulla.

One cannot but notice the co-existence of the hydrocephalus with closure of the cerebro-spinal foramen; and it is noteworthy that when the first sign of hydrocephalus appeared the head retraction ceased.[1]

The entire absence of convulsions is of interest in connection with the non-involvement of the meningitis on the convexity, although it is true the convolutions there were slightly flattened.

Case XX.

Louisa C., æt. 3 months, was brought as an out-patient to Great Ormond Street, September 21, 1876.

She was healthy until she was two months old. Was taken out of doors one day by a nurse, who is *assumed* to have let her fall, but there is no proof of it. The day after this she was drowsy and began to hold her head back. Three days afterwards she began to have fits. Had fifty in one day. Fits lasted for five days. No vomiting, and has been able to suck until one week ago. Since then fed on condensed milk and brandy. Bowels relaxed a little at first, and have been moved once at least every day. Has been noticed to squint now and then, and to sigh also. The head has continued drawn back ever since illness began (one month ago).

When seen in the out-patient room there was marked head retraction; the toes were inflexed on to the sole, and the fingers and thumbs closed. There was no optic neuritis in either eye, and no ocular palsy. No tâche. The child greatly wasted. No evidence of syphilis. Ordered half a grain of grey powder thrice daily.

[1] In a case now under observation, which started with double otorrhœa, the same clinical sequence has been noticed as the one above referred to, viz., enlargement of head with bulging up of fontanelle (? hydrocephalus) following the gradual cessation of the head retraction. It may be noted that in ordinary cases of chronic hydrocephalus, where the effusion is considerable, cervical opisthotonos is not a symptom; the head often falls back, but is not drawn back.

On September 25 was reported to have had three fits.

The right naso-oral fold was flatter than the left. Some weakness of left levator palpebræ. The head still retracted; the fontanelle tight. Belly very slightly retracted. Bowels are moved every day. Skin very hot.

September 29.—Is said to have vomited about twice a day. No constipation. Has had four fits. She has still retraction of the head. Has divergent squint, especially on the right side. The pupils act to light. There is probably no optic neuritis. Both discs are pale; edge quite sharply defined. The elbows extended. The wrists sometimes rigidly flexed, sometimes rigidly extended; the toes flexed on to the soles; the ankles inverted; the knees extended.

October 2.—Said to have had several fits, which began in the left eyelids. There are frequent slight clonic spasms of mouth and lower jaw muscles. Head still strongly retracted. The limbs rigid as at last visit.

She died within a day or two of this note. At the post-mortem it was only permitted to examine the head.

There was no tubercle, and I failed to find any lymph on the convexity. There was slightly opaque lymph extending from the optic chiasma to the medulla. The medulla and the cerebellum were firmly glued together. There was slight distension of the lateral ventricles with fluid containing flakes of lymph.

It is exceedingly probable that there was spinal meningitis. Some puro-lymph welled up from the spinal canal. Internal ears not examined. No diseased bone discovered.

This case was more acute than the first; the basic mischief more extensive; the lymph thicker. The number of convulsions was remarkable considering the non-involvement of the cortex; it is possible that the rigidity of the limbs was spinal. The case was in some respects like one of tubercular meningitis, but we have never seen that disease in so young a child; also the duration was longer, and there were some other differences. The possibility of heat-stroke was unfortunately forgotten and not inquired into.

Case XXI.

Emma L., aged about 3 months, was brought once only as an out-patient at Charing Cross Hospital, on the 13th September 1876, by a person who could tell me nothing about her. I subsequently found that there was a confession of her having fallen out of the nurse's arms in the street two months before, head first on the pavement. I could not learn anything about

her symptoms on the day of the fall, but next day she had fits. She had several fits during the subsequent three weeks, then they stopped. From the time when her illness began she had held her head back. No vomiting until a few days ago.

When I saw the child she was pale, wasted, and torpid, with sunken eyes, and her head strongly retracted. I regret that I have no note about her fontanelle. She died two days after, and I was allowed to make the post-mortem forty-eight hours after death.

Body well preserved. Thoracic and abdominal viscera natural.

Head.—No external injury to be discovered and no signs of past hæmorrhages within the dura mater.

The convolutions slightly flattened. The corpus callosum bulged and thinned. The lateral ventricles distended with pale greenish fluid, which contains purulent flakes. The corpora striata slightly flattened out.

A little lymph along the sylvian fissures in meshes of pia mater. Lymph extending from optic chiasma to the medulla.

On laying the brain on its convexity and trying to lift up the medulla from the cerebellum, it was quite clear that the cerebro-spinal foramen was closed up by thickened membrane, and there was quite a bulging pouch of opaque membrane on each side.

Probably there was also spinal meningitis in this case. Purulent lymph welled up from the spinal canal, and there was certainly thickening of the membranes in the cervical region.

No bare bone was discovered, and no fracture at the base; but I regret that I did not actually open up the internal ears.

Case XXII.[1]

Thomas Q., aged 19 months, was brought to Great Ormond Street as an out-patient, January 23, 1877. There was nothing noteworthy in the family or previous history.

The boy's illness had begun a fortnight before he was seen at the hospital. He had been very hot, and retched a great deal; the next day had walked about, eaten a good meal, but vomited in the evening. The vomiting had continued more or less for the fortnight. Had been very irritable from the first, and had frequently lain during part of the day in a "stupid sleep." Had sighed and ground his teeth.

When brought to the out-patient room, his aspect suggested, but not very positively, that of tubercular meningitis. He lay on his mother's lap with his head retracted and his eyes closed. There was no squint; the pupils were natural; his pulse was feeble

[1] A note on this case has appeared in "Medical Times," April 14, 1877.

and not rapid, but no intermission was detected. He had no retraction of the belly, and no tâche. There was no optic neuritis.

Having ascertained that the child had no otorrhœa, no further regard was paid to the possibility of ear mischief. After the post-mortem, his mother said that he had frequently put his hand to his left ear, and that he had cried out when his ears were touched. The mother also recalled that about four months before, the child had put his hand to his left ear and seemed to be in pain for one day, but nothing more was observed. She was quite positive that at no time had there been any mattery discharge.

The child was ordered one grain of iodide of potassium every hour, and he seemed, after a week had elapsed, decidedly brighter, but the improvement did not continue. On February 6 he had a return of the vomiting, and was obstinately constipated, and the belly was retracted. He had marked head retraction. The pupils were equal; there was occasional want of parallelism of the eyeballs. Ophthalmoscopic examination showed nothing abnormal.

The boy cried out in a short, fretful way now and then. He was cutting two teeth; had already fourteen.

On the 9th he seemed decidedly a little better; but his head was still retracted, and so was his belly. The constipation continued, and he vomited about once a day.

On the 13th February he died, *i.e.*, six weeks and two days after the day on which he was taken ill. At the post-mortem (weather cool, 36 hours), made by Dr. Barlow and Dr. D. B. Lees, the body was well preserved, wasted, but not to an extreme degree.

There was considerable flattening of the convolutions and softening of brain substance, with excess of almost clear fluid in the ventricles, which were somewhat dilated.

The pia mater was greatly injected, but the most careful search failed to detect any grey granulations, and there was no lymph except for the distance of about a quarter inch round the sheath of the seventh nerve at its superficial origin. There was very marked local hyperæmia of the pia mater over the left flocculus cerebelli, and a little beyond it for an area which could be covered by a sixpence. The presence of this lymph suggested the examination of the tympana. The membrana tympani on each side was intact, and the malleus was in contact.

In each tympanic cavity there was about a quarter of a drachm of fluid; it had the consistence of exceedingly thin gum-water, and was quite colourless.

We failed to find any bare bone, or any suppuration in connection with the temporal. The thoracic and abdominal viscera were healthy. All the lymphatic glands that we could get at were healthy to naked-eye inspection.

Case XXIII.

Laura C., æt. 8 months, was brought as an out-patient to Great Ormond Street, December 28, 1877. There was nothing of importance in the family history, nor in the previous history of the child.

Three weeks before, it was stated that she had slept very soundly for half a day. When she was waked she seemed limp, but she screamed directly she was raised, and it was noticed that she held her head back, and that her eyes were turned up, and that she would not suck. There was no twitching of the limbs and no vomiting. The bowels had been moved every day since until the day before she was brought, and excepting on the first day of her illness she had continued to suck.

When brought, there was very marked head retraction, the muscles at the back of the neck being quite firm. She cried when she was lifted up. The pupils were equal, of moderate size, and there was no strabismus. The fontanelle was neither depressed nor elevated. The thumbs were sometimes indrawn, but not tightly; there was no spasm about the toes or ankles. It was a question whether the knees were drawn up as readily as natural when the soles were tickled. The child's tongue was clean, and her skin cool. She was rather poorly nourished, but there was nothing else noteworthy about her general condition.

She was ordered two grains of iodide of potassium every two hours, and cod-liver oil was to be rubbed into the body.

On the 1st January 1878 she was still able to suck. The pupils were large and insensitive. There was no optic neuritis. I did not see her again, but was told that on the 2d her "eyes worked a great deal." I have no note of any convulsion, and my belief is that none was noticed. She died on the 7th, *i.e.*, 1 month and 3 days after the onset of symptoms.

The post-mortem was made twenty-four hours after death by Dr. Barlow and Dr. D. B. Lees.

The convolutions were slightly flattened; there was no lymph on the convexity, and there was very little effusion into the ventricles. There was some thin greenish lymph at the base, extending from the optic commissure to the medulla. The contiguous parts of the cerebellum and medulla were closely glued together, and the cerebro-spinal foramen was certainly

closed. The dura mater in this region was adherent. There was some thin purulent fluid in both internal ears, and the tympanic membrane in both cases was quite intact. No bare bone was discovered anywhere, and no sign of injury.

I regret not to have examined the spinal cord, but I satisfied myself that there was no cervical caries.

The viscera were natural.

The absence of convulsions for more than three weeks (and to the best of my belief throughout, unless the eye movements referred to meant a convulsion) is worth noting in connection with the absence of affection of the convexity.

After the post-mortem, I was unable, by questioning, to ascertain anything from the parents which could have suggested the existence of ear trouble.

Case XXIV.

Henry S., aged 8 months, was transferred to me as an outpatient at the London Hospital by Mr. M'Carthy, February 4, 1878. Nine days ago he was stated to have fallen from his mother's arms a height of about two yards, with his head on a wooden step.

Nothing was noticed wrong until six days ago, when his head became drawn back.

Four days ago he began to vomit.

The child was pale and wasted, though not to an extreme degree.

No sign of bruise of the scalp.

Temperature in axilla 97°.

No nervous sign except retraction of the head, which was constant and rigid, and increased when the child was raised. No otorrhœa.

Ordered two grains of iodide of potassium every three hours.

February 7.—The child was a little better.

The vomiting lessened; there was not so much head retraction. The fontanelle was depressed. Pupils large; the eyes moved together. Ophthalmoscopic examination showed the discs to be a little grey and indistinct at the edges, but probably not to a morbid degree; at all events, there was certainly no curving of the veins over the margins.

February 13.—The head retraction was still less.

Said to have vomited some blood (?).

The vomiting continued till February 21, and then almost stopped. The child seemed better until the 25th, then he had some fits, and died in the evening, *i.e.*, twenty-seven days after the onset.

At the post-mortem there was no fracture of the skull or of the cervical spine to be discovered, and no injury of the dura mater; and there was nothing abnormal about the cerebral sinuses.

There was no lymph on the convexity. There was some effusion into the lateral ventricles, the fluid decidedly flaky and greenish. There was basic meningitis, and firm adhesion of the cerebellum and the medulla, so that the cerebro-spinal foramen was quite closed. The lymph at the base was rather thin. No tubercles could be found anywhere. At the base there were two smooth circumscribed nodular hæmorrhagic-looking masses as large as a millet seed. One was situated close to the bifurcation of the basilar, the other behind the corpora albicantia. These, Mr. M'Carthy assures me, from microscopic examination, were due to organising thrombus in small veins. The internal ears were carefully examined and were quite healthy.

The thoracic and abdominal viscera were healthy.

Notes.—In this case the history of the fall must be taken for what it is worth; it seemed definite enough, and is the only suggestion of a cause which I can offer, though how it acted it is impossible to say.

The paucity of symptoms, head retraction, vomiting, and wasting, so far at least as out-patient observation revealed, was very noteworthy. The case was so subacute that I do not see how any one could quote it as one of epidemic cerebro-spinal meningitis. The absence of convulsions until the 27th day, *i.e.*, the day of the child's death, is important. Capillary extravasations in meningitis, and especially in cases of thrombosis of cerebral sinuses, are not rare, but I have never before seen such hæmorrhagic masses at the base as are above described.

Case XXV.

A. M., a boy aged 7 months, seen with Dr. Davison of Holloway, March 2, 1878. The nurse on being questioned said that she had required to rub the child's nose with tallow when he was a few weeks old on account of its "stuffiness." She said also that the thrush had gone through him, but there was no history of general rash. He had been fed on milk and Nestle's food, and had got on pretty well with it. For a fortnight he had been ailing, and for two days the head had been drawn back, and there had been some slight twitchings.

When seen, the child was not badly nourished; his skin was of a good colour and his nose well formed. There was, however, some pigmentation and slight superficial fissuring around the

anus; this was noteworthy because the child was not then suffering from relaxed or offensive stools, and there was no kind of excoriation of the nates. The spleen was felt slightly enlarged.

He had his head rigidly retracted, and it became more so when he was raised. There were occasional exceedingly slight convulsive "starts" of the face muscles and of the fingers. The pupils were contracted, and there was an inconstant external squint of the left eye. The armpit temperature was 102.8°. The gums were red; the child had had stomatitis; there was no sign of a tooth imminent, and there had been no ear discharge. In addition to the bromide of potassium which he had been taking the child was ordered some grey powder.

Dr. Davison has told me that for a little time there was a slight improvement, but that subsequently the head retraction increased, the slight convulsive seizures continued, and the child screamed a good deal. He took his nourishment well, but gradually wasted, and died in a convulsion about the middle of April.

Post-mortem examination refused.

ON THE

VARIETIES OF ICTERUS GRAVIS.

BY

J. WICKHAM LEGG, M.D.

The sense in which I propose in this paper to use the term *icterus gravis* is the same as that in which it is now commonly used in France at the present day. It was first employed in this sense by Charles Ozanam in a *Thèse de Paris* of 1849. This writer comes of a family as well known in France for their love of letters and natural knowledge as the Ormerods and the Lathams in England. The name of Frederick Ozanam will be remembered by the humane, not merely as the great commentator upon Dante, but also as the founder of the Society of St. Vincent of Paul.

By *icterus gravis*, then, is meant an acute jaundice, accompanied by nervous symptoms, such as delirium, coma, and convulsions, and by a tendency to hæmorrhage from all parts of the body. After death there is found a cloudy swelling or parenchymatous degeneration of all the glands and muscles of the body, probably also of the smaller arteries and capillaries. There is a great decrease, or even entire absence, of glycogen in the liver, and it is also probable that the urea in the urine is greatly decreased. Both these changes seem due to the injury inflicted on the cells, in the first case of the liver, and in the second of the body at large, while the hæmorrhages and the nervous symptoms are likely enough due to the degeneration of the cerebral vessels; the hæmorrhages to the degeneration of the vessels of the body; the nervous symptoms to the degeneration of the cerebral vessels, leading to an imperfect supply of blood to the brain. The whole of these phænomena may with some likelihood be thought due to the action of a poison, either generated within, or brought from without into, the body.

Admitting this definition of *icterus gravis* as a parenchymatous degeneration of all the glands and muscles, it becomes evi-

dent that it is not a disease of the liver only, but of the whole body; the liver, indeed, often shows the greatest amount of change, because it is the largest of the glands; and attention, too, is easily paid to that organ, because the jaundice attracts it. But *icterus gravis* is in reality as much a general disorder as smallpox or typhoid fever.

It is to the varieties of *icterus gravis* that I propose to devote this paper. They are not many in number. The two most important are the disease called acute yellow atrophy of the liver and phosphorus poisoning. Yellow fever is also a variety; and the "bilious typhoid" described by Griesinger, poisoning by arsenic, antimony, and many other bodies, organic and inorganic, also comes under this head.

I must own that it seems to me of little profit to discuss the question whether the anatomical changes be inflammation or not. Great pathologists, such as Bright and Virchow, have given the name of inflammation to the process; but it seems to my mind that at the present day the word "inflammation" has so indefinite a meaning that no information is given if a process be called by this name. If, however, the terms "cloudy swelling" or "parenchymatous degeneration" be used, then the nature of the appearances is at once understood; it is that the cells of the organ become swollen and filled with granules, some soluble, some insoluble in acetic acid, these granules being sometimes present in such quantity as to obscure the nucleus. By the use of these names the appearances perceived by the senses only are indicated, and no inference is drawn from the facts. Later on the cells become filled with drops, and their walls break down, leaving nothing but a fatty detritus to be seen under the microscope.

There is, however, a host of diseases in which a general parenchymatous change takes place; such are pneumonia, typhoid fever, puerperal fever, or any acute disease attended with fever. But in these disorders it is not common for the degeneration to go so far as in *icterus gravis*. The first stage of the process only is reached, and often only the liver and kidneys, and not the heart and muscles, are attacked; or the liver only may show the change. Liebermeister has, however, made known that the last stage of parenchymatous degeneration may be reached in disorders in which it was formerly quite unsuspected. He has found the liver cells dissolved, as completely as in acute yellow atrophy, in cases of puerperal fever, typhoid fever, pyæmia, and tuberculosis.[1] Acute yellow atrophy is therefore but the last expression of a process, the first beginnings of which

[1] Liebermeister, Beiträge zur path. Anat. u. Klinik d. Leberkrankheiten, Tübingen, 1864, p. 209.

may be so commonly seen in cases of pneumonia, typhoid fever, or any other febrile disease.[1]

There is an outcome of the process in the liver to which but little attention has been hitherto directed. It is an overgrowth of the connective tissue of the capsule of Glisson. It can no longer be denied, for very competent histologists, such as Robin,[2] Waldeyer,[3] Winiwarter,[4] and Georg Wegner,[5] have found that in cases of acute yellow atrophy and phosphorus poisoning there is a distinct cirrhosis of the liver. This appearance of cirrhosis would appear to depend upon the length of time that the disease has lasted. In slow poisoning by alcohol, cirrhosis is one of the most common appearances, and a subacute poisoning by alcohol is one of the varieties of *icterus gravis*. Dr. Barlow has of late expressed a belief that febrile enlargement of the abdominal viscera may be the antecedent of fibrosis,[6] and in this opinion I agree with him. This view may be supported by a comparison of the parenchymatous degeneration of the kidney which ends in a chronic overgrowth of the connective issue, the kidney of scarlet fever ending in the small red contracted kidney.

Taking now the varieties of *icterus gravis* one by one, the first that deserves to be studied is the state of the liver called acute yellow atrophy, or the disease might better be called idiopathic *icterus gravis nostras*, in which there is no apparent or prominent cause for the disorder. To this disorder women seemed far more disposed than men. I have collected 100 cases in which the diagnosis was verified after death by finding solution of the liver cells, and out of these 100 no less than 69 were in women. Pregnancy also has great influence, for out of these 69 the patient was pregnant in 25 at the time of the attack. These figures show a somewhat lower proportion than those of Frerichs, who out of 31 cases found 22 women, and 11 of these pregnant; but they have the advantage of greater accuracy, as they are founded on examinations after death, and with the microscope. The cause of the greater frequency of *icterus gravis* among pregnant women does not seem far

[1] Decaudin (*Concomitance des Maladies du Foie et des Reins*, Paris, 1878, p. 48) must have mistaken the drift of my remarks when he says that I attribute all cases of *icterus gravis* to a high temperature. Nothing could have been further from my intention than to convey such an impression. My purpose was to point out the identity of the change caused by high temperature with that seen in acute yellow atrophy, not to assert that the change has only one source.

[2] Robin, Mém. lus à la Société de Biologie, 1857, p. 9.

[3] Waldeyer, Arch. f. path. Anat., 1868, Bd. xliii. p. 533.

[4] Winiwarter, Med. Jahrbb. (Stricker's), 1872, p. 256.

[5] Georg Weguer, Arch. f. path. Anat., 1872, Bd. lv. p. 19.

[6] Thomas Barlow, Transactions of the Pathological Society of London, 1877, vol. xxviii. p. 355.

to seek. Pregnancy and suckling have a remarkable influence on the glands, especially the liver and kidneys, to which Virchow drew attention so long ago as 1848.[1] The cells show in a well-marked manner the appearance of cloudy swelling. Cornil and Ranvier[2] also mention that the liver cells of all animals giving suck are surcharged with an excess of fat; an observation which has been confirmed by Sinéty.[3] And even in birds the same thing holds good of the process of gestation; for Meissner has noticed that the livers of hens while laying eggs in the summer contained a large quantity of fat, those of the cocks scarcely any; and in the winter, when no eggs were laid, the livers of cocks and of hens contained a like amount of fat.[4] Gerhardt thinks that all these cases of *icterus gravis* in pregnant women are due to the death of the fœtus, and the poisoning of the mother by the putrid fluid from the womb.[5] This may be; but the presence of parenchymatous degenerations already in the organs will need but little aggravation from without to raise them to the state found in *icterus gravis*. Thus we find that in epidemic jaundice the pregnant women are those who suffer the most, few of those attacked escaping death; while in the non-pregnant women and the men the jaundice runs a simple course.

Age as well as sex has a great influence in the ætiology of the disease; it avoids the extremes of youth and age, the greater number being seen between 15 and 35. In my own hundred cases I found the following:—7 below the age of 5; none between 5 and 10; 4 between 10 and 15; 45 between 15 and 25; 31 between 25 and 35; 10 between 35 and 45; and 3 between 50 and 60. It is not true that the disease never attacks children, for Politzer has seen a case in a newly-born child, and Dr. Hilton Fagge, Dr. Tuckwell, and Rehn have seen cases in infants two years and four years old.

In some of the earlier cases, notably those recorded by Morgagni, some great mental emotion was suffered just before the onset of the jaundice. In none of my hundred cases is any such sudden mental disturbance pointed out, but in sixteen the presence of a long-continued depressing emotion is spoken of. Thirteen of these were women, and in seven the case was complicated by pregnancy; in one case anger and habits of drink were combined, and in a second unhappiness and syphilis, so that

[1] Virchow, Ges. Abh. Hamm, 1862, 2te Ausg., p. 778.
[2] Cornil and Ranvier, Manuel d'Hist. path, Paris, 1869, p. 53.
[3] Sinéty, De l'Etat du Foie chez les Femelles en Lactation, Paris, 1873.
[4] Meissner, Zeitschrift f. rat. Med., III. Reihe, Bd. xxxv. Bericht, p. 209.
[5] Gerhardt, in Volkmann's Sammlung klin. Vorträge, Leipzig, 1870–75, p. 175.

in only four of the women was the influence of a depressing emotion uncomplicated. In the three men, one was a Frenchman, a syphilitic prisoner in the hands of the Germans; the second, also a French soldier, habitually sad from family troubles; and the third, a doubtful case, if not pyæmic, in which the man entertained thoughts of suicide. Mental emotion appears to me to be a very doubtful cause of *icterus gravis*.

Another cause is thought by some to be at work; persons who commit excesses of all kinds are said by Lebert to be predisposed to the disease, especially prostitutes. But here it is a complex problem, for it is hard to distinguish between the effects of excesses *in venere*, in drunkenness, and in misery which the career of a *puella publica* involves. In the hundred cases which I have collected, only five of the sixty-nine women are said to have been prostitutes.

An idiopathic *icterus gravis* sometimes makes its appearance amongst persons living in the same house, often kinsfolk, and exposed to the same hygienic conditions. In some of these a jaundice comes on, quite simple, and runs a harmless and uncomplicated course. In the others the jaundice comes on, and to all appearance is as free from danger as the others; but in the midst of this seeming security grave nervous symptoms appear, and the patient dies. In other cases the jaundice happens on a larger scale, and is then called *icterus epidemius*, and in these the same rule prevails of benign and malignant cases existing side by side. I am inclined to attribute the origin of the two to one cause, a poison introduced into the body in a greater or smaller amount; for we find that the epidemic jaundice appears in neighbourhoods where military ditches have been drained or large diggings undertaken, or in the bad hygienic states which follow war and famine. Thus if but a small dose of the poison be introduced into the body, only vomiting or diarrhœa may follow; a gastro-intestinal catarrh, followed by jaundice; or if the dose be greater, or the patient predisposed, a malignant jaundice from parenchymatous changes in all the muscles and glands may take him away. The effect of a predisposition is well shown in the relation of the epidemics to pregnant women, nearly all of whom perish in an epidemic of jaundice, the state of their tissues predisposing them to the disease.

These are all the admitted causes of our native idiopathic *icterus gravis* or acute yellow atrophy. But the *icterus gravis* which follows the administration of certain poisons resembles the idiopathic so closely, that there is often no means whatever for distinguishing between the two during life or after death, even by chemical analysis. This is specially the case in phosphorus

poisoning, the notice of which has been forced upon pathologists by the great increase of this method of suicide in Germany, where it has become almost the fashion to commit self-murder in this way. Fortunately, in England we have little opportunity for the study of phosphorus poisoning; but the points in which it resembles acute yellow atrophy are extraordinarily close, so that it has been asserted that every case of acute yellow atrophy is a case of poisoning by phosphorus. This is, however, too narrow a view. It might as well be asserted that cholera and poisoning by arsenic are identical, because the same appearances have been found by Virchow after death, even down to the cholera fungus described by Klob.[1] The points of resemblance are these: it attacks more women than men—the numbers given by Lebert and Oscar Wyss are eleven to thirty-four, very nearly the same numbers as in my collection of acute yellow atrophy; then the patients are nearly all young, between twenty and thirty; after thirty-five, as in acute yellow atrophy, it becomes rare; then the symptoms run a like course—first vomiting, a few days after a slight jaundice, which deepens, and then grave nervous symptoms, delirium, convulsions, and coma, with hæmorrhages. The urine, as examined by Schultzen and Riess,[2] has a striking likeness in both disorders: the urea falls to a minimum; peptones and sarcolactic acid appear in the urine. The only difference that Schultzen and Riess can make out in the clinical phænomena is the presence of leucin and tyrosin in the urine of acute yellow atrophy, and their absence in that of phosphorus poisoning. Even this is denied by Lebert and Wyss,[3] with other observers. I must own that I do not think that the distinction will hold, as it seems unlikely that, if the same grave changes in nutrition take place in both states, such bodies as leucin and tyrosin should not be found in the urine in both. The morbid anatomy has been warmly contested. The state of the kidneys, stomach, heart, and muscles is admitted to be identical in both disorders, but the liver is said by some to present wide differences. In phosphorus poisoning it is said to be enlarged, and to show no real fatty degeneration, but a mere fatty infiltration. Now in acute yellow atrophy it is by no means necessary, though this may seem a contradiction in terms, that the liver should be wasted; but, as Liebermeister has shown, if death take place early in the disease, the liver is enlarged and not wasted, and it is only if the disease have lasted a certain time that the atrophy of the

[1] Virchow, Arch. f. path. Anat., 1869, Bd. xlvii. p. 524.

[2] Schultzen and Riess, Annalen d. Charité Krankenhauses, 1869, Bd. xv. p. 1.

[3] Lebert and Wyss, Archives gén. de Méd., 1868, vol. ii. p. 260.

liver is found. Then it is urged that the processes in acute yellow atrophy and in phosphorus poisoning are altogether unlike. In the former, the cells do not fill with drops of fat, but with small-sized granules, some soluble in acetic acid, the others not, and that later on the cells are dissolved into a granular detritus, and nothing is left but granules and fat drops. In the latter, it is said the cells are simply filled with fat, like an ordinary fatty liver, and suffer no destruction or dissolution. This may be true to a certain extent, because in phosphorus poisoning the patients die before the liver has begun to shrink from the cells being destroyed; and in acute yellow atrophy, in the early stage, before shrinking has taken place, the cells are not destroyed. Indeed, I examined some months ago the liver of a person who had died with symptoms of acute yellow atrophy, and on whom no suspicion of phosphorus poisoning fell. The cells were not destroyed, but filled with large and small fat drops. And, on the other hand, Oscar Wyss says he has found cases of phosphorus poisoning in which the liver cells were destroyed. Schultzen and Riess with Winiwarter lay much stress on the early cirrhosis which they found in some cases of acute yellow atrophy, as a distinguishing mark from phosphorus poisoning; but this does not hold good, for in some cases of acute yellow atrophy there is no overgrowth of the connective tissue, and there is overgrowth in some cases of phosphorus poisoning, as Georg Wegner has specially pointed out, if the poisoning be very chronic: indeed, a cirrhosis is a common outcome of all parenchymatous changes in the liver if the process only last long enough.

Very closely allied to the poisoning by phosphorus is the poisoning by antimony, arsenic, and other bodies. During life jaundice may come on accompanied by nervous symptoms and hæmorrhages, and after death a parenchymatous degeneration of the organs and muscles found. Salkowsky has shown that in arsenic and antimony poisoning the liver ceases to contain glycogen.[1] One difference from phosphorus poisoning is, that the urine does not seem to hold peptones nor sarcolactic acid. Chloroform, chloral, and alcohol have the same effect as arsenic and antimony. There is a remarkable case of Leudet's, in which a man drank by mistake a large glass of spirit.[2] This was followed by a three days' drunkenness, and immediately after his recovery from this state he showed all the phænomena of *icterus gravis*, during life and after death. Lead, silver, and copper have an action very closely akin to each other; and Bogoslow-

[1] Salkowsky, Arch. f. path. Anat., 1865, Bd. xxxiv. p. 73.
[2] Leudet, Gaz. méd. de Paris, 1860, p. 405.

sky[1] has shown that parenchymatous degenerations follow a poisoning by silver. Many cases of jaundice have been recorded during a chronic plumbic intoxication, chiefly by Gubler and his school. Stoll describes a case of poisoning by copper during which *icterus gravis* came on.[2]

The remainder of the idiopathic varieties of *icterus gravis* are of but little interest to the physician practising in England, as they are chiefly seen in tropical or sub-tropical countries; such is yellow fever. The claim of this disorder to a place amongst the kinds of *icterus gravis* cannot now be disputed. Amongst the clinical phænomena there are the jaundice, the multiple hæmorrhages, shown specially in the black vomit, and the nervous symptoms, shown either in mild cases as slight wandering, or in the severer as marked delirium and hallucinations with coma and convulsions. The urea of the urine is much decreased. After death it seems that it would be hard to distinguish the morbid appearances from those of a case of acute yellow atrophy or phosphorus poisoning, the heart, liver, and kidneys showing well-marked fatty degeneration. The liver cells, according to Claude Bernard[3] and Schmidtlein,[4] are dissolved, and only a fatty detritus seen; nor can any sugar be found in the liver.

The "bilious typhoid" described by Griesinger[5] as an epidemic disease seen by him in Egypt would seem to belong to the class of *icterus gravis*. It may be the same disorder as the *typhus icterodes* which scourged the armies in the East. It is distinguished from yellow fever, according to Griesinger, by the state of the spleen, which shows diffuse suppuration, with pale wedge-shaped bodies irregularly distributed throughout its tissue. The naked-eye characters of the organs closely agree with those of acute yellow atrophy, but the microscope does not seem to have been used in Griesinger's investigations.

The study of the parenchymatous degenerations is, to my mind, full of interest, and there are many points in their history worthy of further research. For example, it may be inquired if they be a result common to all poisons or to a certain group only; whether they be due solely to poison or to causes hitherto imperfectly studied, as in fevers and pernicious anæmia; whether it be possible to have a far-advanced paren-

[1] Bogoslowsky, Arch. f. path. Anat., 1869, Bd. xlvi. p. 409.
[2] Stoll, Rat. Med. Viennæ, 1780, Pars. iii. p. 390.
[3] Claude Bernard, Leçons sur les Liquides de l'Organisme, Paris, 1859, t. ii. p. 212.
[4] Schmidtlein, Deutsches Arch. f. klin. Med., 1868, Bd. iv. p. 84.
[5] Griesinger, Infectionskrankheiten, in Virchow's Handb. d. spec. Path. u. Ther., Erlangen, 1857, p. 210.

chymatous degeneration of the liver without jaundice; and what relation the jaundice seen in febrile disorders, such as pneumonia, typhoid, and typhus fevers, and the like, may bear to the pyrexial degeneration of the liver or the catarrh of the duodenum. Many of these questions cannot now be satisfactorily answered; but it is to be hoped that the increase of knowledge may soon throw light upon some of the more important of these matters.

SCARLATINA.

BY

CHARLES JEWEL EVANS.

The following paper is the result of the personal treatment, derived from notes taken at the time, of more than 400 cases of scarlatina which occurred in my practice in the town and neighbourhood of Northampton during a period of six consecutive years, viz., 1865 to 1870 inclusive, though it curiously happened that I attended no cases in one of those years (1866).

It will be necessary to present the cases, in the first instance, in a tabular form, from which we may get at a glance a tolerably correct idea of the result, and to which reference may be more easily made in the accompanying remarks.

To this intent I have divided the five years in which the cases occurred into three principal groups, as follows :—

1st Group, combining the three years 1867, 1868, and 1869, as in those years there were comparatively few cases, and these were not of a severe type (non-epidemic group).

2d Group comprises all the cases which occurred in 1865 (1st epidemic group).

3d Group, the cases occurring in 1870 (2d epidemic group), the disease in the two latter years being much more prevalent, and assuming a more virulent type; in fact, raging in an epidemic form.

In the first or non-epidemic group there were 107 cases in all (years 1867-68-69); in the second group (1st epidemic) there were 151 cases (year 1865); in the third (2d epidemic) group there were 165 cases (year 1870), making a total of 423 cases.

Taking now each group separately, as it appears under the different headings, we find in the first group, or three non-epidemic years, of the 107 cases, that 101 or 94 per cent. occurred in children, the remaining 6 being adults. Of the whole

TABLE showing Cases of Scarlatina, with Result of Treatment, &c.

Year.	Total No. of Cases.	Social Condition.		Varieties.			Sequelæ.		Result.		Percentage of									Relation of Dropsy to Varieties.
											Children.	Varieties.			Sequelæ.		Mortality.			
		Children.	Adults.	Simple.	A.	M.	Dropsy.	Gld.	Died.	Recovered.		S.	A.	M.	Dr.	Gld.	In all the Cases.	A.	Dr.	
1865	151	134	17	108	34	9	25	12	25	126	88	71	22	6 nearly	17 nearly	7	17 nearly	26	24	88 per cent of *Simple* Cases.
1866	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1867	7	5	2	5	2		–	–	1	6										
1868	70 } 107	66 } 101	4 } 6	63 } 95	7 } 12	...	1 } 2	7 } 9	3 } 4	67 } 103	94	88	11	...	2	8	4	33	...	...
1869	30	30	–	27	3		1	2	–	30										
1870	165	142	23	110	53	2	23	8	24	141	86	66	32	1.5	14 nearly	5 nearly	14	33	21	91 per cent of *Simple* Cases.
Totals	423	377	46	313	99	11	50	29	53	370	89	74	23	3 nearly	11 nearly	7 nearly	12	31	22	90 per cent of *Simple* Cases.

A. = Anginous. M. = Malignant. Dr. = Dropsy. Gld. = Glands.

number 95 were simple cases, or 88 per cent.; 12, or 11 per cent. being anginous cases, no malignant cases having presented themselves. As regards sequelæ, 2 cases only were followed by dropsy and 9 by glandular enlargement (8 per cent.), and 4 cases, or rather less than 4 per cent. died.

The second group (1st epidemic year) includes 151 cases, of which 134, or 88 per cent. occurred in children; 108, or 71 per cent. were simple cases; 34, or 22 per cent. were anginous; and 9, or nearly 6 per cent. malignant cases. Of the whole number, 25, or nearly 17 per cent. were followed by dropsy; 12, or 7 per cent. by glandular enlargement; and 25, or nearly 17 per cent. ended fatally.

The third group, or second epidemic year (1870), comprises 165 cases, of which 142, or 86 per cent. occurred in children; 110, or 66 per cent. were simple cases; 53, or 32 per cent. anginous; and 2, or 1·5 per cent. malignant cases; 23, or nearly 14 per cent. were followed by dropsy; 8, or nearly 5 per cent. by glandular enlargement; and 24, or 14 per cent. died.

Looking at the mortality alone as the most important point, I arrive at the following result, viz. :—

In the three non-epidemic years taken together, of 107 cases 4 died, or rather less than 4 per cent.; in the first epidemic year (1865), of 151 cases 25 died, or nearly 17 per cent.; in the second epidemic year (1870), of 165 cases 24 died, or 14 per cent.; the totals being 423 cases, with 53 deaths, or 12 per cent., showing a decrease in the mortality of nearly 3 per cent. in the second as compared with the first epidemic year, whether owing to the effect of treatment or not I am not prepared to say; but it is observable that in the second year, with a larger total number of cases, there were fewer of a malignant type, though a much larger proportion of anginous cases occurred; and it is in these that the effect of treatment is more to be noted, the malignant form of the disease often admitting of no treatment at all, so rapidly does a fatal result frequently supervene.

Again, to take another part of the subject, the anginous cases amounted to 11 per cent. only of the whole number in the group of non-epidemic years, whereas they reached 22 per cent., or twice as many, and 32 per cent., or nearly three times as many, in the first and second epidemic years respectively.

The malignant type was present in 6 per cent. of the cases in the first epidemic year, and in only 1·5 per cent. in the second year, which may, perhaps, as mentioned above, partly account for the diminished general mortality in that year: but several of the cases verged very closely upon it, though not placed under that heading; indeed, the anginous variety sometimes runs so much

into the malignant that it is difficult to decide how to classify a particular case.

The following is the mortality in this group (anginous):—

1867-68-69,...12 cases,	10 children	with	4	deaths,	4
	2 adults	„			
1865, ...34 „	22 children	„	7	„	9
	12 adults	„	2	„	
1870, ...53 „	39 children	„	17	„	18
	14 adults	„	1	„	
Total, ...99 cases,		with	31	deaths,	

or about 31 per cent.; there being 71 children with 28 deaths, or 38 per cent., and 28 adults with 3 deaths, or 10 per cent., thus showing great mortality in this variety of the disease in the case of children.

Although the mortality was nearly 3 per cent. less over the whole of the cases in 1870 as compared with 1865, yet in the anginous cases taken by themselves it is much higher, as seen in the table.

The malignant cases, 9 in 1865 (8 children and 1 adult) and 2 in 1870 (both children), all died, the disease generally terminating rapidly in from twenty-four to thirty-six hours, or even less.

A few examples of the disease in a suppressed form occurred; but it is a question whether these may not be considered as instances of the malignant type, though not presenting the livid colour of skin which the disease then exhibits. Indeed, they are well entitled to the term "malignant," for they are equally if not more rapidly fatal. In the cases which came under my notice, no rash whatever appeared, the disease being ushered in with copious and violent vomiting, quickly followed by extreme pallor of countenance (not lividity) and collapse, terminating fatally in twenty-four hours or less, without any attempt at rallying having taken place. I need scarcely say that the disease was present in other forms at the same time either in other members of the same family or in the immediate neighbourhood; but in one very marked instance no other cases occurred in the same house (though it existed all around) until three months afterwards, when three simple cases presented themselves.

Selecting as the next point of inquiry one of the sequelæ, viz., dropsy, it appears that in the three non-epidemic years, 2 per cent. only of the cases were followed by this symptom; whereas there were nearly 17 per cent. and 14 per cent. of such cases in the first and second epidemic years respectively. This is the more remarkable when we consider, as is usually, I believe, held to be the case, that dropsy follows the simple form of the disease much

more frequently than the other varieties; and on first sight it would seem not to substantiate that statement. But if we examine the matter a little more closely, we shall find abundant proof of the correctness of the received opinion. Thus in the first group of three years, dropsy followed in 2 cases, both being examples of the simple form; in 1865 it followed 25 times, 3 of the cases only being anginous and 22 simple, or 88 per cent. of simple cases; in 1870 it occurred 23 times, 2 being anginous cases and 21 of the simple form, or 91 per cent.; making the totals as follows:—50 cases of dropsy, 5 only being anginous and 45 simple, or 90 per cent. of the whole. From this the inference is to be derived that although so few cases of dropsy occurred among a large number of simple cases in the first group, yet this particular sequela maintains its relative proportion to the simple and the other varieties of the disease.

Thus, although it is shown that dropsy follows the simple variety much more frequently than the other forms, it is only natural to conclude that it would follow it more constantly when the simple variety presents itself in a rather severe degree, which it undoubtedly generally does when the disease rages as an epidemic. Taking this for granted, the statistics mentioned above accurately bear out the opinion alluded to. Out of the total number of cases of dropsy (50) only one occurred in an adult.

The mortality was as follows:—

In 1865	25	cases, with	6	deaths, or 24	per cent.
1870	23	„	5	„ or 21	„
1867-68-69...	2	„	0	„	

The totals being 50 cases, with 11 deaths, or 22 per cent.

A few of the cases of dropsy were very severe, with copious effusion into the cavities, as the pleura and pericardium, three or four being attended with convulsions, which did not in themselves, however, lead to a fatal result, the patient being really carried off by the dropsical accumulation. In none of the cases did effusion take place into the peritoneum; the pleura, pericardium, and arachnoid being the only seats. I do not know whether this is generally the case. The dropsy was more enduring and less amenable to treatment at the latter part of 1865 than at any earlier period of the year.

I will now notice briefly another formidable sequela of this terrible disease, viz., glandular engorgement and infiltration of the tissues of the neck. This took place to an extreme degree in some of the cases I attended, the muscles being laid bare, and even blood-vessels opened from the extensive sloughing which occurred; and more horrible cases to witness I do not know.

In two instances, where the whole of one side of the neck was laid bare, the patients recovered, the resulting cicatrix in one of the cases extending from beneath the chin to behind the ear. In three other examples, which ended fatally, hæmorrhage was the immediate cause of death; in one a blood-vessel being opened in front of the trachæa, in the other two in the side of the neck, in one of which the bleeding did not occur to a great extent; but a very small loss of blood would be sufficient to place beyond the means of recovery a patient (especially a child, as was the case in all these instances) already exhausted by the prolonged suppuration and sloughing. No local applications used were of any avail to check at the outset this deplorable infiltration of the tissues of the neck.

As a general rule, the adults had sore throats only, no eruption on the skin, except in a very few instances, and then it was for the most part very marked. I find that twenty-six adults had the anginous form more or less severely, without eruption, and ten adults the eruption only, or with slight sore throat as well.

Among a large collection of cases, as where the disease occurs in an epidemic form, one need not be surprised to find it running at times an irregular or erratic course. Several examples of this came under my notice. Thus, in one case there was a second appearance of the rash for one day after dropsy had set in. In another the rash also appeared a second time (an anginous case), and the symptoms then became very severe, the rash the first time being apparently abortive; in this instance suppurative inflammation took place in one eye, completely destroying the sight, and in one ear, the bones of the tympanum coming away.

In a third case, after the scarlatina-rash had disappeared and convalescence from dropsy was progressing, another rash, of a decidedly *rubeoloid* character and copious in amount, took its place, and persisted for several days, somewhat confusing the original diagnosis; and from my notes (taken at the time) I find that the disease (scarlatina) was most prevalent at the latter end of the summer of 1865, and most fatal then, gradually declining in severity towards the autumn and winter, when it became occasionally intermixed with cases of measles, which affection then for the most part began to take its place. In September 1870 I saw a child for the first time which was suffering from dropsy, but it was stated distinctly to have had previously no appearance whatever of rash. A second child in the same family fell ill with the anginous form, most severely marked, and died; before its death the first child contracted the anginous

form equally severely, with vivid rash, and followed again by dropsy; two others subsequently were attacked, and, with the one first mentioned, recovered.

These points of the dropsy occurring before the appearance of the rash, the reappearance of the latter, and one rash taking the place of another, are worthy of attention and full of interest.

During the latter part of each year, principally the autumn, a considerable number of the cases were attended, during convalescence, with symptoms of a rheumatic character, ranging from trifling fugitive pains to acute rheumatism, with copious effusion into the joints, generally the knee. This is a complication which I do not remember to have seen much alluded to, but it is important, as tending to retard the recovery, and increase the general debility of the patient.

In many of the anginous cases, choryza continued for a long time after the subsidence of the fever, with very profuse and acrid discharge from the nostrils, causing excoriation and great obstruction to the breathing, which latter was apparently the cause of death in a few instances.

In some few cases obstinate diarrhœa and vomiting were present, and now and then jaundice occurred during convalescence. In a family where five children were attacked (1868), and two died of the anginous form, the symptoms in none were very marked, the fatal cases ending with capillary bronchitis. All the five cases commenced (apparently) with enlarged cervical glands as the only symptom, but in a few days albuminous urine was present in all. In the three which recovered there was a very tedious convalescence, with staggering gait and feeble vision. In the case of a very young child, the seat of a previously applied mustard-plaster took on a diphtheritic action, the surface of the sore becoming coated with a dirty leathery-looking film. In another case, also a little child, during convalescence from dropsy, a gland became enlarged immediately at the top of the sternum, threatening suffocation for two or three days; so much so, that I was fully prepared to perform tracheotomy, or some operation with a similar purpose in view, on the first urgent summons. I painted the swelling with tincture of iodine, and it fortunately ended in resolution.

We come now to the question of treatment; and in so large a number of cases a very fair opportunity is presented of testing the value of any particular plan.

In the first epidemic year, in almost every case from the onset the sesquicarbonate of ammonia was administered, but it was found that children did not take it readily on account of its pungency, which, however, was to a great extent concealed by

giving it in milk. In a few cases where there was not much fever, chlorate of potash combined with the tincture of the perchloride of iron was given, quinine being occasionally substituted for the chlorate during the period of convalescence. Many children, however, could be induced to take no medicine at all, especially among the poor. During the same period I was in the habit of applying a solution of nitrate of silver, of the strength of twenty grains to an ounce of water, to the fauces and palate with a camel's hair brush, or, what was better still, a piece of sponge attached to the end of a stick, in the severe anginous cases, and it generally had a very good effect.

In 1868 and 1869, in the majority of cases, the chlorate of potash and steel, as above mentioned, were administered, although there were but few anginous cases. In the second epidemic year the tincture of the perchloride was universally given from the first, generally in combination with the solution of acetate of ammonia; and in every case of the anginous form the fauces were painted or swabbed once or twice daily with the above-mentioned tincture in its pure state, and in several most severe cases I had the satisfaction of seeing the parts resume a natural and healthy appearance, though the process, I must confess, had to be long continued. Indeed, during the last year (1870), I have been so impressed with the value of the perchloride of iron, both given internally and applied locally, that I have relied almost solely upon it, and I should have no hesitation in doing so for the future. At the same time, I am bound to confess, and it is a circumstance I cannot altogether explain, that the statistics given in the table do not tally with that impression; for I have already stated that the mortality in the anginous cases was 26 per cent. in 1865, and reached as high as 33 per cent. in 1870. If, as I believe, my figures are correct (and the notes of the cases and remarks on the result of treatment were all jotted down at the time), it shows how fallacious mere impressions may be, and that they require to be either confirmed or otherwise by subsequent experience.

In a few cases the sulphurous acid spray was tried, but with no marked beneficial effect; and the extreme difficulty of using such an apparatus in the case of children was found to be such an insuperable objection to its frequent employment that it was soon abandoned. The same remark would apply with less force to the case of adults, but even in them I found the simpler application the more efficacious.

In the "British Medical Journal," some few years ago, a schedule was issued requesting the members to record their experience of scarlatina, according to one or other of the plans of

treatment therein suggested, among those plans being that of cold affusion. I have never seen any tabulated reply to these inquiries, neither have I employed that particular method of treatment; but the mere mention of this and of some other plans suggests how difficult, nay, almost impossible, it is to carry them out effectually; and if not done thoroughly, no reliable inferences can be drawn from them among the lower classes of the community, with whom ignorance and prejudice so often combine with unsanitary conditions and insufficient appliances to thwart the best-intentioned efforts of the medical attendant. Inunction of the skin with melted suet or oil, the moment the cuticle begins to desquamate, as recommended by the late Dr. Budd, was universally adopted. It is a plan easily carried out under any circumstances, and should be thoroughly done every morning, and be followed by a warm bath every evening, until desquamation no longer takes place. It is also beneficial in the earlier stages of the disease, as it relieves considerably the pungent heat of the surface. As a rule, however, there is a difficulty in getting the process carried out for a sufficiently long period of time. On the setting in of dropsy, small doses of tartar emetic (one-twelfth to one-eighth of a grain), as recommended by Drs. West and Golding Bird, were found very useful; and the remedy *par excellence*, towards the close of it, was the ammonio-citrate of iron, which soon restores a healthy tone and colour to the skin. Dry cupping to the loins when the urine was albuminous was of great service; and when there was much difficulty of breathing, I had the satisfaction of rescuing several patients from approaching apnœa by the free and frequently repeated application of turpentine to the whole chest.

Where convulsions ensued, calomel and jalap purges, cupping or leeches to the temples, and the hot bath, sufficed in every case to restore the patient.

This paper was originally written (in a modified form) for, and read to, the members of the Northampton Medical Society, and it was accompanied by a carefully constructed map of the town and suburbs, showing the exact localities where every case of the disease existed, having regard to the drainage of the town, at the suggestion of the surveyor, to whom I am much indebted for important information on that subject.

As the map, however, possesses merely local interest, it is not reproduced here. For myself, I am unable to see any relation as cause and effect between the disease and bad drainage, except in so far as the latter, by polluting the atmosphere, and thereby deteriorating the health of individuals exposed to it, renders

them less able to resist the influence of zymotic and other similar poisons. With enteric fever, on the other hand, we have strong evidence tending to prove that the disease is propagated by the drinking of water contaminated with sewage matter containing the elements of the disease, though every now and then cases occur which tend to support the theory of its contagiousness.

But in the case of scarlet fever, smallpox, measles, and the like, it appears to me that overcrowding is a far more powerful cause of the spreading of those diseases than any other; and that regular and periodical inspection of the houses of the poor with the object of checking the same is of as much importance as effectual drainage, valuable as that undoubtedly is.

From a careful study of the map and of the above statistics we have arrived at the following conclusions, viz.:—That scarlatina when prevalent is pretty equally distributed all over the town; that defective drainage has little or nothing to do with its spreading, for we find that it was equally prevalent in localities recently and deeply drained and in those where old and superficial drains existed; that the modern and improved drainage has not expelled it from places where it previously had its habitat; and in several localities where the drainage was known to be most defective, none or but few cases occurred. This, I am informed, is also in accordance with the opinion of Dr. Buchanan, who visited the town after the occurrence of the epidemic in 1870.

To prevent the disease spreading when once it has entered a house, complete isolation of the patient is absolutely necessary, and free and systematic use of disinfectants should be insisted upon. An excellent plan is to nail a sheet outside the room door and keep it thoroughly wetted all over with carbolic acid. The simplest and most effectual means of disinfecting the furniture of the room, articles of clothing, &c., is by means of the fumes of sulphurous acid disengaged by burning sulphur. But in every large town it is very desirable that there should be a public disinfecting-room, to which all infected articles should be sent. This plan has, I believe, already been adopted in a few localities, a very high temperature being employed for the purpose.

At the latter end of 1876 scarlatina was again very prevalent, but owing to the period of the year, or other causes, it did not extend over so long a space of time as on previous occasions, nor was there so large a proportion of severe cases. Still it was sad to find that the bitter experience gained by the public in former years had been attended by no practical good. The same lamentable amount of ignorance or indifference on the subject, or both combined, was met with as before.

It is practically impossible in the houses of the poor to prevent the disease spreading, and the compulsory attendance of children at Board and other schools, except in the case of personal illness under a medical certificate, is, I believe, one means among many by which the extension of the disease is favoured. It is therefore only by its frequently severe nature and its extreme infectiousness being more thoroughly known and appreciated that we can ever hope to arouse the public to a more effectual adoption of preventive and remedial measures.

First and foremost must be mentioned the commonly-received fallacy that scarlatina and scarlet fever are not the same thing, it being almost universally believed among the lower classes that the former is merely a trivial and harmless variety of the latter. Once and for all, the public mind should be disabused of this deadly error, which leads to the fact of children being allowed to mix together in school or elsewhere without any precautions being taken.

Again, the fact that the disease sometimes appears in so mild a form as scarcely to merit the name of illness, or indeed to cause such, encourages the idea that it is a simple affair, not infectious, and needing no particular care or precaution; but it cannot be too widely known among the community that such a slight case as that supposed (and, fortunately, a very great number of the cases are of this kind) may convey infection in the most virulent form to another individual, who from constitutional or other defect may be less able to resist its inroad.

Further, slight cases of the disease, in consequence, perhaps, of being subjected to earlier exposure, frequently are followed by secondary symptoms of far more serious import than the primary affection.

I would venture to suggest that a few simple directions, such as the following (which might be amended or extended as thought desirable), should be printed and distributed among the houses and in localities where scarlet fever is prevalent, to arouse the attention of the public to the importance of the subject, much in the same way as was adopted by the late Dr. Budd in the case of typhoid fever:—

1. Scarlatina and scarlet fever are one and the same disease.

2. There may be only a red rash covering the body, ranging from a faint blush to a vivid scarlet; or a sore throat only, without any rash; or, thirdly, the two may be combined.

3. Generally, during convalescence, the skin peels off in small bran-like scales, or in larger flakes, especially on the hands and fingers, and on the neck.

4. A simple, mild case, with but slight illness, may convey

the disease to another person in the most severe and dangerous form.

5. A person once suspected of having the disease should be immediately placed in the topmost room of the house, from which all carpets, articles of clothing, and unnecessary furniture should be removed.

6. The floor should be sprinkled frequently with solution of chloride of lime, solution of carbolic acid, or Condy's fluid: rags dipped in the same should be hung about the room; and, where possible, a piece of sheeting should be placed across the open doorway, and kept constantly wet with one of the above-named liquids.

7. All persons not required for attendance on the patient, especially children, should be strictly forbidden to enter the sick-room.

8. Immediately the skin begins to peel off, the body should be thoroughly rubbed all over with melted suet every morning, and be washed with soap in a warm bath every evening, the process to be repeated several times.

9. No children out of a house where scarlet fever either exists or is suspected to do so should be allowed to attend any school or mix with other children.

If patients suffering from scarlet fever could be removed to a hospital, as smallpox patients are, and all their articles of clothing, &c., be sent for disinfection to some public establishment, the mortality from this terrible disease would, I think, be greatly lessened.

When one considers that the cases above described all came under the care of one medical man, and that probably a far greater number would fall to the lot of at least two others, being, like himself, officers of a public dispensary, to say nothing of a further series of cases attended by the remaining medical men in the town, one can form a tolerably good idea, not only of the extent of these epidemics, but of the severity of them also. Indeed, than an extreme example of the anginous form of scarlatina, I do not know a more distressing and formidable disease.

ON

INDURATIONS OF THE BREAST BECOMING CANCEROUS;

THEIR DIAGNOSIS AND TREATMENT.

BY

SIR JAMES PAGET, BART., F.R.S.

In a paper published in the tenth volume of the Reports (1874), I pointed out the frequency with which portions of mammary gland become cancerous after long-enduring eczema or other eruption on the nipple and areola. My observations were wholly clinical; and for a partial explanation I could only suggest that which Mr. Butlin has since proved. In papers in the "Medico-Chirurgical Transactions" (vols. lix., lx.) he has shown that structural changes may be traced extending from the diseased part of the skin along the epithelial linings of the gland-ducts in the nipple, and thence along their branches into the acini of the cancerous part of the gland. These "become dilated and filled with proliferating epithelium, which is at length, so to speak, discharged into the surrounding tissues. . . . The carcinoma thus formed is, therefore, essentially a disease of epithelium."

The cases of cancer thus following eczema are illustrations of a general rule, that a part which has long been the seat of constant or often-recurrent inflammation, or, if I may write with intentional obscurity, of frequent or constant "irritation," is apt to become cancerous. Similar instances of the rule are observed in tongues long affected with psoriasis or ichthyosis, in uteri long or often ulcerated, in scars that often "break out," in lower lips long cracked or excoriated, in warts often irritated, sore, and scabbed, sometimes in old scrofulous or other ulcers, or in sinuses. But in all these and other like cases we may observe that irritation

alone, or under all conditions, is not sufficient to induce cancer. The change rarely, if ever, happens unless in parts which are apt to become cancerous, even without evidence of previous morbid change, and unless at the time of life at which the part is, as if of itself, chiefly liable to cancer; and it is the more likely to occur the stronger the inherited disposition to cancer. It may, therefore, be deemed very probable that the chief or sole effect of "irritation" is, by inducing a degeneration, to render the parts more fit for the invasion of a disease which is essentially of internal origin.

A chief interest in all these and the like cases is that they give good opportunities for the study of the process of "becoming cancerous," a process of the highest importance in both pathology and practice. Some of the structural changes ensuing in it are known; but the visible changes do not explain the much greater changes in the method of life, and in the influence, of parts which have become cancerous. As we watch an inflamed or irritated part in any of the cases I have cited, we can be sure that there is some long time in which it is not cancerous; and that if it can now be cured or removed, the probability of the patient having cancer is annulled, or greatly diminished or deferred. But we can be nearly as sure that if the irritation continues cancer will appear, and that when this change shall have ensued we shall be powerless to reverse its course. The change is as great as that engendered by the fertilising of a spore. It would be hard to name a morbid process more worthy of study from every point of view.

I cannot hope that the facts which I have now to tell will be directly useful for their study. If they be useful for it, it can only be by provoking such researches as Mr. Butlin's. But though perhaps useless for exact pathology, I will yet hope that they may teach something for surgical practice.

Among the occasional difficulties of diagnosis of the scirrhous cancers of the breast, one of the most frequent is that in which a portion of the mammary gland appears to be merely hardened, as if by some slow inflammatory or cirrhotic change.

Of many instances of this kind that I can remember, some have got well; the hardening has disappeared, and the breast has again become healthy, and remained so; but some have been or have become cancerous. I wish that I could give such sure guidance to signs for diagnosis in these cases as would tell always how the better may be distinguished from the worse, but I can only indicate the characters that may generally be relied on.

The history of the cases rarely helps in diagnosis. Whether cancerous or not, the induration may have been found "by

chance," no pain or discomfort having preceded; it is often observed, scarcely changing, for many weeks or months. It may have followed injury or have seemed spontaneous; and similarly, like cancer, it is not, unless by accident, associated with fever or any defect or disturbance of general health. What the patient feels is as little decisive. Commonly scirrhous cancer, in its early stages, is painless, and so are the simple indurations; but in either case the fear of cancer, and the watching for its supposed characteristic pains, is very likely, in some persons, to produce subjective imitations of them.

Signs more to be relied on are that the indurations least likely, or not likely, to become cancerous are indicated by degrees of hardness less than those of scirrhous cancers of the same size and observed duration. They are more tough than hard; commonly, also, less rounded, less nodular, and less well defined. I say "they," but I have never seen in a breast more than one induration at all resembling cancer. If there be many, they are not likely to be or to become cancerous. Moreover, mere indurations do not involve the skin, do not invade or infiltrate it, or produce in it any puckering or dimpling, as by drawing a part of it towards their own mass. In this, indeed, I think there may be an almost unfailing diagnostic sign. When the nipple or any part of the skin of a breast is drawn-in to a subjacent hardness, this is almost certainly cancerous. It may have been so always, or it may lately have become so; but there are few diagnostic signs more sure, even though the retraction or dimpling may not be visible unless in certain positions of the breast or certain methods of holding it. Such dimpling may, in very rare instances, appear when an induration is suppurating at its centre, but I do not know any other condition in which the retraction over cancers is imitated; and in this case the diagnosis may rest on the fact that the retraction over cancer takes place towards a part of the induration which is harder or not less hard than the rest, while that over suppuration is towards a part softer or much more elastic than the rest. Softening, or a feeling of elasticity, at or near the centre of an induration may always be regarded as a favourable sign, but the observer must take care lest he mistake for it the softness of a thick layer of subcutaneous fat over a deep-seated cancer. Such softness or elasticity probably indicates either suppuration such as may happen in a chronic abscess, or else the gradual increase of fluid in a cyst formed by dilatation of a gland-duct within a toughened portion of the gland. This character should be carefully searched for. Few diagnoses in surgery are more difficult than that between some serous cysts and some cancers in the breast, and the

sign mainly to be relied on is the presence or the absence of elastic tension on firm, deep pressure over the middle of the "lump."

This same feeling of elastic tension may be the chief sign for diagnosis between cysts surrounded by tough gland substance, and another disease, which may also closely resemble both scirrhous cancer and the probably cirrhotic induration of part of the gland, of which, chiefly, I am writing—namely, a mammary glandular tumour (adenoma) of unusual hardness. The uniform hardness of such tumours may distinguish them from cysts; and from both cancers and simple or cirrhotic indurations they may generally be known by their giving a sensation when we press them alternately on one border and another, as if they moved *in* the surrounding gland-substance, not *with* it. The difference is difficult to describe, sometimes difficult to perceive; but it is a real one, due, probably, to these tumours, however hard, being encapsuled, and not, as are cancers and indurations, continuous with the surrounding substance of the gland.

If now, with such signs as I have indicated, a diagnosis may be made that an indurated portion of a mammary gland is not cancerous, yet it must always be borne in mind that it may be becoming so; that changes may be taking place in it, such as those which Mr. Butlin has traced in the eczematous breasts; and that we do not know the time in which the changes may become complete and irremediable. A sure means of timely cure would be of huge value. I cannot pretend to know one; yet I can hardly doubt that cure may sometimes be effected with liquor potassæ alone or with iodide of potassium.

The plan which I have usually followed is to direct that the hardened and adjacent parts of the breast should be covered with belladonna plaster, and that the patient should take a drachm of liquor potassæ and two grains of iodide of potassium three times a day after meals, in not less than four ounces of any simple liquid. (Nothing destroys the nasty taste of the potash better than a little liquorice.)

I do not suppose that the belladonna plaster has any direct medicinal value; but it may alleviate pain, and it has the great advantage of saving the diseased part from being constantly touched or handled. Of the curative influence of the liquor potassæ I think there is sufficient evidence. I have seen so many instances of induration of the mammary gland disappearing during its use, that, after allowing all that can reasonably be claimed for the belief that they might have disappeared even though no treatment had been used, there would remain facts enough to justify the belief in its efficacy. And this gains some

confirmation from the reputation which the liquor potassæ once enjoyed for curing cancer. I have given it very often, and never saw reason to believe that it has any other influence on cancer of the breast than that of amending some of the conditions, such as gout or the lithic acid diathesis, with which the cancer being combined may be made more acute or more painful.[1] I believe that the cures, if any, which it effected were those of indurations of the breast such as I have described, and which were mistaken for cancer.

Hard mammary glandular tumours, such as I have referred to, should be removed without delay. I think they are likely to become cancerous, though this change very rarely if ever happens in the common and softer form of the same tumour. And it is well, in operating, when the patient is insensible, to cut freely into the tumour. If it can be easily and completely enucleated, there is no need to remove any of the surrounding substance of the gland. If it seem continuous with this substance, a very wide excision is advisable, or the removal of the whole breast.

For the indurations which the liquor potassæ fails to cure a similar course may be right. It may seem an unreasonable thing to perform a serious operation for a disease which may never, or only at some uncertain time, become cancerous. Yet I cannot doubt that the operation should be advised for such an induration of the breast as I have described if there be great difficulty of diagnosis between it and scirrhous cancer, if the patient be of an age at which cancer is likely to occur, and if the induration have not been evidently reduced in size by treatment continued through a month or six weeks. And the manner and extent of the operation should be determined by the appearances found either by puncture with a fine trocar or by a free and deep incision into the hard mass.

[1] Clinical Lectures and Essays, p. 388.

CASES OF GUNSHOT WOUNDS.

BY

E. L. HUSSEY.

Gunshot Wound of the Thigh—Primary Amputation—Recovery.

A chimney-sweeper, 30 years of age, was admitted into the Radcliffe Infirmary, under my care, on the morning of 23d October 1876, with a gunshot wound in the lower part of the left thigh, received fifteen miles from Oxford, about four hours before admission, by the accidental discharge of a fowling-piece loaded with No. 1 shot. He was getting over a wall with the gun in his hand, the muzzle being close to his thigh, when the charge exploded, and the contents passed into the limb.

The accident was followed by a profuse loss of blood. This stopped of itself, and the man was brought to the infirmary at once.

The charge had entered the limb obliquely on its outer aspect, rather above the condyle. It passed through the knee-joint, and lodged in the head of the tibia. The shaft of the thigh-bone was fractured and the condyle comminuted.

The man was cold and pulseless. In the depressed state in which he lay, the question of immediate amputation could not be entertained. Strong broth and beef-tea were given to him in small quantities at a time, and hot brandy-and-water in the intervals. In the afternoon, as he was unable to empty his bladder, the urine was drawn off with a catheter. A draught with opium and chloric ether was given at night. Toward morning he rallied, and took his breakfast well.

At twelve o'clock, about thirty hours after the accident, I amputated the thigh in the middle third, by double circular incision.

The stump healed well, and the man recovered without a bad symptom. The bowels acted for the first time on the 30th. The last ligature came away on the 12th of November, and the

man left the infirmary, by his own wish, some few days afterwards.

Remarks.—The shock of the injury was great, and it was complicated with a large loss of blood, a circumstance occurring almost always in gunshot wounds, and tending to lengthen the period of prostration.

The patient was young, of sound constitution, and of calm temperament. In every point of view he was a favourable subject for treatment under a severe injury. For his safety, an early removal of the limb was desirable. The operation was delayed until he had rallied from the first effects of the shock and the loss of blood, and had thus far shown his power of recovery.

This is the only case coming under my personal observation in which I have known a patient recover after undergoing primary amputation for a compound fracture of the thigh-bone. In other cases, the injuries requiring primary amputation have been such that the patient has not recovered.

One exception—and only one—perhaps ought to be made. About thirty years ago, I saw a boy in St. Bartholomew's Hospital, under the care of Sir William Lawrence, in whom the thigh had been cut off clean in its middle by the action of a circular saw driven by machinery. The wound was dressed as in a case of an amputation by surgical operation. Sir W. Lawrence did not interfere with the wound left by the injury. The wound healed, and the boy left the hospital with a useful stump.

Gunshot Wound of the Thigh—Hæmorrhage—Gangrene—Death on the Fifth Day—Femoral Artery and Vein Divided.

A young man, 21 years of age, was admitted into the Radcliffe Infirmary, under my care, between two and three o'clock in the afternoon, 29th December 1869, with a gunshot wound in the upper and back part of the right thigh, received eight miles from Oxford, about eleven o'clock that morning. The wound was caused by the accidental discharge of a fowling-piece, loaded with No. 5 shot, held in the horizontal position with the muzzle close to him, as he was stooping down to alter a dog's chain. Profuse hæmorrhage followed immediately, but it soon ceased. There was not any hæmorrhage during the journey to the infirmary, nor afterwards.

He never rallied from the effects of the injury and the loss of blood. Gangrene followed, and he died at five o'clock on the morning of the 2d of January, four days after the accident.

The muscles were torn, leaving a wound in which a man

could put his fist. The periosteum was torn from the bone, but the bone was not broken. The femoral artery and vein were both torn across. The proximal end of the artery was drawn in, and contained a small clot, which was adherent to the coats of the vessel; the structure of that part was healthy. The distal portion was soft in structure and discoloured. The sciatic nerve was gangrenous, but not divided.

The formation of a line of demarcation had begun in the skin.

Gunshot Wound of Thigh and Leg—Hæmorrhage—Gangrene—Death on the Fifth Day.

A carpenter, 19 years of age, was admitted into the Radcliffe Infirmary, under my care, on the evening of Sunday, 18th July 1858, with a gunshot wound of the right thigh and leg, received at a late hour the night before by the accidental discharge of a fowling-piece loaded with a wire cartridge of small shot.

He was going home on Saturday, near midnight, with a friend, and carrying the gun on his right shoulder. As he was lowering it, and stooping to help a drunken man who was lying on the ground, he stumbled forwards or was pushed by his companion over the man, and fell on his knee with the leg bent under him: the charge exploded when the muzzle was close to the thigh. The cartridge passed through the muscular substance of the outer side of the thigh, into the calf of the leg. He did not feel the infliction of the wound, but he found that his foot was "numb," and that he could not move the limb. Profuse hæmorrhage followed immediately; this stopped as he became faint. When seen, about two hours afterwards, by Mr. Gillam of Witney, hæmorrhage had ceased, and the man was in a state of syncope, with a pulse scarcely perceptible.

I saw him about three hours after admission. He was evidently suffering from great loss of blood. The wound in the thigh was in the lower third; the upper opening was round, about an inch and a half in diameter, with the edges inverted; the lower opening was larger, with the edges irregular and everted, and shreds of blackened fascia and muscle were visible in it. There was also a large irregular, contused, and lacerated wound in the lower part of the popliteal region and the calf, exposing the upper part of the gastrocnemius muscle, without laceration of its substance, and penetrating deeply between the two heads of the muscle. All three openings were much blackened. Both tibial arteries could be felt pulsating at the ankle. The foot was benumbed, and without common sensation on the

outer side; upon the great toe and inner side of the foot sensation was good.

A piece of wet lint was applied to the wounds, and confined with a loose bandage. A draught with 20 minims of vinum opii was given. This was vomited. A second was given and retained.

On Monday morning he did not show any signs of increased power. Simple dressing was applied to the wounds. Some reddish serum was exuding from that in the calf. The opium was repeated at night. He passed a bad night, vomiting frequently.

At twelve o'clock (Tuesday) the pulse was weak and too quick to be counted. Gangrene was visible in the skin at the back and inner side of the leg, between the wound in the calf and the inner malleolus. A pill containing a grain and a half of opium was given.

The vomiting continued with slight intermissions during the day. At night the gangrene was visible upon the inner side of the foot. He passed a restless night, disturbed by almost incessant vomiting.

On Wednesday morning the whole of the foot was gangrenous, as was also the front of the leg as far as to its middle. Sensation was perfect in the calf of the leg. The large wound had a healthy appearance, and the discharge was becoming purulent. In the middle of the day the vomiting ceased for about three hours; and he had some quiet sleep. In the evening it returned. Gradually he became exhausted, and he died between one and two o'clock on Thursday morning (the 22d).

Remarks.—The man never rallied from the effects of the great loss of blood. His death is to be attributed to that circumstance. The gangrene did not reach as far as the knee; and if his general symptoms would have justified the operation, amputation could have been performed in the thigh through healthy structures above the seat of injury. The appearance of the gangrene would not of itself have been against the operation.

The case of the cartridge was found in the lower part of the leg by the side of the tendo achillis. The greater part of the shot was scattered irregularly, and buried in the muscular substance of the calf. Some few of the shots were merely under the skin.

The state of the nerves and vessels was not traced in the examination which was made.

Gunshot Wound of the Popliteal Space—Wound of Vein—Hæmorrhage—Death in Eighteen Hours.

A young man, 19 years of age, was admitted into the Radcliffe Infirmary, under my care, in the middle of the night, 17th January 1851, exhausted by loss of blood from a large open wound in the right popliteal space.

The injury was received early in the day, sixteen miles from Oxford, by the accidental discharge, within two or three feet of him, of a fowling-piece loaded with small shot. The assistance of a "water-doctor," much consulted by the ignorant people of the neighbourhood, was obtained, but the man would not undertake the treatment of the case. Late in the evening he put the lad into a carriage and brought him to the infirmary, fourteen hours after the accident. He died four hours after admission.

A portion of integument about the size of the palm of the hand was gone, and the muscles were much lacerated. A large opening was seen in the popliteal vein. The artery was bruised, but not opened.

Remarks.—If a medical practitioner had been called at once, a compress of lint, with a roller applied to the limb, would have stopped the loss of blood.

Under such an amount of injury, destruction of the vein and injury of the artery, attended with great destruction of the soft parts in the popliteal region, mortification of the leg might have been expected, if the patient rallied from the first effects of the injury. The question of amputation through the thigh, above the seat of injury, would have arisen then. The operation would have offered a fair prospect of recovery.

Gunshot Wound of Hand—Gangrene of Fingers—Erysipelas—Pyœmia—Death.

A labouring man, half-witted, 52 years of age, of temperate habits, not of sound constitution, was admitted into the Radcliffe Infirmary, under my care, on Sunday morning, 16th March 1851, with a gunshot wound of his left hand, received by the accidental discharge of a fowling-piece about an hour before admission. He was standing with his hand on the muzzle of the gun, which was loaded with powder only. This exploded, and the wadding, which was a piece of paper, was blown through his hand.

There was a small wound in the palm, between the metacarpal bones of the fore and middle fingers, and a larger wound, of irregular shape, on the back of the hand, with the edges torn aside in different directions. The bones were not broken.

Two large vessels which bled freely were tied, and the wound was dressed.

18th.—He was tremulous, and in a low and depressed state. I ordered a pint of ale daily in addition to his regular diet, and a dose of opium at night.

This was continued for ten days, and he improved much in his general health.

The index, middle, and ring fingers afterwards became gangrenous. On the 17th of April I removed them, with the heads of the three metacarpal bones. Much blood was lost at the operation from the granulating surfaces and the small vessels, but no vessel required a ligature.

After a week's continuance of northerly and north-east winds, erysipelas appeared on the head and face on the 26th. Quinine was administered, with port wine, eggs, and beef-tea. The erysipelas subsided favourably, and the wounds in the hand healed.

12th May.—He was attacked with diarrhœa. By a continuance of this for several days his strength was much lowered.

Toward the end of the month he recovered sufficiently to be able to get out of bed and to sit up during the day, but at night he passed his urine and fæces under him as he lay.

Very generous diet, with wine and brandy, was provided, and taken with an appetite; but he became weaker by degrees, and died on the 17th of June.

There was a large slough on the sacrum. In the left wrist-joint the articular cartilages had disappeared. The left shoulder-joint was full of stinking pus. This communicated with a large abscess under the pectoral muscles. The right shoulder-joint was also filled with stinking pus. The articular cartilage in both shoulders had disappeared, in parts, from the head of the bone.

Remarks.—The collection of matter under the pectoral muscles had been observed, but the symptoms of a more serious nature had come on so insidiously that they almost escaped notice. The man made no complaint.

When admitted, the injury did not present an unfavourable appearance. Although contraction was to be expected from sloughing of fascia and tendons, there remained good ground for hope that a useful extremity would be preserved.

The hand and the fingers are seen so often to recover after more severe injuries, that recovery in this case might fairly be expected. In a younger man the hope might have been fulfilled by the more speedy healing of the original wound.

Mr. Briscoe has told me of the following case, which was

under treatment at the Radcliffe Infirmary when he was the house-surgeon :—

A farm labourer, 28 years of age, admitted 1st November 1846, was under the care of Mr. Cleoburey, with a gunshot wound of both hands, received eleven miles from Oxford, by the accidental discharge of a fowling-piece loaded with small shot. Both wrist-joints were laid open. The carpal and metacarpal bones of both hands were fractured and comminuted.

He was leaning, with his hands crossed, his wrists being one over the other, upon the muzzle, when the powder exploded, and the contents passed through the joints.

Free suppuration followed, and pieces of bone were discharged from time to time.

The man left the infirmary on the 7th of April following, with the wounds nearly healed.

Mr. Briscoe had the opportunity of seeing him some years afterwards.

The hands were permanently extended. The ring finger and little finger were contracted on the palm. The wrist-joints were firmly anchylosed. There was no power of flexion, nor of pronation and supination; but the man had considerable power of grasping objects by the lateral movement of the thumb and fingers.

Gunshot Wound of the Foot—Secondary Hæmorrhage—Ligature of both Anterior and Posterior Tibial Arteries at the Ankle—Cure.

A young man, 22 years of age, was admitted into the Radcliffe Infirmary, under my care, 2d May 1857, with a gunshot wound of the left foot. A fowling-piece, loaded with small shot, was accidentally discharged within very few inches of him, and the whole of the contents passed through the foot, at the junction of the tarsal with the metatarsal bones.

On the 13th profuse hæmorrhage of an arterial character occurred from the wounds. It was not stopped until I had tied the anterior tibial artery on the dorsum of the foot, and the posterior tibial at the heel, by means of incisions through the sound parts, as well as several small vessels in the wound. The ligature from the posterior tibial artery came away on the 21st, and the last of the other ligatures on the 25th.

He was discharged from the infirmary on the 1st of July. The upper wound was healed, and the lower one nearly so.

I saw him three or four years afterwards. The foot was sound, but more susceptible than the other of the influence of cold.

Contusion of the Foot — Swelling in the Sole — Puncture— Hæmorrhage—Ligature of Plantar Artery—Return of Hæmorrhage—Ligature of Anterior Tibial Artery—Further Hæmorrhage—Ligature of Posterior Tibial Artery—Cure.

A young man, 20 years of age, a shoemaker, was admitted into the Radcliffe Infirmary, under my care, 12th May 1868, having bruised his left foot by falling among some pieces of timber shortly before admission.

After the first effects of the injury had passed off, and the general swelling of the foot and the ecchymosis had subsided, a small swelling was observed deep in the inner side of the sole under the tarsal bones. It was tense and elastic; it did not become smaller on pressure. There was no pulsation or throbbing in it, but it was attended with almost constant pain. The house-surgeon punctured it with a narrow double-edged scalpel, and afterwards passed a probe into the opening. No matter of any kind escaped. The patient expressed himself as being relieved by the puncture. A bread poultice was applied to the foot.

On the 1st June the puncture had healed. The swelling was the same as before. The patient complained again of the pain in the foot. An incision was made into the swelling. This was followed by free hæmorrhage of an arterial character. The flow of blood was not stopped by pressure. To get at the source of it, I enlarged the opening by making a transverse incision at the inner side, at right angles with that first made; and I tied an artery which I supposed to be one of the large plantar branches of the posterior tibial artery. After this the hæmorrhage ceased. A draught of liq. ammon. acet., with 15 minims of vinum antimonii, 25 of vinum opii, and 30 of sp. ætheris nitr., was given to him at bed-time.

On the 7th the hæmorrhage returned. I then made an incision on the dorsum of the foot, and tied the anterior tibial artery. This stopped the flow of blood.

On the 11th the bleeding returned again from the wound in the sole. I enlarged the wound in a direction toward the heel, and passed a needle threaded with some fine iron wire deeply through the soft parts, under the course of the posterior tibial vessels, and secured the artery by twisting the wire over the needle in form of a figure 8. No hæmorrhage occurred after this last operation.

The wounds healed slowly. The twisted wire had become buried deeply under the soft parts, and I had some difficulty in removing it. The parts were not quite healed when the patient left the infirmary.

About three years afterwards, he met with some accident in machinery, and the leg was afterwards amputated. The opportunity of making a dissection of the foot was lost.

Remarks.—It may be thought that hæmorrhage from the vessels of the foot can be restrained by treatment similar to that which is successful in wounds of the hand.

In case of a gunshot wound through the foot, followed by sloughing, it would not be easy to maintain continuous and uniform pressure under the necessity for a frequent change of the dressings. I did not make the attempt in this case.

In the other case, an attempt might have been made, upon the first occurrence of the hæmorrhage, after the puncture of what seemed to be an aneurysmal swelling. The patient, however, was not a favourable subject for treatment, which required rest in bed and watchfulness. He did not readily bear any pressure or confinement before the swelling was punctured. In a man of a different temperament, pressure might have been attempted with more hope of a successful result.

CASES OF HYDROCELE.

BY

E. L. HUSSEY.

Hydrocele—Seton—Cure.

A tradesman, between 40 and 50 years of age, came to me on the 3d of August 1857, with a hydrocele of the left testis. The swelling was tightly constricted in the middle, and presented the appearance of an hour-glass. No cause was assigned for the complaint. The patient had also an inguinal hernia on the same side.

Under the advice of Dr. Leapingwell, he desired that an attempt should be made to effect a radical cure. I therefore punctured the swelling with a fine trocar, and let out about half a pint of clear fluid; and I directed the patient to come again upon a return of the swelling. The fluid having collected again, he came to me on the 23d of September. I passed a needle armed with a double thread of silk through the tunica vaginalis, and tied the ends of the thread together. The fluid was allowed to escape gradually.

The next day one of the threads was withdrawn. On the 3d of October the patient came to me with the testis rather enlarged and tender to the touch. The pain of it, though not severe, hindered him from sleeping at night. He told me that he had been attending to his business, and that he had moved the thread, drawing it backwards and forwards without pain, until last night. There was a slight discharge of serous fluid from one of the openings. I removed the thread altogether, and directed him to rest in bed, and to foment the scrotum with warm water.

On the 27th he came to me with the testis still enlarged; he did not make any complaint of pain or tenderness. He told me

that the former enlargement had all but disappeared; that after exercise yesterday it had returned.

On the 24th of December he reported himself to me as being well.

In July 1876 I saw him. He told me that there had not been any return of the swelling.

Hydrocele—Seton—Cure.

A labouring man, 44 years of age, was admitted into the Radcliffe Infirmary, Oxford, 17th December 1856, under the care of Mr. Hansard, with a hydrocele of the left testis, which had followed a blow received seven years ago. In the absence of Mr. Hansard he came under my care.

On the 29th I passed a needle with a single thread through it. The next day the testis was hot and tender: no fluid had escaped. I withdrew the thread.

On the 31st the feverish symptoms had increased, attended with pain in the testis. I punctured the sac with a trocar, and drew off about twenty-four ounces of fluid, which was turbid and with flakes of lymph in it.

The swelling subsided after this, and he left the Infirmary about the end of January to all appearance cured.

He died six or seven years afterwards from the effects of a fall from a ladder. I have heard from his wife that he never suffered any further inconvenience from the complaint for which I had treated him.

Hydrocele—Seton—Slough of Scrotum—Cure.

A man, 57 years of age, was admitted into the Radcliffe Infirmary, 5th March 1857, under my care, with symptoms of strangulated hernia. It was an inguinal hernia on the left side, and it was reduced without operation. On the right side he had a hydrocele, which had existed about twelve months.

On the 9th I passed a needle with a silk thread through the tumour. The fluid continued to dribble all day. On the 12th I withdrew the thread. The scrotum was swollen, and there was much constitutional disturbance. On the 16th I passed a trocar into the tunica vaginalis and drew off some clear fluid. On removing the cannula, a small artery in the scrotum bled rather freely. A circular piece of skin, about an inch in diameter, afterwards became gangrenous and sloughed off.

On the 20th of April he was discharged. The sore left by

the separation of the slough had healed. There remained some fluid in the tunica vaginalis.

The man lived for some years; and from inquiry I made of members of his family, I satisfied myself that he did not suffer any further inconvenience from the local affection.

Hydrocele—Seton—Return—Seton Repeated—Suppuration.

A labouring man, about 30 years of age, in robust health, formerly a soldier, was admitted into the Radcliffe Infirmary, under my care, 1st July 1857, with a hydrocele of the left testis.

On the 3d I passed a needle with a single thread through the sac. The thread was removed the next day. The fluid had all passed off by it.

No pain or swelling followed. The man was discharged by his own wish on the 15th.

He was readmitted, 7th April 1858, with the tunica vaginalis greatly distended, as before the former operation.

On the 12th I passed a double thread through it in two places, thus making four punctures. On the 14th I withdrew one thread. On the 15th he complained of great pain in the iliac and lumbar regions. I withdrew the remaining thread; after this, some clear fluid escaped from one of the openings, and continued to flow slowly for several hours.

16th.—The size of the hydrocele was very little lessened. The scrotum was much swollen. He complained of continued pain in the loins. I punctured the hydrocele with a trocar, and let out twenty-eight ounces of clear fluid. On removal of the fluid, I found that the testis was much swollen and tender to the touch. Two pills of calomel and jalap were ordered to be taken, and a draught of liq. ammon. acet., with some antimony and hyoscyamus, at bedtime. The draught was repeated for the next three nights, and aperient medicine was also given.

21st.—One of the punctures made by the needle for insertion of the thread had opened, and clear fluid was running from the tumour yesterday and to-day for several hours. The swelling and enlargement of the testis continues, but the pain is less.

24th.—Clear fluid was again observed discharging itself. The swelling of the scrotum is less.

May 2.—Clear fluid is again running from one of the openings. The scrotum is smaller in size. A gland in the left groin is enlarged and hard. The puncture in the scrotum closed and reopened two or three times. At first the matter discharged was purulent; afterwards it became clear serum.

27th.—All swelling of the testis and scrotum is gone.

June 1.—He is detained in the house by a return of the swelling of the scrotum. This subsided, and he was discharged on the 9th.

Remarks.—From the slight symptoms which followed the insertion of a thread the first time, without permanent effect on the local disease, I was led to repeat the operation, and to pass two threads the second time.

Whether a permanent cure was the result, I am not able to say. The man died in the workhouse in the winter of 1875 under an attack of inflammation of the lungs. The medical officers have no knowledge of his being affected with a hydrocele during the part of his life under their observation.

Hydrocele—Paracentesis—Inflammation—Cure—Return in the other Testis.

A gentleman about 49 years of age, of active habits, rather a free liver, applied to me in September 1852 with a hydrocele of the right testis. He wished the swelling to be tapped: he did not desire any other operation.

He told me that many years ago, when bathing, he had jumped into the water and bruised the scrotum very considerably; he called the injury a "severe concussion." When he afterwards discovered the swelling of the testis, he consulted his brother, who was in practice as a surgeon. His brother took him to Sir Benjamin Brodie for the purpose of obtaining an opinion from him upon the question whether the swelling should be tapped from time to time as the fluid accumulated, or whether an attempt should be made to effect a radical cure. Sir B. Brodie gave his opinion that if a radical cure was obtained on the one side, the other testis would become affected with a similar disease. Under this opinion the swelling was tapped on several occasions. After the death of his brother the patient came to me.

I punctured the swelling with a fine trocar. The wall of the cyst was unusually thick; and I became sensible that the point of the instrument had pricked the gland. A day or two afterwards the patient came to me, and complained of a pain in the testis, which had not followed any of the operations performed by his brother. The next day he was confined to bed with pain in the right loin, swelling of the testis, and general ecchymosis of the scrotum. These subsided under rest and moderate diet. In about a fortnight he was able to return to his usual habits of business.

In the course of the following twelve months he told me that the fluid was collecting again. But he did not seek advice upon

the subject at the time. I punctured the swelling again once, if I remember right, in November 1861.

In the summer of 1863, and again in 1864, he came under my care for an injury to his foot. While under treatment for that complaint, I examined the scrotum at his request. The right testis, the one first affected, was free from disease; but on the left side there was a perceptible amount of fluid in the tunica vaginalis, though not enough to make him desire relief on that account.

In January 1866 I punctured the swelling on the left side. The cyst was thin; the fluid evacuated was clear and almost free from colour. I punctured it again in December 1867; and again, I think, in February 1869; also in July 1870 and in August 1871. The right testis continued free from disease.

The patient died suddenly in December 1872 with disease of the heart.

Hydrocele—Seton—Slough of Scrotum—Cure—Return of Disease on the other side—Seton—Cure.

A farmer's boy, 15 years of age, the son of parents both of rheumatic constitution, was admitted into the Radcliffe Infirmary under my care, 14th October 1857, with hydrocele of the right testis. It had been punctured once, about three months ago; the boy said that no fluid followed the puncture.

The day after admission I passed a single thread through it. Next day the boy complained of sickness and headache. I withdrew the thread. The inflammation which followed was rather severe. A portion of the skin of the scrotum sloughed, and the boy was rather lowered in general power.

He was discharged on the 25th of November. He had been detained in the house by some rheumatic affection of the left ankle.

On the 19th of June 1858 he came to me with hydrocele of the left testis. I tapped it, and let out ten ounces of straw-coloured fluid.

He was readmitted an in-patient on the 4th of August following.

On the 10th I passed a needle with a single thread through it. Next day little or no fluid had escaped: the testis was much swelled. I withdrew the thread.

14th.—I tapped the sac, and let out ten ounces of fluid, rather turbid in appearance.

16th.—The swelling of the testis is less, but the scrotum is much swelled and thickened.

Some purulent discharge afterwards came from one of the punctures made by the needle; it seemed as if it came from the scrotum, not from the tunica vaginalis.

September 15.—He was discharged. The swelling of the testis had not quite subsided; there remained some fluid in the tunica vaginalis.

October 25.—I tapped the left side, and let out eight ounces of fluid. November 28, I repeated the operation, and let out about the same quantity.

He was readmitted 2d March 1859.

On the 7th I passed a single thread of fine iron wire through the sac. Some little enlargement of the testis followed, but the boy did not complain of pain. On the 12th I withdrew the thread.

April 11.—The fluid had increased in quantity. I again passed a thread of iron wire through it. A free discharge of clear fluid followed, and continued for some hours. The sac was not fully emptied next day. He complained of great pain in the groin and abdomen. I withdrew the thread.

On the 23d I tapped the sac, and let out nine ounces of turbid fluid.

He was discharged on the 27th. The left testis was rather larger than natural. The right seemed to be healthy. There was no fluid in the tunica vaginalis on either side.

In October 1878 I heard through Mr. Drinkwater of Bicester that there had not been any return of the complaint.

Hydrocele—Seton—Suppuration—Cure—Return on the other side.

A lad, 19 years of age, a carpenter, of rheumatic constitution, was admited into the Radcliffe Infirmary, 22d February 1865, under my care, with hydrocele of the right testis. It had been tapped five months ago by Dr. Daly of Kingston Bagpuize.

On the 27th I passed a needle with a double thread through the sac. Severe inflammation followed. Pus was afterwards discharged through the punctures made by the needle.

He was discharged on the 5th of April.

In September 1866 he came to me with a hydrocele on the other side. I tapped it and let out about eight ounces of clear fluid. The right side was well.

On the 22d of June 1878 I saw him. There was some fluid in the tunica vaginalis of the left testis. The right testis remained free from disease. He had not received any treatment for the complaint since he had been first under my care.

Hydrocele on both sides—Left, seton—Return—Paracentesis —Right, stationary.

A labouring man, 53 years of age, of rheumatic constitution, was admitted, 23d March 1859, into the Radcliffe Infirmary under my care, with hydrocele of both testes. The tumour on the right side was not large, and he did not find any inconvenience from it. That on the left side had existed for twenty years. It had been tapped at Whitsuntide 1858, and again at Christmas.

On the 28th of March I passed a single thread of iron wire through it. The fluid passed off by this. The thread came out on the 30th. No swelling of the testis followed, nor any symptom of inflammation.

The man was discharged on the 6th of April.

The swelling was tapped frequently in the years which followed. Dr. Denton of Steeple Claydon afterwards tapped it on the 8th of May 1876; he repeated the operation three times between that day and the 15th of April 1877, when the patient died under an attack of hemiplegia. The water collected very rapidly, requiring for the man's comfort to be drawn off about every three or four months. Each time there was between a pint and a pint and a half of fluid of a pale straw colour.

There was some slight effusion on the right side, but it did not give the man any annoyance. He told Dr. Denton that it had never been tapped.

Hydrocele in a Man with Disease of the Ankle-joint—Seton— Recurrence—Injection—Cure.

A labouring man, 28 years of age, was admitted into the Radcliffe Infirmary, 25th May 1859, under my care, on account of a recent injury to his left foot. He had suffered formerly under disease of the left ankle or the bones of the tarsus. Four months ago he fell off a ladder and hurt the foot.

He had also a hydrocele of the right testis. This had been punctured four times. On the 25th of July I passed a needle with thread through the sac. The coats were very tough. Next day I cut off the upper end of the thread, and on the 28th the lower end came out.

The man was discharged on the 21st of September. There was not then any fluid in the tunica vaginalis.

The disease about the ankle improved during his stay in the Infirmary, but it was not perfectly well when he went home.

In February 1878 Mr. Cheatle of Burford wrote to me that

the patient told him that the foot was then well; he had been to a "bone-setter," who made him ill for months by what he called "reducing the dislocation." The hydrocele was afterwards cured at Guy's Hospital by injection with iodine.

Remarks.—In a man of unsound or strumous constitution, labouring under disease of a joint of a constitutional character, no inflammation was excited by the introduction of a seton through the tunica vaginalis of the testis. His constitutional power did not appear equal to the demand made upon it for recovery under two complaints at the same time. After the disease of the joint had ceased, the cure of the hydrocele was effected without difficulty.

Hydrocele burst by Accidental Violence—No Reproduction.

A farm labourer, upwards of 60 years of age, presented himself to me for examination with a hydrocele of unusually large size. It had existed for several years. The scrotum was as large as his head. He used to show himself at public-houses as an object for wonder. He refused to submit to any treatment.

At a subsequent visit in March 1860, he told me that about three years ago he was getting over a style, when he suddenly felt a shock and heard a sound like the report of a gun: he looked round, but did not see any one near him who could have fired. He was not conscious of any sudden increase of size in the scrotum, nor was he aware of any swelling of the penis. He observed that the penis and the inside of the thighs became afterwards black and blue. This discoloration passed off by degrees. The enlargement of the scrotum disappeared in about three days.

In his own opinion, he was perfectly satisfied that the original swelling "was all wind," and that it was not burst, as I suggested to him, by pressure in getting over the style.

He died in November 1863, aged 77 years, without any return of the swelling.

Remarks.—This was by far the largest hydrocele I have seen. There cannot, I think, be any doubt that the sac was burst during the man's exertion in getting over the style. He lived in good health for about seven years after the accident, without return of the disease.

A medical practitioner, who was himself the subject of a hydrocele on both sides, told me of a friend of his own, also a member of the medical profession, in whom a hydrocele burst as he was getting down from a stage-coach. The accident was followed by a permanent cure.

Hydrocele burst by Accidental Violence—Return.

A labouring man, 36 years of age, was admitted into the Radcliffe Infirmary, 12th December 1865, under my care, with a fracture of the left thigh, received in a fall from a scaffolding four days before admission. The bone united favourably, and he was discharged from the Infirmary on the following 7th of February.

He told me that he had a hydrocele on the right side, which had been formerly tapped by Dr. Wise of Banbury: it had been burst in the fall.

In March 1876 Dr. Wise wrote to me that the hydrocele had slowly filled again, and that it had become inconveniently large. He was about to tap it again.

Hydrocele burst by Accidental Violence—Return.

A gentleman of rheumatic constitution, about 50 years of age, was referred to me by Mr. Druce, 27th July 1876, with a hydrocele of the left testis.

It began fifteen years ago without any cause he could assign; after three or four years it was tapped. In succeeding years the operation was repeated on two occasions. Eight years ago, when he was about to seek relief again by tapping, he was thrown out of a carriage. The hydrocele disappeared; the scrotum became discoloured; the sac was evidently burst, and the fluid extravasated in the tissue of the scrotum.

The hydrocele had not filled again till lately.

Hydrocele—Seton—Return—Burst by Accidental Violence—Return.

A farm labourer, 67 years of age, of rheumatic constitution, and generally of confined habit of bowels, especially during the last summer, was admitted into the Radcliffe Infirmary under my care, 16th September 1863, with a hydrocele of the left testis, which he had observed since April.

On the 18th I passed a needle armed with a single thread through it. The next day the scrotum was red and swollen. The bowels had not been moved since admission. I withdrew the thread and ordered a dose of castor-oil. There was very little discharge of fluid from the hydrocele. On the 29th I again passed a needle with a single thread. On the 1st of October I withdrew the thread.

He left the Infirmary on the 15th. The testis was rather

enlarged, and there still remained some fluid in the tunica vaginalis.

On the 26th of December he came to me. I punctured the cyst with a trocar, and let out about ten ounces of fluid of the usual pale straw colour. This was repeated at intervals in the succeeding years.

On the 10th of September 1870 I repeated the operation. He told me that in April last, when turning in bed, the swelling had burst. He heard it go off, "like the bursting of a pig's bladder." He found the swelling all gone. He had not observed whether the scrotum or groin was afterwards discoloured.

In May 1871 I tapped the cyst again, and let out about fourteen ounces of clear fluid. The operation was repeated at intervals in the following years. Upon one occasion, in July 1873, the fluid was dark in colour, and, as I thought, mixed with blood. Upon all other occasions it was of the usual pale straw colour. The last time the man came to me was in September 1877; he was then in his 82d year, and failing in general strength. He told me that he had never been to any other practitioner for treatment of the hydrocele since he first came under my care.

Hydrocele—Injection—Return on both sides—Seton—Suppuration—Cure.

A labouring man, about 40 years of age, of rheumatic constitution and of general feeble appearance, was admitted into the Radcliffe Infirmary, 2d November 1853, under my care, with hydrocele of the right testis, which he had observed between four and five years. He applied for admission on account of an abscess in the scrotum, attended with eczema, spreading to the groins and the perineum over the tubera ischii.

The next day I punctured the hydrocele, and let out fifteen ounces of clear fluid; and I then injected the sac with port wine. He complained much of the pain in the testis and groin, and he fainted under it. I withdrew the injected fluid immediately.

Very slight swelling or inflammation of any kind followed.

He was discharged on the 23d.

In July 1857 he came to me with a return of the swelling. I tapped it, and let out twenty ounces of fluid.

In February 1860 I tapped it again, and again drew off twenty ounces of fluid. I observed that there was a small collection on the left side.

In October 1861 I tapped the swellings on both sides, and let out twenty ounces from that on the right, and about twelve ounces from the left. He fainted before the operation was completed.

On the 18th of May 1863 he was admitted into the Infirmary

under my care with several contused wounds, after a squabble in an alehouse. The hydroceles having again become inconveniently large, on the 1st of June I passed a needle with a double thread through the tumour on each side. Next day the scrotum was red and swollen, and I withdrew the threads.

4th.—Both testes were much swollen and painful; the right more so than the left; and the tunica vaginalis on the right side was distended with fluid.

7th.—On the right side I scratched off the small scab which closed the lower opening of the thread, and pus ran out of the opening freely. It was some days before the discharge ceased and the opening healed. The swelling of the testes subsided by degrees.

13th.—There being some fluid in the sac on the left side, I punctured it with a fine trocar, and let out some opaque fluid mixed with flakes.

The man was weak, and much lowered in general health. I prescribed some quinine for him, with tinct. camphoræ comp., to be taken twice a day. Improvement in his health followed.

July 9.—A small abscess formed in the scrotum on the left side. This was healed on the 20th.

He was discharged on the 29th. The left testis was then of its natural size. On the right side there remained some thickening about the epididymis and spermatic cord.

In July 1864 I saw the man. He told me that he was quite well, and had been so since he went out.

In June 1878 I heard, through Mr. Sankey of Littlemore, that he had not had any return of the complaint.

Hydrocele—Injection—Return—Seton—Cure.

A labouring man, 60 years of age, of rheumatic constitution, was admitted into the Radcliffe Infirmary, 19th December 1866, under my care, with hydrocele of the right testis. It had been injected eleven years ago by Mr. Hester, with, I believe, iodine.

On the 24th I passed a needle and double thread through it. Next day I withdrew one of the threads, and on the 29th the remaining one. Serum flowed freely from the opening.

Very slight symptoms of inflammation followed.

An abscess afterwards formed over the knuckle of the right hand.

On the 18th of January following he went home.

In November 1877 I heard that he had been well ever since.

Hydrocele—Injection—Return—Inflammation of Scrotum—Cure.

In 1847 a labouring man, about 50 years of age, working at the Asylum at Littlemore, applied to Mr. Ley, the medical superintendent, for relief of a hydrocele, under which he had suffered for several years. It had been twice injected with port wine by Mr. Tuckwell. The scrotum was much swollen and anasarcous.

Dr. Giles was on a visit at Mr. Ley's at the time. Several punctures were made with a grooved needle into the thickened tissues of the scrotum, for relief of the general swelling. Serum escaped freely; but the point of the needle was not passed within the tunica vaginalis.

Severe inflammation followed. The hydrocele disappeared.

Dr. Giles saw the patient some years afterwards, and learned that there was not any recurrence of the disease.

Hydrocele—Erysipelas—Cure.

A farmer, 78 years of age, who had suffered for many years with a hydrocele, irritated the scrotum in riding on horseback in February 1847. Erysipelas followed, and spread over the abdomen and thighs. Dr. Giles attended him for this complaint. He was very low indeed under the attack, but in the end he recovered. After his recovery he found that the hydrocele had disappeared.

He lived for thirteen years afterwards in good health, without any return of the disease.

He died in June 1860, having reached the age of 91 years.

Hydrocele after Abscess in the Testis—Paracentesis.

A medical practitioner, about 70 years of age, of gouty constitution, came to me in October 1857 with a hydrocele of the left testis of some twenty years' standing. He considered that it arose from an injury received when on horseback, having been thrown violently on the pommel of the saddle, receiving an injury to the scrotum, under which he fainted.

He had been in the habit of puncturing the sac himself with a needle, letting out the fluid about once in every three months.

I punctured the cyst with a fine trocar, and drew off about nine or ten ounces of clear fluid. Upon examination, it appeared to me that there was also a smaller collection on the right side. The patient was not aware of it.

In August 1858 I let out the fluid from the left side—about thirteen or fourteen ounces in quantity. He was now satisfied that there was a collection of fluid on the right side also.

In February 1859 I punctured the cysts on both sides, letting out about eight ounces from the right side. The operation was repeated in May 1860, in the following November, in September 1862, and in June 1863.

About this time his general health began to fail, and he died in January 1864 with paraplegia.

Some part of this gentleman's history I had learned from another practitioner, who had known him early in life. He never himself referred to it in his different communications with me.

When a young man, he suffered from what was thought to be strumous disease of one testis. It ended in suppuration, and was followed by protrusion of fungus. This was freely excised, and the wound healed. He afterwards married a lady who had been left a widow without offspring by her former husband, and he became the father of several children.

Upon the occasions on which I punctured the hydrocele, I examined the scrotum, without drawing his attention to it, for the purpose of ascertaining whether there was a cicatrix, or other mark of former disease of the testis, but without observing any. The only difference I could detect was that the tunica vaginalis on the left side was tougher, offered more resistance to the passage of the trocar than on the right, and that the cavity was of smaller capacity. The larger collection of fluid was on the right side, the last affected.

It is not unlikely that the abscess of the testis was the result of the injury; but I doubt whether the effusion into the tunica vaginalis was caused by it.

Hydrocele without increase of size.

A labouring man, 59 years of age, was admitted into the Radcliffe Infirmary, under my care, 30th May 1855, complaining of dimness of sight. He had cataract in the right eye, mature and fit for operation, except that I had much doubt whether the retina was sound. He had also hydrocele of the right testis, and varicocele of the cord on the left side. For these complaints he did not desire treatment. He was subject to fits of an epileptic character; and he had undergone amputation of the right leg below the knee about three years and a half ago, after an accident in a thrashing-machine, which happened from his falling down in a fit when at work.

On the 5th of June I punctured the capsule of the lens with

a needle, and endeavoured to drill a hole through the lens. The following night he had two "fits."

He left the Infirmary on the 13th.

I saw the man about twelve months afterwards; he did not desire any treatment for the hydrocele.

In March 1878, I heard from Dr. Atkinson, of Bampton, that he had not had any treatment since I saw him. Upon his return home he encountered the very formidable opposition of his wife, who refused to allow him to be rid of his hydrocele. It had not increased in size. The varicocele was much in the same state; it had not given him any trouble.

Hydrocele with Broken Health—Diarrhœa—Death.

A pale, sickly man, 42 years of age, but much older in appearance, of rheumatic constitution, and not, I think, of temperate habits, was admitted into the Radcliffe Infirmary, 6th March 1861, under my care, with a hydrocele of the right testis, which he had observed about twelve months.

On the 11th I passed a needle with a double thread through it. Next day I withdrew one of the threads, and the remaining one the day following.

No symptom of local irritation appeared, except that the scrotum was swollen and the testis was rather enlarged. These symptoms subsided by degrees.

The man's general health, however, began to fail rapidly. He complained of a constant cough and diarrhœa.

He was removed from the Infirmary on the 17th April by his own desire, and he died at home three days afterwards.

Remarks.—Under failing health, with a consciousness of the decline of strength, a poor person seeks in a hospital the rest which he cannot find at home. A disease which is not of itself of a serious nature is the complaint or the excuse under which he applies for admission, and death follows an operation which in other circumstances would not involve dangerous consequences.

In many of the cases which have come under my observation, the hydrocele has been in persons of a gouty or rheumatic constitution, without any cause known for it. In a large number of the cases it has followed some local injury, and the disease has been attributed to that by the patient.

In some few cases, after the fluid has been removed by puncture of the sac, it has happened that there has not been any subsequent accumulation; or, at least, none to an extent to be a source of inconvenience to the patient.

The late Mr. Murchison, of Bicester, told me early in his practice that he was in the habit of puncturing the tunica vaginalis at three or four points with a common needle, so that the fluid should escape slowly into the proper tissues of the scrotum, from which it was absorbed readily. He treated all cases alike. Later in life, after many years of experience, he told me that he had only known one case in which there was no return of the disease.

In examining a case presented for treatment, it has seemed to me impossible to tell beforehand what amount of local irritation will be sufficient to effect such a change in the serous membrane lining the tunica vaginalis that it shall cease to secrete a larger amount of fluid than can be absorbed from the cavity. Nor is it possible to foresee what amount of local inflammation or constitutional disturbance will follow an operation in a given case. The symptoms are not uniform in their course, or regular in progress.

I have not observed that there is a difference in cases where the disease was dependent, as I supposed, on constitutional causes, and those where it is attributed by the patient to local injury.

The same train of symptoms which in one case are followed by a cure, in another are followed by a return of the disease. The treatment is not certain in its result. In cases of relapse the period of return is various.

CASE

OF

FIBROUS TUMOUR OF THE UTERUS, COMPLICATED WITH INVERSION; REDUCTION OF THE INVERTED UTERUS.

BY

J. MATTHEWS DUNCAN, M.D.

In the eighth volume of these Reports, 1872, a case of this rare kind, or at least closely resembling it, is published by Mr. Albert F. Field; and, to the history of this combination of morbid conditions, the following record seems an addition worthy of being made. There is another special value to be attached to it as a contribution towards arriving at definite practical conclusions regarding inversion of the uterus. In Mr. Field's case reduction was successfully effected, as it was also in this one. The details of the plan of replacement or reduction were, in the two cases, widely different. Besides the mere method of operating for reduction, which is far from being agreed upon, there are other questions to be decided, namely, What are the chances of successful reduction? What are the conditions for success? Under what circumstances should amputation of the uterus be resorted to?

The observations of Tyler Smith, West, White, Teale, Barnes, Aveling, Lawson Tait, and many others, seem to be gradually coalescing into a body of evidence more and more strongly in favour of reduction as the rule of practice. The possibility of reduction in the most chronic cases is absolutely demonstrated, and there is probability of its being established as a rule of practice in most if not in all.

Mrs. S. A. C., æt. 38, was admitted into Martha, March 13, 1878. She had been seventeen years married, had had two children and no miscarriages. Had menstruated regularly every four

weeks till recently. The last three or four monthly periods were profuse and accompanied by pain in the back. For the last five weeks had had constant loss of blood, and the discharge had been very fetid.

Complains of frequent calls to make water, and of pain in urinating; also of continual bloody and fetid discharge. Is very weak and anæmic. Suffers from face-ache. Has a loaded tongue, a quick pulse (about 100), and an elevated temperature (99°–100°).

Above the pubes a flattened hard mass, neither sensitive nor tender, dull on percussion, reaches to the level of a line joining the iliac spines. The vagina is occupied by a hard rounded tumour, at least as big as the fist. It is lying in a copious, bloody, putrescent fluid. The uterus cannot be made out, being inaccessible on account of the bulk of the tumour.

A sloughing fibroid was diagnosed, and it was resolved at once to remove it.

The tumour was seized by a pair of powerful volsellæ, and pulled through the vulvar opening of the vagina. Its lower extremity was nearly black and gangrenous, the dead tissue hanging partly in long shreds. The condition of the uterus was now investigated. The finger examining at the site of the external os uteri easily diagnosticated complete inversion. Below the cervix uteri, and on to the gangrenous end of the tumour, the whole elongated mass was of uniform or nearly uniform thickness or circumference; the uterus being greatly hypertrophied. Some difficulty was experienced in deciding the limit between the fundus and the tumour attached to it. At one part a slight furrow was felt and seen. Into this the point of a finger was pressed. The tissues yielded, and the fissure was artificially increased, till it became plain that the line of attachment of the tumour to the fundus uteri had been struck. Enucleation was now completed. The tumour was for the most part bare, its encapsulating tissues having sloughed away. But a flap of capsule, as large as a crown-piece, and fully one-third of an inch in thickness, was left attached to the fundus till it was cut off by scissors.

The operation was performed under the influence of ether on the 16th March. There was no bleeding worthy of special notice. The uterus was replaced in the vagina. Persistent and very powerful reducing taxis was now in vain used by myself, Drs. Godson, and Champneys. It was, as is usual, if not invariable, easy to get the body within the cervix, but the reinversion of the body itself proved unattainable at this time.

She soon recovered from the immediate effects of the operations to which she had been subjected. The fetor of the dis-

charges soon ceased, but a blood-stained flow persisted. Her urination became natural and easy.

After ten days the pulse and temperature became natural, the bloody discharge ceased, there being only a slight purulent flow. She was allowed to get out of bed. For several weeks now she was carefully fed and treated with iron. Her health improved greatly, and more progress would have been made had there not occurred repeated hæmorrhages of varying amount, which necessitated horizontal rest in bed.

On the 21st May an attempt was made to produce reduction, the instrument being kept on for seventeen hours. It was removed on account of the abdominal pain, the vomiting, and the general distress which it caused. On its removal, the body of the uterus was found to be pressed up within the cervix. The instrument used was the same as I had used in Edinburgh several years previously. It resembled an ordinary stethoscope without an ear-piece, the other end being cup-like and larger than is ordinarily seen in a stethoscope. The cup-like end was adapted to the fundus uteri. The other end was attached by indiarubber straps to the horizontal limb of an ordinary T bandage. These indiarubber straps were put on the stretch, and this tension was the reducing force. By simple dynamometer experiments it was found that the force applied to the uterus through the cup was between one and two pounds. This force is very small compared with that exerted in the forcible taxis when the tumour was removed; but it was confided in, and proved successful, not as a pressure sufficient to force reduction at a sitting, but as a gradually acting reducing power.

When the attempt at gradual, not forcible, reduction was resumed, the repositor was improved by being made shorter, and two were at hand, one with a larger cup to replace within the cervix, another with a smaller cup to follow up the fundus after it had retired within the cervix. In the next case which comes under my care, I propose at one sitting to replace within the cervix, and at once apply the smaller cupped repositor. This plan appears likely to effect a saving of time and trouble, and consequently of suffering. The operations were done under the influence of anæsthetics, and opiates were used to assist the patient to endure the continued pressure of the instrument.

It has been thought advisable by Aveling to give the stem of the repositor a perineal curve, such as is observed in Tarnier's midwifery forceps, and for reasons analogous if not identical. But such modification of the simple straight repositor seems to me unnecessary. The Tarnier forceps is made with a view to the easy and safe extraction of a large body which ought, or

indeed must, descend and emerge in the axis of the cavity and outlet of the pelvis, or in the circle of Carus, as it is called. But the uterus is small, and therefore the direction of the action of the repositor is not a matter of any nicety; and, moreover, the range of the repositor's action is in the brim of the pelvis, and so limited as not to demand the same consideration as is demanded by the range of the action of the midwifery forceps.

On the 28th May a second attempt at reduction was made. It was done as the former was, and failed from the cup slipping off the fundus uteri.

On 4th June the mechanical treatment was resumed. On the 6th the fundus was found just within the cervix; and after removal of the other, the smaller cupped instrument was applied. At 5 P.M. on the 7th, about twenty-six hours after the use of the smaller instrument was commenced, and seventy-four hours from the commencement of the replacing pressure, the patient felt a sudden and severe pain in the hypogastrium, and says she felt the instrument slip into her body. The pain was worst after she felt the instrument slip. She was sick twice, and felt faint for about three-quarters of an hour. Brandy and morphia were given. On the 9th, at 3 P.M., the instrument was with some difficulty removed from the uterus in whose cervix it was incarcerated. The same evening she sweated profusely, and complained of pain and numbness in the left leg. These feelings in the leg were less next day, and soon disappeared.

For some days she had much bilious disorder, and occasional sickness and vomiting. A purulent discharge from the uterus was abundant at first, and very slight when she left the hospital. On the 18th June the uterus measured three inches. She soon began moving about the ward, had a hot bath, and her anæmic appearance diminished. She still had occasional attacks of sickness, and complained of pain in the back. On July 2 she left the hospital in good spirits.

Three weeks after leaving the hospital her death was reported; but no satisfactory account of the cause of it could be obtained. At the time of death her anæmia appeared to the physician in attendance upon her to be extreme. She suffered from anorexia and constant vomiting. There was œdema of both feet, and the left leg was also similarly swollen. This swelling was described as coming on suddenly with rigors. There was fluctuation in the abdomen.

There appears good reason to believe that the death was the termination of the morbid conditions, a part of whose history is given in this report. Probably extreme anæmia was the chief element in the causation of the fatal event.

ON

THE TRANSPLANTATION OF TEETH.

BY

ALFRED COLEMAN.

The celebrated experiments of John Hunter on the planting of human teeth into the combs of cocks, and the practice founded, or at least established, thereupon, viz., the transplantation of teeth from patient to patient, are matters not likely to be forgotten. The practice, however, having fallen into disrepute, has for many years been discontinued. I purpose to consider the grounds upon which it was discarded, and the question as to whether it may not, under certain conditions and restrictions, be with advantage reintroduced.

The reasons why the operation of transplantation of teeth—at one time, no doubt, considerably practised—fell into disrepute, may probably be enumerated under the three following heads, viz.:—1. Liability to failure; 2. Chance of inoculation of disease; and, 3. The moral objection.

1. Liability to failure.—This is considerable, and may arise from the so-called scion tooth not being, from its size, form of fang, or injury occurring to it in removal, &c., adaptable to the socket of the tooth it is intended to supply. Also, when the above conditions are not unfavourable, it often happens that the scion tooth is implanted into an alveolus more or less diseased from the long persistence of a necrosed tooth. Pain and tenderness for some days are commonly the result of the operation, and is often severe even under favourable circumstances; the tooth being very loose, the patient cannot resist the temptation of obtaining relief by removing it. The commonly employed method, also, of attempting to secure the scion tooth by ligature to the adjacent ones was, as I think I can show, another very probable cause of failure.

2. Chance of innoculation of disease.—This I believe to be much more imaginary than real, although it cannot be denied that there might be a chance of transferring, with a tooth removed from a person at a certain stage of the disease, such affections as syphilis, small-pox, scarlatina, measles, &c.; and the same objection must apply in an equal degree to the operation of skin-grafting from one person to another. I am inclined, however, to believe that this argument against the process was employed rather to deter and dissuade persons from undergoing the operation so properly discontinued on the—

3. The moral ground.—That the poor and often degraded should have been induced by the offer of a pecuniary temptation to part with an organ as essential, or probably even more essential, to their well-being than to the wealthy covetor who could purchase it, became, and rightly, regarded as an injustice and a wrong, and this more especially as skill and ingenuity improved the construction and appearance of artificial dental appliances. The general introduction and perfection in the latter has, no doubt, to the greatest extent diverted attention from the operation of transplantation.

Some few years since, in conjunction with my friend Mr. Lyons, we carried out at this hospital a number of experiments on the means of preserving by replantation teeth which, owing to the extent of periosteal disease, were incapable of being saved by any then known methods. The teeth thus affected were extracted, and had from their fangs all the diseased periosteum scraped, and were, after purification by immersion in antiseptic fluids, and being stopped, returned to their sockets, after these had also been mopped out with the same. The success, not very large, but yet encouraging, when done under such unfavourable conditions, directed my attention more immediately to the operation of transplantation, and led me to consider whether, under certain conditions, and wholly free from the moral objection, it might not be advantageously adopted.

Thanks to the researches of Darwin, Wallace, Cartwright, Mummery, and others, it has been shown beyond proof that the maxillæ—more especially their alveolar portions—of the present generation are of a smaller size than in generations of some centuries ago; whilst the teeth, if they have diminished in size, have not done so in the same proportion, the result of which undue harmony is a very common cause of irregularity in position in the teeth, and which the dental surgeon of the present day is called upon to rectify. For meeting these conditions two methods of procedure present themselves; one, that which is termed expansion of the jaws, which is really

little more than a widening of the alveolar and dental arches; the other the reduction in the number of the teeth. The first commends itself as reasonable and conservative, but its results cannot often be deemed satisfactory; an harmonious relationship of the features not being preserved, the mouth is in excess, appearing prominent, and suggestive of plebeian descent. The second method must therefore be often had recourse to, and although any defective teeth which might be present would in preference be selected, it often happens that sound ones have to be sacrificed. That these generally young and sound teeth should be cast away as useless, appeared to me a sad misfortune whilst there were so many to whom it would be the greatest boon could Hunter's operation be safely and satisfactorily resorted to, and the success attendant upon the cases of replantation encouraged me to make the attempt. My first case was that of a young man, a medical student, for whom I inserted into the alveolus occupied by a necrosed root the right lateral incisor of another student of about the same age, about nineteen. It proved a good fit, and has continued, until, when last seen, perfectly comfortable and useful. The operation was done more than two years ago. The second was for a female of about twenty, and the tooth a right upper lateral incisor. The scion tooth was much larger than the root removed, and had to be much reduced by filing, removing its periosteum and cementum. It did not set up great irritation, but never became attached, and was removed after about two weeks. The third case was where a right upper lateral incisor was transferred to the alveolus of a right upper cuspidate; it fitted admirably, and the difference in form did not appear conspicuous. The fourth was where a right upper lateral incisor situate in the palate was transferred to the alveolus of the corresponding tooth of the opposite side. This case did not prove so satisfactory, owing, no doubt, to the very diseased state of the alveolus of the latter, but after a small fragment of bone near the apex of the fang had exfoliated, matters progressed satisfactorily. A fifth case, in which two laterals, removed from a child of about twelve, were transferred to a youth of sixteen, has proved most satisfactory; as also my sixth and seventh cases, females into whose upper jaws lateral incisors were transplanted.

Two of the above were carried out at the Dental Hospital, the rest at St. Bartholomew's.

The operation, always conducted under an anæsthetic, was thus carried out:—The individual to receive was operated upon first, every care being taken in removing the root or roots to injure the alveoli as little as possible; the mouth was washed

with tepid water until the bleeding had nearly ceased; the patient to contribute was then operated upon, and the tooth being also carefully extracted, was carried directly to the former, and pressed into the vacant alveolus, after just clearing out the coagula with cotton wool: firm pressure with finger and thumb being alone employed. In no instance was any ligature employed, being in my opinion more likely to prove mischievous than beneficial, and for the following reason. The tooth, however firmly pressed into the socket, soon becomes raised a little from it by effusion, causing it to be more or less loose. Now this effusion has probably much to do with the future union of tooth and alveolus; and to prevent its ready effusion, as must be the case when the tooth is firmly tied into the socket, will be probably to prevent its healthy attachment hereafter. I have simply directed the patient to carefully avoid masticating upon the tooth, or touching it for some days with the opposing teeth, and to employ soothing fomentation to relieve any tenderness. In important cases it might be desirable to have a plate previously constructed to protect the transplanted tooth for a time from any chance of violence or pressure. In some cases a week alone has sufficed to allow the tooth to become moderately firm, free from tenderness, and even capable of bearing an amount of pressure, but more generally it has been nearer a fortnight. I do not, however, for a moment wish to infer that my method of procedure may be the best. I am in hopes that having called attention to the operation and its merits, it may be the means of conferring much benefit upon a class whose pecuniary circumstances prevent them from attaining comforts their more affluent neighbours can well afford; and I cannot but believe, with our dental departments and dental hospitals, at which so many thousands of healthy teeth are annually sacrificed, these may be turned to a useful account, and by selecting suitable cases out of large numbers, the operation of Hunter may again be regarded as legitimate and useful.

In addition to the cases I have recorded, may be named five others carried out by Mr. Lyons, also at the hospital. Of this number, four were quite successful, but one probably was not so, the patient never returning as requested. The teeth transplanted were a lower right first bicuspid (the probably unsuccessful case); a left lateral upper incisor; a left lateral incisor to the socket of a right central incisor in the upper jaw; a lateral incisor of upper jaw; a lateral incisor to an aveolus of a central incisor, upper jaw.

ON THE

TREATMENT OF COMPOUND FRACTURES OF THE LOWER JAW.

BY

ISIDOR I. LYONS.

On referring to surgical works, with one notable exception,[1] we do not find the same amount of attention bestowed on fractures of the lower jaw as upon those of the long bones.

The reason of this it is difficult to discover, for it may be asserted that it is equally important to a patient that the fragments of a fractured lower jaw should be placed in accurate apposition as those of a long bone; for in the latter case the fragments may be so reduced into position, that, although some deformity may take place, yet the limb may be restored to its former usefulness. With the lower jaw it is otherwise.

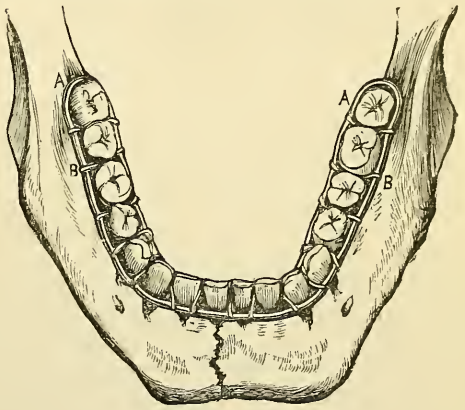
By deformity we infer that such a displacement has taken place that the bone does not present the same appearance as it did previous to the fracture. With some bones this is of little or no consequence. Their usefulness may still be unimpaired; but with the lower jaw impaired usefulness means some loss of the power of mastication, from which may arise dyspepsia and the evils attendant thereon.

The essential difference in the treatment of fractures of the lower jaw as compared with those of other bones lies in the fact, that with the latter we are able to keep the fracture in a comparative state of rest, but with the lower jaw the bone must be

[1] Christopher Heath on Diseases of the Lower Jaw.

allowed a certain amount of movement; so that the principal aim in their treatment would be the production of a splint which should allow the necessary movement, yet at the same time retain the fragments in complete apposition.

In ordinary practice, the treatment of these fractures is generally effected by external appliances, such as the four-tailed bandage, and gutta-percha splint moulded to the chin. In cases with little or no displacement, this method is tolerably successful, but in the large majority the success is not always such as may be desired; union of the fragments takes place, but their apposition is so inaccurate that the *natural* bite is *disturbed—i.e.*, the



Interdental Wire Splint.

A A refers to outer wire. B B to inner wire.

points of contact between the teeth of the upper and lower jaw are no longer in apposition, and the patient is unable to masticate his food properly. In some cases this is so marked that the process of mastication cannot be performed without the aid of artificial means.

In the treatment of these fractures by interdental splints, the difficulty lies in their manufacture; for it is not always easy to make them without the aid of a specialist, and in general practice this is not at times obtainable. There is a splint invented by Mr. Hammond, during the late Franco-Prussian war, which is made of iron wire, and certainly answers all the requirements necessary; for it is not difficult of adaptation, and can be constructed by any surgeon.

It is formed of a piece of wire bent so as to embrace the teeth

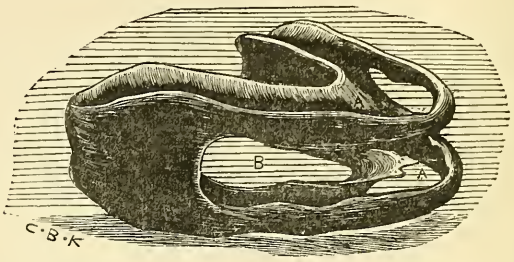
on the lingual and labial aspect. A thinner piece of the same metal or of silver is passed between the teeth so as to fasten both outer and inner wires together, thus forming a splint for which the following advantages may be claimed. It is very effective in single and double compound fractures, for it affords complete immobility to the fragments, while its bulk is small, and the patient can open and close his mouth at will. This is important, as it permits that essential in the successful treatment of fractures —cleanliness; and mastication of soft food may be permitted. Bandages can be dispensed with, and an in-patient be converted into an out-patient if necessary.

As to the respective merits of external and interdental splints, little can be said, for so much depends on the situation of the fracture. It may be asserted that where an external bandage can be dispensed with, it would be advisable. As regards the combination known as the four-tailed bandage and gutta-percha splint, it should be discarded altogether, for its advantages are capped by its demerits;—it is so hot to the patient, so unwieldy and so unclean.

Its indiscriminate use tends to perpetuate deformity. There is a bandage which appears to answer all the purposes of a gutta-percha splint with none of its inconvenience. It is composed of two straps, one passing underneath the chin to the head, and another round the forehead to the occiput, and these are sewn together at each temple. They are fastened together by a cross strap following the line of the parietal suture. There is one somewhat similar, but more elaborate, containing a cup for the chin to rest in, and which was invented by Mr. Hamilton; but the former is almost the same as that used for retaining dressings near the eye in ophthalmic surgery, and is certainly quite effective. It was applied in all the cases detailed further on where a bandage was required.

There are cases of compound fracture of the lower jaw where the displacement is so great that it is impossible to reduce the fragments into position without the aid of a particularly formed splint, so as to meet the exigencies of the case; and it is in these that the vulcanised indiarubber is useful, for its capability of being moulded to any form renders it of valuable service. There is one splint made of this material which is deserving of notice. It is somewhat similar to one invented by Mr. Gunning, and consists of two parts, one of which is made to fit to the upper and the other to the lower jaw. These are joined together by vulcanite, a space being left in front between them, and as far back as the first bicuspides, to admit of the passage of food. The advantage in this splint consists in that we have a firm base

to which we can attach the fragments of the fractured lower jaw, and it can also be used in edentulous cases.



Vulcanite Splint used in Case VI.

A A Spaces for upper and lower jaws. B For the passage of food.

For the notes of the following cases I am principally indebted to the Surgical Registrars:—

Case I.

Harriet Wilson, aged 10, admitted to the Hospital on August 1, 1875, under the care of Mr. Smith. The history of the case is that she jumped or fell out of a window on the second floor, and in falling struck her chin against some stone steps. She sustained a double compound comminuted fracture, situated between the permanent lateral incisors and temporary canines on either side. The bone was splintered in several places, and some teeth were lost; there was a severe wound, contused and lacerated, situated below the chin, also severe hæmorrhage from the mouth and wound. The child was much blanched and in pain. August 3rd, breath was most offensive, and there was also an offensive sanious discharge from the mouth. No further hæmorrhage had taken place. At the time of the accident a large piece of bone was removed through the chin.

On the 28th a vulcanite splint was inserted into the mouth, covering the posterior fragments, and an opening made in front to permit the anterior fragment to pass through and be fastened to the splint by wire.

No bandage whatever could be applied to the chin on account of the severe wound at that part. There was a constant discharge of pus mixed with saliva.

The progress of this case was slow. She became an out-patient on 13th September. When she left the Hospital there was a space of half an inch between the upper and lower incisors.

The last time this patient was seen was in May 1876, twenty months after the accident. There was then not the slightest deformity, and the upper and lower teeth had approximated to such a degree that the upper row overhung the lower.

Case II.

Emil Barron, aged 36 years, was admitted 9th March 1876, under the care of Mr. Callender. He had received a violent blow on the chin from a kick during a fight.

On examination it was seen that he had sustained a double compound fracture, one situated through the body on the left side between the canine and lateral incisor, and the other on the right side between the first and second bicuspides, extending obliquely back towards the angle. There was a great deal of swelling, especially on the right side. The teeth were fixed with wire, and an external gutta-percha splint applied.

On the 19th the swelling subsided, but an abscess had formed beneath the jaw on the right side of the symphysis, in consequence of which the gutta-percha splint was discontinued, and a wire interdental splint applied.

On the 22d the abscess burst. The fragments were in good position. From that date the case progressed favourably, and on May 11th the man became an out-patient. This patient had a most irritable temper, and insisted on eating solid food almost immediately after the insertion of the splint. Fortunately no untoward result followed. The last time he was seen his jaw was perfectly serviceable, and entirely free from any deformity.

Case III.

Joseph Ward, aged 50, a bargeman, was admitted on 22d July 1877, under the care of Mr. Savory.

Three weeks before, he was thrown to the bottom of his barge and struck his chin against a grating, and sustained a fracture at the symphysis. On 1st August a wire splint was applied to his jaw.

This case did not progress very satisfactorily. The bone at the symphysis was so comminuted by the blow he had received, that up to the 14th of October small spiculæ were constantly passing through the opening at the chin, and keeping up great irritation. However, a fair apposition of the fragments took place, and the day after the splint was applied the patient was able to masticate soft food with very little discomfort. He was last seen on 20th December, and was still wearing the splint,

and did not wish it removed. This man was, except during the first fortnight, always able to attend to his work.

Case IV.

Benjamin Carr, aged 48, was admitted 2d August 1877, under the care of Mr. Holden. From a blow which he had received whilst engaged in a fight, he sustained an oblique fracture on the left side between the first bicuspid and second molar in the space from which the second molar had been removed some years previously.

Shortly after he was admitted an external gutta-percha splint was applied.

On the 18th, as the fragments were not in good apposition, a wire interdental splint was inserted. There was some difficulty in setting the fragments, and this was due to the riding of the posterior over the anterior fragment, and also to the loss of firmness of the second molar.

This case progressed favourably; there was but little suppuration, and no complication whatever. He was discharged within three weeks.

Case V.

Joseph Ridd, carpenter, aged 37, admitted 7th August 1877, under the care of Mr. Smith. Through a fall from a scaffold he had sustained a compound fracture between the canine and lateral incisor on the left side, and an abscess had formed externally.

On the 14th a wire splint was applied.

There was not the slightest displacement, and the man became an out-patient three days after insertion of the interdental splint.

Case VI.

Samuel Reeve, aged 69, a night cabman, was admitted on 13th September 1876, under the care of Mr. Savory. He was said to have been knocked or thrown down, when the wheel of a cab passed over the lower part of his face. There was considerable ecchymosis around each orbit, and towards the angle of the jaw on the right side, extending over the neck; his voice was reduced to a hoarse whisper.

He was subject to chronic bronchitis.

On examination of his mouth, the lower jaw was found to be fractured on the left side, between the canine and first bicuspid, and also anterior to the first molar. On the right side it was

fractured exactly in a similar place, anterior to the space which the third molar, now lost, had once occupied, thus forming a triple fracture. The displacement was considerable, especially on the right side; the anterior fragment was drawn downwards and inwards; the posterior fragment being drawn upwards rode over it. On the 21st an impression in wax was taken of the fragments. It was impossible to take the impression of the posterior fragment on the right side, so the model was extended in that direction after it had been cast into plaster.

On the 24th, the patient having been placed under chloroform, an attempt was made to reduce the fragments into position, with the intention of inserting an ordinary vulcanite interdental splint, but through the muscular antagonism and great displacement it failed.

A few days afterwards he was again placed under chloroform, and this time the fragments were reduced into fair position; unfortunately the patient, having had an attack of bronchitis, coughed the fragments entirely out of place. His health gave way, and Mr. Savory deemed it unadvisable then to attempt to further reduce the jaw, at the risk of his life. However, in a fortnight he rallied considerably, and it was determined to make a double splint, so as to fit both maxillæ; in case of a renewal of bronchitis there would be less danger of the fragments separating.

On the 28th of October he was placed under chloroform, and the bone was set with very little difficulty, and a bandage applied to the chin. From that date the patient progressed favourably.

On the 24th of November no movement could be detected between the fragments, and although he had a renewal of bronchitis, the splint was immovable. Abscesses supervened on both sides externally, and opposite to the posterior fractures. He left the Hospital in January 1877 for the Convalescent House at Highgate. At that time there was not the slightest deformity, and the jaw was useful for all purposes.

Case VII.

George Anderson, aged 8 years, was admitted September 8, 1877, under the care of Mr. Holden. Through being run over by a cab, he sustained a fracture on the right side of the lower jaw, between the temporary canine and permanent lateral incisor. There was considerable abrasion and swelling on that side, and bruising of the left. The cab-wheel passed over his face. There was considerable displacement at the seat of the

fracture; the right fragment being raised much higher than the left. On the 14th the swelling subsided.

On the 24th a vulcanite splint was inserted and a bandage applied to the chin. An abscess formed in the floor of the mouth and discharged, and there was a large amount of necrosis.

November 10.—Mr. Holden determined to perform sequestrotomy. The floor of the mouth was laid open, an incision being made along the line of the chin, and a piece of bone which contained the crypt of the permanent canine with the tooth brought away. The patient progressed rapidly. On the 21st of December he was discharged from the Hospital.

Case VIII.

Alfred Raynes, aged 38, ostler, was admitted December 8, 1877, under the care of Mr. Callender. Through a kick from a horse he had sustained a double compound fracture, one situated between the canine and lateral incisor on the right, and the other between the second and third molar on the left side, which was also compound externally by a large incised wound extending two inches in length on the cheek.

On the 18th a vulcanite interdental splint was inserted. Owing to the great displacement, it was found impossible to apply any other kind of splint.

This patient progressed favourably from the commencement, and was discharged from the Hospital in four weeks.

FURTHER REMARKS ON

COMPLETE INTRA-PERITONEAL LIGATURE OF THE PEDICLE IN OVARIOTOMY.

ILLUSTRATED BY AN ANALYSIS OF TEN POST-MORTEM EXAMINATIONS.

BY

ALBAN DORAN.

The long-standing dispute between the advocates of the clamp and those surgeons who prefer ligature of the pedicle in ovariotomy has hardly abated during the past twelve months. In the lectures delivered by Mr. Spencer Wells at the Royal College of Surgeons in the month of June 1878,[1] a decided preference for the clamp is expressed throughout. The great success following its use, according to the lecturer's experience, is held up as the first argument in its favour. The after results are alleged to be more satisfactory than in cases where the pedicle has been secured by ligature. Although the clamp permanently fixes the uterus in a most unnatural position, one angle of that organ being drawn up against the abdominal wall, still functional disturbances of the displaced womb are rare. This is certainly remarkable, and, considering the great inconvenience caused by flexions, it would seem to show that the distress is produced in these common disorders by other influences than mechanical displacement.

On the other hand, bad consequences have been seen to follow complete intra-peritoneal ligature long after patients have survived the immediate danger of the operation. "Patients who recover after the extra-peritoneal treatment of the pedicle, as

[1] On the Diagnosis and Surgical Treatment of Abdominal Tumours.

a rule, soon regain and maintain perfect health. So do many of those who recover after the intra-peritoneal treatment. But some of them, sooner or later, suffer from chronic suppuration, hæmatocele, or fæcal fistula; or, perhaps without any definite local ailment, are many months before they become strong and well."[1] The patients in whom this absence of any "definite local ailment" has been observed, probably owe their discomfort to adhesions between the stump of the pedicle and a portion of intestine. Of obscure inflammatory adhesions Hunter has already inferred that "they are perhaps often the cause of many indescribable sensations which cannot be called pain."[2]

When the advocates of the ligature refer to Waldeyer and Spiegelberg's experiments on animals,[3] they are reminded that human beings do not resemble animals constitutionally. Operations on the healthy uterine appendages of the lower mammalia may lead to conclusions which do not apply to women brought to the operating-table already in ill health, and suffering from a grave local disease of the part subjected to surgical interference.

Lastly, one great advantage of the clamp lies in the facility of its application when the pedicle is long enough, an important recommendation to the beginner. It must also be remembered that the operation is more rapidly completed when the clamp is used than when the pedicle is transfixed and carefully ligatured.

On the other hand, experienced authorities who systematically adopt complete intra-peritoneal ligature are also ready to bring forward brilliant results in support of that system. They have noted how the advocates of the clamp only resort to the ligature when the pedicle is too short for extra-peritoneal treatment. But these cases are generally the worst, and unfairly throw discredit on the ligature. They attribute the failure of their system, in the earlier practice of ovariotomy, to ignorance of certain pathological conditions and neglect of certain precautions which they have shown to be necessary. The ligature, unlike the clamp, allows the uterus to lie almost in its natural position. Some operators assert that they have observed, after the use of the clamp, results as bad as those recorded by their opponents in cases where the pedicle has been secured by threads. Complete intra-peritoneal ligature is especially suitable in cases of ovariotomy performed with all the rigid antiseptic precautions

[1] Wells, "Diseases of the Ovaries," p. 401.

[2] Catalogue of the Pathological Specimens contained in the Mus. Royal Coll. Surg., vol. i. p. 98.

[3] Virchow's Archiv., vol. xliv. Hegar points out (in the work quoted farther on) that both these observers, as well as Maslowsky, detected suppuration after some of their experiments.

of the Listerian school of surgery. As to the experiments on animals, experience has shown that the effects of ligature of the pedicle in sick women are very similar to the results of ligature of the horns of the uterus in healthy animals. The most remarkable feature, absorption of the fibres of the threads, first detected by Waldeyer and Spiegelberg, has been shown by Dr. Bantock to occur in the human subject, as illustrated by two cases recorded in my contribution to last year's Reports.[1]

Still there remains a lack of pathological observations on the appearance of ligatured pedicles. This is, to a certain extent, favourable to the cause of complete intra-peritoneal ligature, for it indicates frequency of recovery. At the Samaritan Hospital the results of this manner of treating the pedicle have, during the past two years, proved highly satisfactory. But owing to the very large number of patients operated upon at that institution, sometimes three in one week, and on account of the desperate nature of many advanced cases of ovarian disease under surgical treatment in the wards, opportunities for making post-mortem researches do occasionally present themselves.

Since it has been my duty for over a twelvemonth to make post-mortem examinations on patients dying at the Samaritan Hospital, I have endeavoured to avail myself of these opportunities by closely observing the condition of the ligatured pedicle at each autopsy. I will describe at length the appearances noted in each case, so that more competent persons may perchance find in these records certain pathological details whence they may draw valuable inferences hitherto overlooked.

Before considering these cases, I must refer to a remarkable monograph by Hegar[2] on complete intra-peritoneal ligature. That surgeon describes fifteen cases of ovariotomy, all performed by himself and all ultimately successful. In nine cases complete intra-peritoneal ligature was exclusively employed, and when the clamp was used, many vessels in the omentum and other structures were secured by silk. Although all these nine cases recovered, they were much complicated by after results, especially by the formation of abscesses in the abdominal cavity, or in the walls of the abdomen around the edges of the external incision. The patients at the Samaritan Hospital have recently been quite free from this complication. The discharge of ligatures (previously applied to bleeding vessels) through abscesses or *per anum* was frequent in Hegar's series, but is very unusual in the experience of British operators.

[1] On Complete Intra-Peritoneal Ligature of the Pedicle in Ovariotomy.

[2] Zur Ovariotomie, Die intraperitoneale Versorgung des Stiels der Ovarientumoren, Volkmann's Klinischer Vorträge, No. 109, 1877.

But a pathological record of complete intra-peritoneal ligature would be imperfect were an extraordinary case to be omitted, an instance among Hegar's series of sloughing and discharge *per anum*, not of a small ligatured vessel, but of a whole stump of an ovarian pedicle.

The case must be related as nearly as possible in the German surgeon's own words:—

H——, 35 years old, a nullipara, suffered from a cystoma of the ovary as large as a new-born infant's head. The patient, already in indigent circumstances, could not work owing to very severe hypogastric pains. On commencing the operation, no adhesions were found, but there was no pedicle. The tumour, which had a very wide base, was seated on the posterior layer of the left broad ligament. An attempt was made at first to shell the growth out of its peritoneal investment, but this was abandoned as hæmorrhage was set up to an extent not to be neglected. Dr. Hegar then dragged forcibly on the tumour, lifting it up so as to raise a fold of the posterior layer of broad ligament; in fact, an artificial pedicle, through which a double ligature was passed and tied on both sides. As hæmorrhage began directly the growth was cut away, another double ligature was applied to the false pedicle, deeper than the first, which was removed.

On the first two days the patient complained of nausea, and very severe vomiting took place at the end of the second day. On the next day the patient was jaundiced; on the fifth the sutures were removed from the abdominal wound. An abscess the size of a walnut, and originating in the track of a suture, emptied itself on the twelfth day. The icterus continued for eight days, with furred tongue and foul taste in the mouth. Pressure in the epigastrium produced a persistent feeling of nausea. The hypogastrium was rather sensitive to pressure on the left side, but felt soft and was in no wise distended. The patient's bowels were acted upon by aperients. On the fourteenth day she vomited mucus containing an ascaris. Small doses of calomel were administered, producing soft motions. On the sixteenth day a soft mucous stool was passed with a large piece of tissue surrounded at one end by a double ligature. This fragment was undoubtedly the ligatured pseudo-pedicle, and is figured in an engraving appended to Hegar's monograph. The portion of broad ligament below the knot was about four inches long.

After the escape of the sloughing pedicle there was a decided improvement in the condition of the patient, but symptoms of catarrh of the intestine persisted for some time. On examining

the uterus in the recumbent posture, a flattened thickening could be felt to its left side posteriorly, about the width of a segment of spinal marrow. It was movable, and rather tender on pressure.

When we consider the serious conditions implied by the sloughing and escape into the rectum of the ligatured tissues, the absence of any very grave symptoms and the successful issue of this case is most remarkable. This accident could hardly have happened to a true pedicle well supplied with vessels, for its smaller arteries, escaping complete compression, would maintain its vitality after ligature. In dragging up the posterior layer of the broad ligament to make an artificial pedicle, the vascular supply of that portion of peritoneum must of necessity have been much interfered with. Moreover, the ligature might have been drawn too tightly; but on this subject more will be said farther on.

Dr. Hegar does not seem to dread the occurrence of suppuration, which he generally found to be circumscribed in his cases. Objectionable as the complication appears, *finis coronat opus*, for his patients all recovered. As cases similarly treated do well in England without suppuration or discharge of ligatures and sloughs, the verdict remains favourable to complete intra-peritoneal ligature.

In the same monograph Dr. Hegar makes the following remarks, which are much to the point for the subject now under discussion :—

"There are many paths yet to be explored in order to ensure further progress in ovariotomy and allied operations. The chief means of improvement appears to be, in my opinion, *the knowledge of every condition which can produce an unfavourable metamorphosis of discharges, foreign bodies, and fragments of loose tissue left behind in the abdominal cavity.*"

Such knowledge cannot be attained without laborious pathological research. I trust that the following practical observations may prove to be of some value in detecting every source of danger after complete intra-peritoneal ligature, and in distinguishing those bad results to which it may directly give rise, from coincident complications arising elsewhere than from the ligatured pedicle. I believe that I shall be able to show that, as a rule, this method of securing the pedicle is not the cause of the fatal result when death follows after operations where it has been employed. To attain the desired object, a critical consideration of each individual case will be necessary, even at the cost of frequent repetition of certain facts. By such means alone can any general conclusions be justified.

Case I.

A. F., 61. Removal of the left ovary for cystic disease; death on the fourth day.

Pedicle of the left ovary very tightly ligatured by transfixion;[1] congested and sloughy in parts, but adherent to the broad ligament by recent lymph deposited along its outer and posterior border. Ulceration at several points from pressure of the ligature. An adhesion between the tumour and the sigmoid flexure had been separated during the operation. This adhesion was old and well organised, and left on the bowel a raw surface the area of a halfpenny, where the muscular coat was exposed. At this spot the calibre of the intestine was diminished to a diameter of under a quarter of an inch. The walls of the bowel at the seat of obstruction were inflamed and thickened. There was no other morbid appearance in the body.

Was the cause of death to be traced to the treatment of the pedicle or to the intestinal lesion? Both probably took a share in the fatal result. It is always possible that the operator may pull the ligature so tightly as to cause sloughing before certain well-known salutary changes can save the stump of the pedicle. The absence of a covering of organised coagulum, so often observed on the cut surface of the stump, is significant; in considering Case X. more will be said on this subject. The surgeon cannot invariably calculate the exact amount of force necessary, in any given case, to ensure against hæmorrhage without the induction of gangrene. On the other hand, the pedicle, not cut so long as to be free at its margin from vascular influence, had become adherent posteriorly to the broad ligament. This favourable pathological change suggests that the less favourable congestion and the actual sloughing of parts of the stump had been secondary. Now the condition of the sigmoid flexure of the colon represented morbid influences quite sufficient to destroy an old patient exhausted by suffering followed by a capital operation. These influences possibly induced the sloughing of isolated spots on the pedicle after the establishment of the favourable adhesive changes. Hence this case does not severely reflect on intra-peritoneal ligature, which might have had a very small share, if indeed it took any part at all, in the fatal result.

Case II.

Mrs. P., 36. Death twenty-six hours after the removal of a large cystic tumour of the right ovary.

[1] In all the cases here described silk was used for that purpose.

Pedicle secured by transfixion, some very recent lymph covering the ligatures and connecting the bulging tissues on the distal and proximal sides. Free surface covered by a dark red clot of rather firm consistence.

A great quantity of blood-stained serum was thrown out into the peritoneal cavity. The parietal layer of peritoneum near the incision in the abdominal integuments was thickened from chronic inflammation, and ecchymosed from forcible separation of the adherent cyst. The blood in the chambers of the heart was dark and fluid, with a few very soft dark clots in the left ventricle. The clinical symptoms pointed to septicæmia, not to hæmorrhage.

The septicæmic changes might have been induced by hæmorrhage from the stump of the pedicle, from the great bruising of the parietal peritoneum, or from some effused blood which had not been taken up by the sponges during the latter stage of the operation. The second condition seems the most probable. It is not likely that after hæmorrhage sufficient ultimately to cause death, a firm clot should form on the free surface of the stump. It is more reasonable to suppose that if death arose from the pedicle, the clot formed first and its surface became the seat of septic changes, the hæmorrhage into the peritoneal cavity proceeding from its parietal layer.

Case III.

G. R., 38. Removal of cystic right ovary under the strictest antiseptic precautions. Death in twenty-eight hours.[1]

Free surface of stump of pedicle capped by a dark, firm clot. The edge of the stump adhering posteriorly to the broad ligament by recent inflammatory effusion. Several coagula in the substance of the stump on the distal side of the ligature, and a small recent coagulum in the Fallopian tube.

There was no trace of peritonitis in any part of the abdominal cavity, nor had there been any symptoms of septicæmia before death. Both pleuræ were acutely inflamed. The effusion was not fluid but dry, and remarkably tenacious, like very firm size. The relation of this peculiarity to the antiseptic precautions, or the presence of carbolic acid in the blood or air passages, may be suggested here, but cannot be discussed under the circumstances.

Not the slightest doubt can be entertained that death was in

[1] See "Unsuccessful Ovariotomy," by J. Knowsley Thornton, M.B., C.M., "Medical Times and Gazette," vol. ii. 1878, p. 46. This article includes a clinical history of the case.

this case due to acute pleurisy; the treatment of the pedicle, or at least its presence in the pelvic cavity with its ligatures cut short, was not followed by any serious local change. As far as the pedicle is concerned, antiseptic precautions can only diminish the risk of complete intra-peritoneal ligature. The clamp, being quicker of application than the ligature, might partly obviate the danger, if there be any, of a prolonged action of the spray; the disadvantages, on the other hand, of the clamp in antiseptic ovariotomy are not few, but I prefer not to dwell on matters rather clinical than pathological.

The rapid adhesion of the free edge of the stump to the broad ligament occurred within twenty-eight hours after the operation, in a space of time, too, when fatal changes were going on in another part of the body. This speaks well for complete intra-peritoneal ligature, and, so far, reflects credit on antiseptic ovariotomy.[1]

Case IV.

Mrs. R., 39. Removal of a cystic sarcoma of the right ovary. Death in thirty-two hours.

Pedicle secured by transfixion and capped by a soft, dark clot. Contiguous parts of the stump above and below the ligature slightly adherent.

Nodules of new growth were disseminated over the parietal peritoneum, the greater and lesser omentum, and the capsules of the liver and spleen. The lumbar glands were enlarged. The pelvis contained half a pint of deeply stained serum and a few clots. The operation had been very tedious, for the tumour adhered to every part adjacent to it, and some of its substance had to be left behind.

The hæmorrhage was chiefly traceable to vessels in broken-down adhesions in the peritoneum, omentum, &c. Many of these ran through sarcomatous tissue, and hence were very hard to secure. There decidedly had been a certain amount of hæmorrhage from the stump of the pedicle, but if there had been no bleeding elsewhere, death would not have arisen from loss of blood. Had I found every part of the body in a normal condition excepting the pedicle, I should have attributed the loss of the patient to septicæmic changes in the clot which covered it.

Case V.

Miss D., 40. Colloid disease of the ovary. Death in four days after pyæmic symptoms.

[1] All the remaining cases had undergone operation with antiseptic precautions.

Pedicle infiltrated with colloid, its free border suppurating; no sloughing nor sign of hæmorrhage.

There was universal peritonitis of the too well-known low type, and the pelvic viscera were swimming in pus.

The injuries necessarily inflicted on the abdominal viscera in separating the malignant tumour were more than sufficient to cause death in this most untoward case. But I deem it unscientific to defend a practice through thick and thin, after the manner of counsel defending a client. The suppuration of the stump of the pedicle was also sufficient to destroy the patient, and was very possibly the origin of the peritonitis. The purulent changes in its substance unaccompanied by any vestige of gangrene are significant as to the effects of ligature even in a bad case. Had things been less serious, there would have been, not suppurative, but simple inflammation, inducing the changes which act so remarkably on the pedicle.

Case VI.

M. S., 50. Removal of a large cyst of the left ovary, which included some very small secondary cysts. Death on the seventh day.

Pedicle secured by three silk ligatures; no trace of gangrene. The free border of the stump was not capped with a clot, as is generally the rule, but its edges had united after inflammatory changes on the raw surface between them. There was no adhesion of this free border to the broad ligament, either posteriorly as in Case III., or externally as in the two examples figured in my contribution on this subject to the last volume of the Reports. Much lymph was thrown out over the ligatures.

Both lungs were extremely congested, there was no inflammatory effusion in the peritoneal cavity, but the serous coat of the small intestines was sticky, and some coils were glued together. A drachm of fluid blood lay in the right iliac fossa; it had exuded from a small artery in the parietal peritoneum.

The pulmonary complication had come on very early, with continuous high temperature and a very dry state of the skin. The operation was prolonged on account of numerous adhesions. The patient was kept alive by great care for nearly a week, but sank, as old subjects do sink, with subacute bronchitis.

There is no reason to believe that septicæmia complicated this case, and there was a very palpable cause of death observed clinically and confirmed by the autopsy. The method of securing the pedicle could hardly have induced any fatal complication;

certainly no large vein was transfixed. One interesting feature in the state of the stump was the slowness of the pathological changes in the distal part, although nearly a week had elapsed since the operation. Comparing the pedicle in this instance with those in the cases just referred to, the absence of any extensive adhesions is significant, and explained by the inferior reparative powers in an old subject. For Case III. was not forty years old, and Dr. Bantock's patient, where a firm adhesion of the pedicle to the broad ligament was found on the sixth day after operation,[1] was a year younger.

The pedicle was light and narrow in this case, and stood almost upright in the pelvis. It is the heavy broad stumps that fall backwards, so that their posterior edges come into close contact with the broad ligament and rapidly form adhesions. This tends to neutralise a danger, for otherwise the broader pedicles necessarily involve greater risk, but an early communication with a neighbouring part materially lessens the chance of sloughing.

Case VII.

This case demonstrates one of the dangers of complete intra-peritoneal ligature.

Mrs. J., 41. Large dermoid cyst of the left ovary. The pedicle was secured by complete intra-peritoneal ligature, and its outer extremity was drawn up against the abdominal wall through transfixion by one of the threads of silkworm gut which closed the external wound. Death on the fifth day.

Pedicle secured by eight stout silk ligatures, inflammatory effusion thrown out between its anterior surface and the broad ligament. Free border not sloughy; a small friable clot adherent to it. One of the ligatures traversed an abscess cavity in the broad ligament, and a soft, dark red clot, commencing in the substance of the pedicle, extended into the abscess.

A coil of small intestine was adherent to the stump posteriorly. The abdominal cavity exhibited no traces of peritonitis. The kidneys showed signs of chronic interstitial nephritis. The right Fallopian tube was dilated, and contained a drachm or more of fetid reddish fluid. There was great hypostatic congestion of the lungs.

Considering the very distinct local appearances, it is not difficult to account for the cause of death. The pedicle was supplied with large veins, and these must of necessity have suffered injury from the constriction of the firm ligature. The throm-

[1] This is the pedicle figured in the lithograph facing p. 203 of the thirteenth volume of the Reports.

bus, which was found extending a considerable distance on both sides of the ligature, had become disorganised and undergone suppurative changes. It is not necessary at present to consider minutely the different theories concerning phlebitis. The pus is as likely to have arisen from the sole disorganisation of the clot, excluded by the coats of its veins from the tissues around, as to have originated externally and entered the vein at the free border of the stump of the pedicle. The thrombus might have induced phlebitis and suppurative inflammation outside the vein, or the compression of the vein by inflamed or œdematous tissue around it may have caused thrombosis, after the manner so distinctly noted by Billroth.[1] The coagulum itself, whether primary or secondary, was actually breaking up in the abscess cavity. The tendency to unfavourable changes in the thrombus must have been very strong in this case, for the blood was evidently impure owing to long-standing kidney disease. Hence, after the local changes came septicæmia, of which there were marked clinical symptoms, particularly obstinate vomiting. The fetid fluid in the dilated Fallopian tube was significant.

Thus a serious complication may follow complete intra-peritoneal ligature. But this does not in any way condemn the practice as contrasted with the extra-peritoneal treatment, for the clamp might have produced the same changes in or around the veins of the pedicle. As to the renal disease, it is hard to diagnose this complication beforehand, as the pressure of an ovarian tumour on the ureters may affect the kidneys, and cause albuminuria and deviations from the normal daily amount of urinary secretion, accurately counterfeiting primary disorders of the kidney, but disappearing when the operation has removed the source of pressure. Nor might it be unwise to operate even when the kidneys were known to be diseased, provided there were no serious general symptoms due to nephritis, since the removal of an ovarian tumour would in that case improve the condition of the kidneys.

Case VIII.

E. E. H., 54. Removal of a very large multilocular tumour of the right ovary. Death in three days. The patient was very corpulent.

Pedicle of tumour firmly secured by the ligatures; edges of free margin uniting by lymph without any overlying coagulum. Stump of Fallopian tube dilated to dimensions of a cob-nut, and containing a small partly decolorised clot.

[1] General Surgical Pathology and Therapeutics, Lecture xxv.

The heart, liver, and kidneys were all involved in fatty changes, and there was much ecchymosis of the abdominal walls produced by the separation of intimate adhesions. About half a pint of reddish serum lay in the pelvic cavity.

The condition of the stump was certainly satisfactory, if such a term can be used in speaking of a fatal case. The absence of a clot on its free margin is not altogether a favourable condition. Case I. was similar in this respect, and the subject will be presently discussed in relation to Case X. But the complete union of the edges of the margin by inflammatory exudation shows a healthy state of the tissues in the immediate vicinity of the pedicle.

The blood-stained serum had evidently oozed from the abraded surface of the abdominal wall where an extensive adhesion had been broken down. This complication and the morbid state of the viscera explain the fatal result. Shortly before death, after the development of septicæmic symptoms, the peritoneal cavity had been washed out, and much serum was cleared away from it.

Case IX.

J. F., 27. Removal of both ovaries for cystic disease; numerous adhesions to abdominal wall, omentum, intestines, and uterus. Death on the 6th day after distinct pyæmic symptoms.

The pedicle of the right tumour (which alone had contracted adhesions to neighbouring parts) included a portion of the cyst-wall which was adherent to the back part of its own pedicle. This remnant of the cyst was partly sloughy and partly suppurating. The left pedicle was capped by dark, soft clot, but had contracted no adhesions, although lymph was thrown over the ligatures. There was universal peritonitis, consolidation of the base of the left lung, and metastatic abscesses in the right kidney.

The separation of so many intimate adhesions had entailed much damage to the parietal and visceral layers of peritoneum, sufficient to have produced the pyæmic symptoms. But the close adhesion of a piece of cyst-wall to the right pedicle was a serious although unavoidable complication. The piece was thickened, and contained few vessels; its tissue did not favour the changes which take place in the substance of an ordinary pedicle and save it from gangrene. The sloughing and suppuration of this remnant of the cyst might possibly have been secondary to peritoneal mischief higher up, but it is equally probable that it was the origin of the fatal pyæmic changes.

Still, although, the right pedicle was so seriously involved, the

left was in a favourable condition. Hence this case does not reflect on complete intra-peritoneal ligature, but illustrates a complication which may make that process difficult of application. After dwelling on the bad results of leaving parts of a tumour in the pelvic cavity, it is fair to bear in mind how the evil has already been counteracted. In one case where extensive adhesions had been torn from the fundus uteri, Dr. Bantock sewed a flap of cyst-wall which he could not have safely removed, on to the raw surface on the uterus with perfect success.[1] In a similar manner Mr. Spencer Wells brought together two layers of broad ligament after shelling out from between them a uterine tumour, and the patient recovered.[2] When such a proceeding is impossible, and a piece of cyst-wall cannot be removed, the cautery is perhaps preferable to the clamp or ligature. This method is, indeed, employed by Dr. Keith at the present day in most of his remarkably successful antiseptic cases.[3]

Case X.

This interesting case will be found fully recorded in the "Obstetrical Journal," August 1878.[4] The patient, aged 56, had symptoms of cardiac and renal disease. The presence of a large tumour made her life miserable, and aggravated the visceral affections to which she was subject. Tapping was not deemed advisable, as it had already been resorted to with unsatisfactory results. Mr. Knowsley Thornton removed a large multilocular tumour of the right ovary, and also took away the left ovary, as it was cystic, and already more than three times its natural size. Thirty pounds of solid and fluid were removed from the abdominal cavity. The operation was performed under the most rigid antiseptic precautions. The patient died before the completion of the fourth day with uræmic symptoms, which had been preceded by great dyspnœa of cardiac, not pulmonary origin.

The history of the case and the explanation of the symptoms observed before death will be found in the memoir referred to above. At present it only interests us to compare, side by side, the description of the process of ligature, as given by the operator,

[1] On Drainage in Ovariotomy, British Med. Journ., ii. 1877, p. 436.

[2] Successful Removal of a Solid Uterine Fibroma, British Med. Journ., i. 1878, p. 674.

[3] Report of Fifth Series of Fifty Cases of Ovariotomy, British Med. Journ., i. 1878, p. 8. Results of Ovariotomy before and after Antiseptics, ibid. ii. 1878, p. 590.

[4] Case of Ovarian Tumour complicated by Cardiac and Renal Disease—Ovariotomy—Death. By J. Knowsley Thornton, M.B., C.M., with Report of Post-mortem.

and the appearance of the stumps of the pedicles as seen at the post-mortem examination.

Mr. Thornton states: "I ligatured a very broad, short pedicle on the right side of the uterus with two transfixions with medium silk, a special fine ligature being applied to the veins in the outer part of the pedicle, and the middle ligature, which I had purposely left long, being tied again round the whole pedicle after the tumour had been cut away. The left ovary was turned into a cyst of the size of a small hen's egg; and I also removed it, transfixing and tying the pedicle in two halves, and afterwards passing one of the ligatures round the whole. The stumps were then dropped in with the ligatures cut short, and the wound closed by fine silk sutures. Very little sponging was necessary. I was careful, in ligaturing the pedicles, not to draw the ligatures tighter than was absolutely necessary to control the hæmorrhage.

"After death I found that the pedicle of the right ovary, securely ligatured, was capped by a dark friable clot. The left pedicle was similarly secured. A dark, firm, partly decolorised clot, about the size of a walnut, was found in the pelvis. It was already undergoing absorption. I must add that the bulging parts of the stumps immediately above and below the ligatures stuck firmly together by means of a thin layer of organised lymph."

There is no proof whatever that the treatment of the pedicles had the least share in bringing about the fatal result. Mr. Thornton considers the presence of the blood clot on the cut surface of the stump "as the perfect condition to aim at in the treatment of the ovarian pedicle by ligature. This cap of blood clot shows that the ligatures, while tight enough to prevent serious hæmorrhage, were not so tight as to cut off all supply from the distal portion of the stump; and in an aseptic case this clot forms a most useful covering to the ligatures and cut surfaces, forming very soon as it organises free vascular connections between the proximal and distal portions, and preventing the latter from injurious adhesions to neighbouring coils of intestine or other organs in seeking its blood supply." The condition of the pedicle in Case VIII. shows that the distal part of the stump may not slough, even when there has been no hæmorrhage from its cut surface sufficient to form the cap of coagulum. Only in consequence of severe shock the circulation had been very feeble after operation, which may account for the absence of bleeding, less probably due, in this instance, to great tightness of the ligatures. The same explanation may account for the absence of the clot on the pedicle in Cases I. and VI., where both the patients were over fifty years of age.

This closes the instructive series of post-mortem examinations which I have made under circumstances already explained. The following deductions will conveniently serve as a summary:—

1. In this series but a small minority were cases of death evidently due to complete intra-peritoneal ligature.

2. In cases which recover, the proportion of instances of unfavourable changes in the pedicle must of necessity be still less than in those which end fatally.

3. The theories of Maslowsky, Waldeyer, Spiegelberg, Bantock, and others on the vitality of the ligatured pedicle, and the similarity of the changes in women to those observed in animals, are verified even in these unfavourable cases. In the lower mammalia the bad results seen in human subjects may occur, but we more frequently observe in women the satisfactory changes which are the rule in cases where certain pelvic structures are ligatured in animals.

4. The presence of a cap of firm coagulum is favourable, because (as Mr. Thornton has remarked elsewhere) this condition indicates that the ligatures have not been tied so firmly as to cause sloughing, yet have been drawn tightly enough to prevent dangerous hæmorrhage.

5. A soft clot, larger than any observed in my own autopsies —large enough, in fact, to fall off the stump and half fill the pelvis—would be harmless if antiseptic precautions were taken or thorough drainage efficiently carried out.

6. On the other hand, the pedicle may partially slough in cases where there is fair reason to suppose that the unfavourable change is due to the ligature, as in Case I. In such instances the results cannot fail to be very grave.

7. Hence, from the three last observations, it follows that it is much more dangerous to draw the ligatures a little too firmly than to leave them somewhat looser than is strictly advisable.

8. The absence of any coagulum on the free border is evidently frequent, even when the ligatures have not been drawn very firmly. This condition mostly occurs when the patient is old, or when there has been much depression for some time after the operation.

9. In these cases where the clot is wanting, the free edges of the stump may curl in over the raw surface between them and rapidly unite by adhesion. This is a satisfactory change, since as long as a raw surface exists there is risk of adhesion to neighbouring structures. It matters little whether the edges unite in this manner or become capped by a clot, since in both these conditions the cut surface is covered.

10. Small stumps, and those which are broad but not heavy,

are the least likely to adhere to the broad ligament, since they remain upright and do not fall backwards or forwards. This fact is not of much clinical importance, since adhesions to the broad ligament are not likely to produce bad results; moreover, the consistence and size of the pedicle is a matter beyond the surgeon's control.

11. The presence of sarcomatous or colloid material between the layers of the pedicle is a dangerous complication, as not only is the rapid recurrence, or rather extension, of the morbid growth rendered certain, but neoplastic tissue of this kind is sure to undergo unfavourable inflammatory changes after ligature. The destruction of all traces of new growth by the cautery, or the dissecting out of the morbid material, and the bringing together of the edges of the pedicle, as in a flap operation, might be suggested. But the complication in question must remain very grave, whatever known method of securing the pedicle be attempted.

12. The presence of a clot in the substance of the stump of the pedicle, or injury to its veins after ligature, may produce phlebitis or some allied local disorder. But this must be rare, judging from there being but one case of this complication in a series of ten post-mortem examinations, and that instance was associated with chronic renal disease.

13. Old-standing disease of the thoracic or abdominal viscera was detected in every case in this series, several organs being frequently involved. Fatty heart existed in three cases; hypertrophy and valvular disease in one; atrophy of the heart in one; chronic pleurisy (old adhesions) in two; fatty liver in four; chronic interstitial nephritis in two; large fatty kidney in one; large mottled kidney in one;[1] changes in the coats of the large intestine through an old adhesion in one; sarcomatous deposits in the omentum, capsules of the liver and spleen, in one.

These complications may be given as below, showing how they were combined in each case in the series, not only for convenience, but because in the full account above I did not always enter into the condition of all the viscera.

Case I. Old adhesion of cyst-wall to bowel, with changes in the coats of the intestines.

Case II. Weight of heart, 4 oz.

Case III. Acute pleurisy and old adhesions.

Case IV. Sarcomata in omentum and capsules of liver and spleen; fatty heart.

Case V. Fatty liver; large mottled kidneys.

Case VI. Old adhesions in left pleura.

Case VII. Chronic interstitial nephritis.

[1] In nearly every other instance the kidneys were much congested.

Case VIII. Heart, liver, and kidneys fatty.

Case IX. Heart and liver fatty.

Case X. Hypertrophy and valvular disease of heart; fatty liver; chronic interstitial nephritis.

It would be out of place to consider at present whether these visceral disorders were antecedent or secondary to the ovarian tumours.

I have entirely omitted any discussion on antiseptic questions. The probability of fatal results from the absorption, under any circumstances, of minute particles of injured or inflamed tissues, must present itself to the mind of every surgeon. Such fragments of broken-down organic matter may produce deadly results when perfectly free from any material derived from without. The seventh case suggests this theory. It is impossible to provide securely against this danger; but that certain organisms from without contaminate fluids within the body, there can be no doubt. It is quite possible to exclude these minute germs, hence it is the duty of the surgeon to do so. That the antiseptic system of surgery effects this object I do not think there can be much doubt. When it fails, death is, I believe, always due to internal agencies, which its supporters do not profess that it can overcome. When it succeeds, we see at least two favourable conditions of after-treatment, hitherto found hard to combine. For to the maximum of cleanliness of the wound is joined the minimum of frequency of necessary dressings. Thereby the patient is spared annoyance to others, and at the same time discomfort to herself. Moreover, she is free from one source of peril, danger from without. I feel confident that the gradual perfection of antiseptic ovariotomy and of the complete intraperitoneal method of ligature, two objects which my senior colleagues ever pursue with unflagging energy, will reduce more and more my opportunities of making researches like the above, and oblige me to turn my attention solely to more congenial considerations with regard to the operation.

A

CASE OF MULTIPLE SARCOMATA.

BY

LUTHER HOLDEN.

The following case is worth recording, if only for its great interest and rarity:—

Charles Lamborne, æt. 10, a pale, delicate-looking boy, was admitted into St. Bartholomew's Hospital on the 18th June 1875, with a tumour over the region of the left parotid gland. It is about the size of a large chestnut; not painful or tender to the touch; of almost cartilaginous hardness; smooth on the surface, but with apparently deep connections. It was noticed first a year ago; has never been tender to the touch or otherwise painful, and is slowly increasing in size. There is another much smaller tumour, apparently of a similar character, high up on the left side of the forehead.

June 23.—The tumour over the parotid was removed. It adhered closely to all the surrounding structures, and required careful dissection out of the gland. One of the upper branches of the portio dura was unavoidably cut away with it.

The tumour was examined microscopically by Mr. Butlin, and proved to be a good example of round-celled sarcoma.

July 20.—The boy was discharged with the wound healed. The muscles on the left side of the face have nearly all recovered their power, with the exception of the orbicularis, which is still unable completely to close the eye.

October 11.—The boy was readmitted with two small tumours, which, he says, began to grow on the left side of his forehead almost immediately after he left the Hospital. One of them is of a dark colour, and seems confined to the skin; the other involves more of the subcutaneous tissue. Neither of them is at any time tender or painful. The scar of the operation is

healthy, and presents no sign of recurring disease. There is complete use of the buccinator and muscles about the mouth; but the left eye cannot be quite closed.

October 13.—The two tumours on the forehead were removed. Their microscopic characters were similar, in all respects, to those of the growth taken from the parotid region, namely, an infiltration of small round cells into the fibrous meshes of the corium and the subjacent fat.

November 26.—The boy, apparently well, was sent, with wounds nearly closed, to the Convalescent Hospital.

August 14, 1876.—The boy was admitted into the Hospital for the third time. This time he comes with both testicles as large as a hen's egg, the left being rather the larger. The scrotum is perfectly movable, and normal in appearance. The testicles are not in the least sensitive; smooth, and as hard as cartilage. They began to swell, he says, two or three months ago. No enlargement of the cord or of any lymphatic gland is perceptible. The scars left by the operations are quite sound. He can now close the left eye, but not so firmly as the right.

September 21.—After a consultation, it was determined to try the effect, locally and generally, of the iodide of potassium. It was the general opinion that the testicles were affected with sarcoma, and that surgical interference was not desirable.

September 27.—The testicles have increased rather than diminished in size under the iodide. The left measures five inches in circumference; the right, four. He was made an out-patient.

August 29, 1877.—After an interval of eleven months, the boy presented himself at the Hospital, and was taken in for the fourth time. The testicles have decidedly increased in size—the right measures six and a half inches in circumference; the left, seven. The spermatic cords and the lymphatic glands in the abdomen continue, apparently, free from disease. The lad has grown considerably, looks fairly well nourished, and does not complain of any pain or inconvenience in his testicles. The object of his return to the Hospital is to show us a "lump" at the back of the thigh, which began to form six months ago, and has of late much increased in size. It is very firm and prominent, involves the skin and the parts beneath to a considerable depth, and is red, tender, and inflamed around from pressure while sitting and from the friction of the trousers. Still, the tumour causes no pain in standing or walking, and presents no appearance of suppuration.

Besides the tumour on the thigh, he drew our attention to another, just below the inferior angle of the right scapula, which, he said, had been coming for four months. This second tumour presented characters very similar to the other, except that it was not tender or inflamed. It measured from one to two inches across, was flat and somewhat dusky on the surface, free from pain, and easily moveable on the subjacent parts. A careful examination of the chest and abdomen did not detect any abnormal dulness, or any enlargement of the liver or spleen.

October 1.—The tumour on the back of the thigh has sloughed out, leaving a healing sore about two inches across. Another tumour has appeared in the neighbourhood of the great trochanter on the right thigh. At a consultation, it was decided not to interfere with it. The boy was again made an out-patient.

November 29.—The boy was readmitted into the Hospital for the fifth time, The wound left by the sloughing of the tumour on the back of the thigh has healed, but the tumour below the scapula has increased considerably. The skin covering it is infiltrated with the disease, and is of a dark-red colour. It is neither tender nor painful, and easily movable on the subjacent parts. Another small tumour, in character quite similar to the others, has appeared, and is growing fast over the left pectoral muscle.

December 5.—The tumour below the scapula and that on the chest were removed.

December 31.—The operation wounds are fast healing, but a large tumour has rapidly grown on the inner side of the right forearm. It appears to be closely connected to the ulna.

January 30, 1878.—The tumour on the forearm has become much larger, inflamed, and painful. The testes continue about the same size. The left inguinal glands are enlarged.

February 6.—There is now a deeply-seated tumour on the inner side of the middle of the right arm; and there is an enlargement of the axillary glands.

March 5.—All the tumours are growing fast. That on the forearm has ulcerated. The glands in both axillæ are enlarged and hard. The wound on the chest has healed, but that on the back is still open, and there appears to be a recurrence of the disease at the lower end of it. The boy has grown much thinner and weaker, but is still up, and walks about the square.

March 21.—The tumour in the forearm has sloughed, leaving a large chasm, exposing the greater part of the ulna. The glands in both axillæ have greatly increased in size. The boy

has taken to his bed, has lost all appetite, is gradually wasting, and would be in constant pain but for repeated injections of morphia night and day.

June 5.—The blood has been examined several times by Mr. Butlin, who reports that there is no increase in the colourless corpuscles; he finds no staff-shaped bodies (bacteria), but a number of very small spherical bodies, sometimes single, sometimes in groups, having the appearance of the "coccus" of Billroth.

August 1.—The boy died, after lingering through many weeks of, at times, the severest suffering, latterly increased by almost irremediable constipation.

Post-mortem Eight Hours after Death.

For the following notes, as well as for many of the preceding, I am indebted to Mr. Butlin.

Body greatly emaciated. Rigor mortis slight. There are bed-sores over the sacrum and the great trochanter. There is another small one over the spine of one of the lower lumbar vertebræ. A large, deep, sloughy-looking ulcer is situated just below the angle of the left scapula.

Another deep, sloughy-looking ulcer, with the surrounding structures infiltrated with disease, occupies the middle and lower third of the outer side of the right forearm, extending as deep as the radial side of the ulna. The shaft of the radius in its lower two-thirds is quite bare, and fractured. About the middle of right arm, on its inner aspect, is a hard, tolerably circumscribed mass of the size of a small apple. The skin over it is adherent. Its appearance on section is most like that of scirrhus, as is that of all or most of the other growths.

The right axilla is filled with a mass having similar characters to the one on the arm just described. The skin over it is adherent. The left axilla is also occupied by a hard mass, but its size is less than that on the opposite side. There are several hard nodules along the side of the chest skirting the lower border of the left pectoralis major.

The right and left groins contain enlarged and indurated glands, especially the right.

Lungs:—Normal; no sign of deposit or tumour. Pleuræ:—Healthy. Heart:—Perfectly healthy. Pericardium:—Contained 1 or 2 ounces of fluid. Mediastina:—Quite free from any tumour or deposit. Liver:—About normal size and colour, and apparently perfectly healthy. Spleen:—Very slightly enlarged; of normal consistence; on section, no sign of deposit. Kidneys:—Left,

quite healthy; right, is larger than the left; capsule strips easily, but not unnaturally so. Bladder and ureters:—Healthy.

Leading up from right groin is a chain of glands, enlarged and indurated, spreading along the course of the iliac vessels, joining the lumbar glands, and then terminating in a large, hard mass, which, stretching downwards, almost completely fills the cavity of the pelvis. Some coils of small intestine are adherent to the upper surface of the mass, but the rectum appears to be more especially involved. On laying this part of the bowel open, it is found that one side of it is bounded by a large, ragged, sloughy-looking ulcer; and this is found to be part of the mass above referred to. Each side of scrotum is filled with a large hard mass. Other abdominal viscera healthy.

CONCLUSIONS

FROM

A PERSONAL EXPERIENCE OF

LISTER'S ANTISEPTIC TREATMENT DURING THREE YEARS OF HOSPITAL PRACTICE.

BY

THOMAS SMITH.

In recording the conclusions to which I have come from a personal experience of Lister's antiseptic treatment, I cannot appeal to statistical tables of results in support of any views I may entertain. I regret the absence of these the less, believing, as I do, that, in the consideration of a question involving the comparative merit of two rival plans of treatment, the appeal to statistics does not always add much force to a statement. Evidence of this kind is so very liable to be unconsciously modified, manipulated, or interpreted in a sense favourable to the writer's views, that, in estimating the value of conclusions like the following, one must, after all, take chiefly into consideration the author's opportunities for observation, his ability to weigh results and appreciate their significance, and the measure of his character for veracity.

I would not have it thought that no history has been kept of the cases under my care treated antiseptically, and that I base my statement on what are called "general impressions" of the results. A record has been kept, but not in such form as to admit of its being arranged in a statistical table.

It is now three years since I began to employ Mr. Lister's antiseptic dressings, and as my chief purpose was to test its efficacy, it was used only in the treatment of those lesions which, under ordinary dressings, are specially liable to local manifestations of inflammation, and which, as a rule, give rise to well-marked constitutional disturbance.

Antiseptic treatment has, therefore, been used in joint wounds, in compound fractures, in large chronic abscesses connected with joint disease or caries of the spine, in the treatment of deep bursæ, in the ligature of arteries for aneurysm, and in operations of exceptional severity. The plan has been but rarely used in ordinary amputations of the limbs or in removal of the breast; it has not been used in operations for hernia nor in the treatment of acute superficial abscesses. Its employment in such cases in the wards of a healthy English hospital would seem to me to afford no satisfactory test of its advantages.[1]

So far as my personal influence could prevail, the system has been carried out according to Mr. Lister's directions; no attempt has been made to improve on his method, nor to curtail the prescribed details of manipulation. The plan has been carried out under the superintendence of three successive house-surgeons at St. Bartholomew's, and under two house-surgeons at the Children's Hospital. Though in many cases of operation the first dressings were applied by myself, I have very rarely interfered in the subsequent progress of the case. It may be said that, under the conditions above mentioned, the system has not had a fair trial, and that there should have been a personal supervision on the part of the responsible surgeon. In a large hospital attached to a medical school this would be impracticable; and since the antiseptic treatment, to be of general use in hospitals, should be adaptable to the ordinary conditions and routine of hospital practice, I thought that, in testing it, the trial should take place under no exceptional advantages.

Before commencing the antiseptic treatment, I was careful to study the system myself, while Mr. Lister and Mr. Annandale were good enough to give my house-surgeon, Mr. Vernon, every opportunity of mastering the details of the treatment in the wards of the Royal Infirmary.

There can be no question but that Mr. Vernon, during his year's tenure of office, carried out the system, in those cases in which he employed it, with a rigorous observance of every prescribed detail of practice, and I know that he was rewarded with commensurate success. Since his day, I have occasionally observed a certain laxity in the observance of antiseptic precautions, the result either of involuntary ignorance or invincible

[1] In certain Continental hospitals, where pyæmia, hospital gangrene, and erysipelas were rife, the beneficial effect of the antiseptic treatment has been most striking, the diminution in the general mortality has been very great, while pyæmia and hospital gangrene have disappeared under its influence. See Brit. Med. Jour. 1875, vol. ii. p. 769. On this point Professor Volkmann's statement at the congress of the German Society of Surgery in Breslau is convincing. See Med. Examiner, 1877, p. 333.

prejudice, and I know also that this has been attended with a corresponding uncertainty of result.

Whether Mr. Lister's theory be true or no, it seems to me certain that any neglect of the precautions prescribed by him is liable to be followed by failure to secure the advantages claimed by him for his method of treatment.

The following are the conclusions to which I have come from my experience of the system:—First, as regards wounds of healthy joints, whether of an accidental nature or inflicted for the removal of loose cartilages or foreign bodies, I am convinced that the antiseptic treatment, carried out as recommended by its author, reduces the danger of the joint wound to a minimum. I mean, that under this treatment a patient incurs a less risk to his limb and his life than he would under any other method of treatment with which I am acquainted; and more than this, that favourable results can be obtained in certain joint injuries which under other treatment would almost certainly involve the loss of the injured limb. As an instance I mention the following case:—

A man, aged 19, was admitted into Rahere Ward, under my care, 23d November 1875. His leg had been crushed between the platform of a station and a railway carriage in motion; over the inner side of the knee-joint was a circular opening an inch and a half in diameter, where the soft parts had been ground away down to the bones, freely opening the knee-joint at the point of contact between the femur and tibia; the surface of the wound and the exposed articular surfaces were black and smeared with railway grease and dirt; blood mixed with synovia and air-bubbles freely flowed from the interior of the joint.

Mr. Vernon thoroughly syringed out the joint with a watery solution of carbolic acid (one to twenty) for a quarter of an hour, applied the antiseptic dressing, and secured the limb on a back splint. From that time up to the date of his recovery the patient suffered no serious inconvenience, nor was he at all ill. The treatment lasted two months, and during that time the wound was dressed eight times; the temperature was under 100°, except on the day after the accident, when it was 100·6°, and on the third day, when it reached 101°. The pulse never rose to 90°, and on one occasion only was there any complaint of pain, and that was of a slight character. Eleven weeks after the accident the patient was out of his bed, and he recovered with good, though somewhat restricted, use of his knee-joint, the patella being perfectly moveable, and the only limitation in the use of the joint being caused by the firm adhesion of the cicatrix to the inner condyle of the femur. The comparatively long

convalescence was due to the great loss of tissue at the time of the accident, and to subsequent separation of the bruised soft parts around the wound.

I have every reason to speak with confidence of the antiseptic method, as enabling us to open healthy joints for the removal of loose cartilages or foreign bodies without ill consequences. So much so, that, if mischief did arise under my hands, I should be disposed to attribute it to some defect in the application of the treatment rather than to a failure of the system.

One cannot admit that Mr. Lister's method does away entirely with the risk attached to wounds of healthy joints; the application of the treatment may be unintentionally defective, or the nature of the accident and attendant circumstances may be such that the plan cannot be carried out satisfactorily.

A patient was admitted under my care with a lacerated wound in the quadriceps tendon, just above the patella. In the wound was a very small chip or shaving of what looked like articular cartilage, but as no opening into the joint could be discovered after careful search, the wound in the soft parts was treated antiseptically, and the joint cavity was not interfered with. On the third day after the accident, the severe pain, the swelling of the joint, and the constitutional disturbance, made it too evident that the joint had been wounded. The joint cavity was laid freely open, and syringed out with carbolic lotion, and the antiseptic dressing was applied. This was continued for three days and then abandoned at my request, as I now believe, from no sufficient reason, though at the time I thought it was keeping up irritation in the wound surface. Next day the temperature rose to 102°. Cellulitis followed in the thigh; there was great exhaustion from discharge; amputation was performed, and death resulted.

In the case of diseased joints where suppuration has occurred, my experience has been that, as a rule, the antiseptic plan enables us to open the articular cavity with very much less risk than can be secured by other methods—of less risk, I mean, of the patient succumbing under exhausting discharge and the attendant constitutional irritation, and with much more chance of a complete recovery or a cure by anchylosis. In some cases of the hip and knee, recovery seemed to be more complete than I should have thought to be possible under other methods of treatment.

In one case, an adult with abscess in the hip-joint and disease of the pelvis, treated antiseptically, death from exhaustion in one month followed the opening of the abscess. The treatment on this patient certainly exercised no favourable influence on the progress of the malady.

In two cases also of abscess in the knee-joint at the Children's Hospital, I was obliged to abandon the attempt to save the limb, and to perform amputation. In these patients the great obstacle to recovery seemed to be the amount of thickened synovial membrane which surrounded the joint-ends of the bones, giving rise to interminable suppuration. It may be mentioned that both these cases were condemned to amputation before the treatment was put into practice.

In the treatment of compound fractures, the system has given me results entirely in accordance with the statements of its author. Under its use there has been a freedom from local inflammation and a general absence of constitutional fever, though a transient rise of temperature may have taken place if the wound secretions become pent up. When the system has failed in the case of compound fractures, there has been some very obvious departure from antiseptic practice as prescribed by Mr. Lister.

In the case of five compound fractures dressed throughout by Mr. Vernon, where daily records have been preserved, the highest temperatures observed were as follows:—

1*st Case.*—Compound comminuted fracture of the tibia; compound fracture of the fibula, caused by a bale weighing two cwt. falling from a height of seventy feet on the limb. On the evening of the accident the temperature rose to 100·6°, but in the subsequent progress of the case never again reached 100°.

2*d Case.*—Compound comminuted fracture of tibia and fibula; protrusion of the bone; some emphysema. Highest temperature on the third day, 99·4°.

3*d Case.*—Compound comminuted fracture of tibia and fibula, caused by a stone weighing two tons falling on the leg. Soft parts much bruised, with much blood extravasated among the deep structures. On the second day the temperature rose to 100°.

4*th Case.*—Compound fracture of both bones of the leg. The highest temperature was on the second day, viz., 100·6°.

5*th Case.*—Compound fracture of the upper end of the humerus. Shoulder-joint laid open. On the second day the temperature reached 99·6°.

These cases all recovered, and in every instance there was a complete freedom from local inflammation, together with a remarkable absence of pain, and no more pyrexia than is indicated by the foregoing temperatures. Three of the cases were severe ones, and the third case was complicated with much injury to the soft parts and great effusion of blood among the muscles. In this case, during the convalescence, we observed, as we believed, the organisation of a blood-clot beneath the dressing,

as has been described to take place by Mr. Lister. We certainly saw the coagulum which filled the wound become vascular, that is, it bled when touched with a probe; and we watched it until finally it merged into the general cicatrix as new tissue.

To my mind, there cannot be a doubt as to the very great advantage of the antiseptic treatment in dealing with compound fractures, both as vastly diminishing the risk of all so treated, and as enabling us to save many limbs which, in the absence of antiseptics, would be, nay, ought to be, subjected to primary amputation.

Mr. Lister considers that his treatment has effected a complete change in the ordinary course of chronic abscess. Among other advantages, the patient is said to be free from all risk of irritative fever as the immediate consequence of letting out the matter, and from hectic at a later period.

From my own experience, I am quite prepared to assent to the general truth of this statement; and Mr. Kempe, who at the Children's Hospital, as house-surgeon, has treated for me many large abscesses by the antiseptic method, reports: "The amount of suppuration was small and healthy in character; no decomposition occurred. The amount of fever was reduced to a mere nothing, 99° or 100°, and in some cases to nil. The parts were enabled to be left at rest for a considerably longer period than if dressed in an ordinary way. No pyæmia or diffuse cellular inflammation occurred."

One of the greatest benefits conferred on surgery by the antiseptic method seems to be, that under its ægis we can undertake and carry out to a successful issue operative measures, which, so far as I am a judge, would be quite unjustifiable under other methods of treatment. Of this kind is the following case:—

M. A., a married woman, æt. 32, was admitted under my care into St. Bartholomew's Hospital, July 24, 1876. She was apparently a healthy woman, and dated her present troubles from a fall, which injured her knee, four years before her admission.

Ever since this injury she had noticed a swelling over the head of the tibia just below the knee-joint. It had gradually increased, until at the time she came under my care it was the size of an orange. It was certainly a tumour growing within the tibia, and expanding the bone over it, which latter yielded on firm pressure over the swelling, with a parchment-like crackling sensation.

There were no enlarged glands and no pain, but she complained of great weakness in the knee.

On 27th July, in deference to Sir James Paget's views, an attempt was made to save the limb by the removal of the tumour,

the anterior wall of the bone being cut away and the growth scooped out, the circulation in the limb being for the time arrested by Esmarch's bandage. The substance of the growth was of soft consistence and reddish-yellow colour; it left behind it a smooth-walled cavity in the bone as large as an orange, extending from beneath the cartilage of the knee-joint for four inches down the tibia.[1]

The cavity in the bone was very roughly scrubbed out with a solution of carbolic acid (one in ten), and then firmly packed with lint soaked in the same solution. The operation was done under antiseptic precautions, and the after-treatment was carried out by Mr. Vernon under the same method.

The patient suffered in no way, either locally or constitutionally, from the operation. She left the Hospital after eleven weeks, to return to her home in the country, where her medical attendant, Mr. Rundle, continued the treatment. Six months afterwards I saw the limb: the cavity had much diminished in size; the patient was quite well, and was advised to walk on the limb.

A year later (February 1878) Mr. Rundle wrote:—"The cavity has contracted to the size of a large filbert. There is considerable deposit of new bone about the head of the tibia. The movements of the knee-joint are perfect; the patient can walk and dance without any pain or discomfort of any kind."

In July 1878 the patient stated that she was quite well, and can walk miles on the limb without feeling fatigue, and gets about as well as ever she did in her life. The cavity was not filled in flush with the skin, nor is it quite healed, but it is a "tiny cavity."

I have no sufficient experience of the treatment as applied to amputations or resections to justify me in expressing any opinion founded on my own observation.

Many bursæ have been cured by drainage under this method; and among them a large bursa deeply seated in the popliteal space, and a deep palmar bursa, in both cases the patients recovering with perfect movement of the tendons involved in the disease.

Only six large arteries have been tied in continuity under the antiseptic treatment, and in every case for popliteal aneurysm. The patients all recovered without any constitutional disturbance, with no sign of inflammation or irritation at the seat of ligature, and with a very small amount of discharge from the wound.

It may not be out of place to refer to a circumstance that has

[1] Microscopic examination showed the tumour to be myeloid in character.

come under my notice with regard to the absorption of carbolic acid from wound surfaces or abscess cavities; it is the great susceptibility of children to the toxic influence of the acid.

At St. Bartholomew's but one patient exhibited symptoms of carbolic poisoning, a patient whose case has been referred to as dying of hip-joint disease under the treatment. Among the children in Great Ormond Street Hospital there were many cases in which the urine gave evidence of carbolic absorption. Mr. Kempe, house-surgeon to the Children's Hospital, reports that "in many cases the urine was found to have a dark olive-green tint, not at the time it was passed, but after it had been allowed to stand in a glass; in some cases this change did not take place for forty-eight hours after passing."

There is an inconvenience of a more serious kind connected with the antiseptic dressing which I ought not to omit to mention; namely, the possibility of secondary hæmorrhage occurring beneath the voluminous folds of the gauze, without attracting notice until a considerable quantity of blood has been lost. It has twice occurred to me to meet with this accident: once after the removal of a breast in private, where the bleeding took place forty-eight hours after operation, and once after an amputation at the knee-joint in an infant thirteen days after operation, the wound being almost healed, and the child being, as was thought, convalescent. In this latter case, the child very nearly died before the loss of blood was discovered; and in the former case, the hæmorrhage was not inconsiderable in amount.

NOTES

MADE IN

THE CASUALTY DEPARTMENT.

BY

NORMAN MOORE, M.D.

The Casualty Department of St. Bartholomew's Hospital presents a vast field of observation. Every morning is made interesting by the variety not only of disease but of human nature; for people of every occupation, of every nation of Europe, of every turn of character, appear in the course of a month. Probably in no one place is there a better opportunity of accustoming the ear to all the dialects of English, of Gaelic, and of Welsh. Since the physician has to practise his art not merely upon tissues but upon men, these opportunities are not to be despised; but it is of the external aspect of diseases at some one stage, of the effects of occupation on disease, and as to its cause, and such-like general points, that observations can be made in the Casualty Department. What is to be learnt must be learnt quickly, and there is not time for more than short written notes. A few of those which I made during a period in which I saw about forty thousand patients, many but once, some several times, seem to me to have sufficient bearing on questions of interest to be worth preserving. I shall begin with a case illustrating the course of a wasting due to pleurisy.

Charles Atkins, aged 9 years, was first seen by me in July 1873. His case had been sent to the Hospital as one of phthisis. The boy was lean. An examination of his chest gave the following physical signs:—

Inspection: the outline of his chest showed a slightly increased capacity on the left side, little greater, however, than may be seen in some healthy chests. (See fig. 1.)

Percussion: right side, normal; left, dulness at the apex and all over the front, but not over the back.

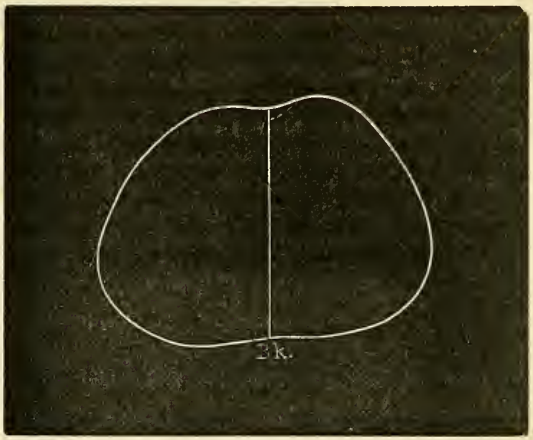


Fig. 1.

Auscultation: at the left apex was heard a loud creaking rale, which was audible, with an occasional mucous rale all over the left side, and now and then over the right back; breathing at the left apex nearly, but not quite, purely amphoric in character; right front, sounds normal.

Heart: position, normal; sounds, normal.

His parents are living; a sister is said to have died of phthisis.

I next saw the boy in April 1874, when the outline of his chest showed marked shrinking all over the left side. (See fig. 2.)

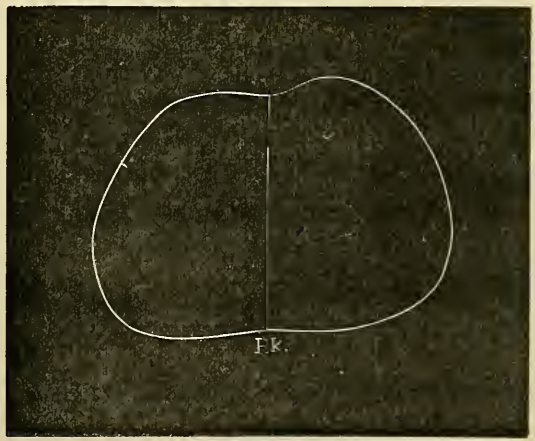


Fig. 2.

There was recession almost amounting to hollowing under the left clavicle.

Percussion : resonance impaired over the whole left side, most so under the clavicle ; right side, normal.

Auscultation : a crackling rale audible all over the left front, flank, and back; at the left apex a shrill bronchophonic voice-sound may be obtained, audible both in front and behind.

Heart : position, normal ; sounds, normal.

He coughs a good deal, most at night. After a course of cod-liver oil and bark he gained flesh. In July 1874 his chest exhibited still further shrinking of the left side. (See fig. 3.)

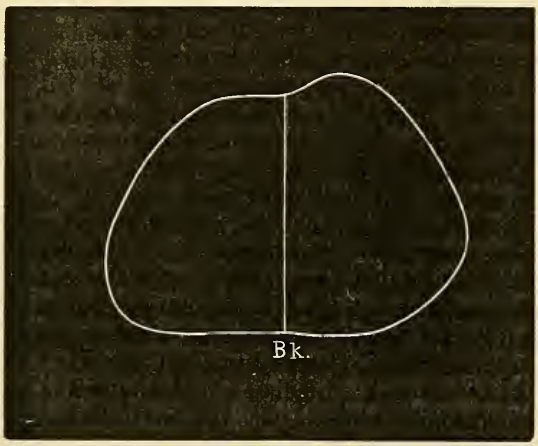


Fig. 3.

Percussion : left side, impaired resonance over most of the side, the impairment greater over the upper half of the lung in front, flank, and back; at left base behind, fair resonance ; right side, note normal.

Auscultation : left side, at the apex loud cavernous breathing with shrill bronchophonic voice-sound ; all over the side, the breathing sounds are accompanied by a creaking rale; right side, normal.

At the end of August, his face, which had hitherto been pale, exhibited some healthy colour, and his general aspect was more robust.

In October, good breathing, still accompanied by the creaking rale, was to be heard all over the left side, except at the apex. Breathing sounds were there of a peculiar loud character, but no longer cavernous, and the peculiar voice-sound had disappeared.

In December both sides of his chest expanded fairly, but the right distinctly more than the left.

Percussion: left side, to second rib, resonance is greatly impaired; front and back elsewhere it is normal; with the breathing sounds all over the left side is a loud creaking sound.

The boy is gaining flesh, but has still some cough.

Nearly a year later I saw him, when he looked quite robust and of a healthy complexion. His chest showed some impairment of resonance as before; the same general contraction of the left side, and the creaking rale, which was, I take it, a friction sound, was still to be heard.

The physical signs alone might be ambiguous, but the course of the case, and the primary enlargement and subsequent diminution of the left side, justify the diagnosis of chronic pleurisy. The cavernous sounds at the left apex are in this case to be explained as due to extensive adhesions about the apex tying up a piece of lung which had become emphysematous, and the shrill voice-sound may have been associated with the same patch of vicarious emphysema. There was probably a very large dilated air vesicle near the chest wall, and firmly attached by pleuritic adhesion, so as to have walls which were partially rigid.

Morton's cases of phthisis *a pleuritide* were of that commoner form associated with empyæma.[1] Such are less likely to lead to error, but a case like the above might easily be mistaken for one of tubercular phthisis. This history shows the value of accurate records of changes of shape in cases of the kind.

As in the necessarily rapid approximation to a diagnosis of the cause of the numerous forms of wasting which appeared in the Casualty Department, I found Morton's arrangement of great practical value, as he says, "Quo, quasi ariadnes filo, facile et tuto in penetralia ædificii ducamur;" and as it is not very well known, it may be worth while to give a short account of it.

He divides his "Phthisiologia" into three books, and after treating in the first of general wasting, and in his second of the nature and treatment of pulmonary phthisis, he goes on in his third book to the different methods of origin of pulmonary phthisis. He describes general wasting in Book I. under a number of heads. Phthisis nervosa, and phthisis ab inanitione orta, with which he begins, include cases of loss of appetite without cough, fever, diarrhœa, or diabetes, and followed by rapid wasting. His remaining heads are where the wasting is due—(1) to hæmorrhage, (2) to gonorrhœa, (3) to ulcers, (4) to over-suckling, (5) to diarrhœa, (6) to diabetes, (7) to salivation, (8) to dropsy, and (9) to great sweats; and under each he records cases easily recognised. If the 7th be omitted, and for the 8th the wasting due to ascites in adults (for the only case Morton gives is in

[1] Morton R. Opera Medica. Geneva, 1696. Phthisiologia, p. 115.

a child) be substituted, cases of the above were seen in the Casualty Department every week.

From August 18 to November 20 a woman attended who had lost the day before she came a great deal of blood, and was still losing some, from the extraction of a tooth. She had no signs of an hæmorrhagic diathesis, but after the hæmorrhage had stopped she distinctly lost flesh for three weeks, and did not regain her proper condition and colour for two months. Except for this traumatic hæmorrhage, her health had been excellent, and she had been suckling a child for six months. I let her continue to suckle it, as she was anxious to do so.

Pulmonary, as distinguished from *general phthisis,* Morton describes as—(1) scrofulous, (2) scorbutic, (3) asthmatic, (4) as beginning in melancholia, hysteria, or hypochondriasis, (5) as beginning in hæmoptysis, (6) as associated with the expectoration of gritty deposit, (7) as due to lues venerea, (8) as beginning with fistula or other suppuration, (9) as beginning with chlorosis, (10) in an attack of pneumonia or pleurisy, (11) in gout, (12) as following fevers, (13) as associated with jaundice, (14) as accompanied by internal ulcerations.

His cases of (13) *phthisis icteritia* are not very clear, and he seems to have regarded (6) the cretaceous matters coughed up as rather causing than indicating disease of the lungs; but with these exceptions, and with one or two allowances for pathological hypotheses which have become obsolete, the "Phthisiologia" remains a thoroughly practical work, and I found that to pursue its method of proceeding from the prominent symptom was one especially suited to the circumstances of the Casualty Department, where one hundred and fifty patients have often to be seen in a morning.

During the period of these notes I saw two cases of phthisis and melancholia, that is to say, of phthisis beginning with melancholy, and, in the one which I describe, with hypochondriasis. The patient was a tall, dark-haired young man, aged 18, who had been subject to epileptic fits from birth. The fits had been treated, and at times reduced in frequency. As he grew up he came to take more and more interest in his own treatment, examined his medicines, and endeavoured to make out his prescriptions. This at length reached a great degree of hypochondriasis, and at the same time, without being actually insane, he became constantly gloomy, and hardly ever seemed pleased or cheerful. While in this state he coughed a little, his fits suddenly ceased, and he began to waste. The wasting became extreme in a few months, and he died without having exhibited any signs of phthisis but the cough and the wasting.

I was able in his case to procure an extensive family history, which is, I think, worth giving, as illustrating the remark that it is groups of diseases, or constitutions liable to any one of a group of diseases, that are hereditary, and not merely isolated diseases.

The youth, D., was one of seven children, viz.—

A. (*f.*) Has slight lateral curvature, and is somewhat ill nourished, but otherwise healthy.

B. (*f.*) Has lateral curvature, and is ill nourished and anæmic.

C. (*m.*) Healthy, but subject to occasional attacks of hypochondriasis.

D. (*m.*) Epileptic; the case mentioned above.

E. (*m.*) Died of pulmonary phthisis, with well-marked cavities.

F. (*m.*) Died in infancy in a fit.

G. (*f.*) Died after whooping-cough, probably from tuberculosis (account not clear); always ill nourished.

The father of these children was a well-made, strong-looking man, inclined to hypochondriasis, but without any sign of disease. He had had more than one attack of biliary colic. He was one of a family of seven, viz.—

A. 1. (*m.*) Himself.

B. 1. (*f.*) Married, and had several children, one of whom was insane. She herself became insane in middle life.

C. 1. (*f.*) Has lateral curvature, and had some necrosis of tibia in early life. Married, and had one child, when husband died.

D. 1. (*f.*) } Twins. D. 1 showed no signs of disease, and has
E. 1. (*f.*) } one child. E. 1 had necrosis.

F. 1. (*f.*) Married, and has children; no disease known.

G. 1. (*m.*) With a tendency to drink; married, and has children.

Of the father of these children, I learned that he died at an advanced age from an injury. A portrait showed him to have been a robust, well-formed man, without any superficial indication of disease. His wife died at an advanced age, after an attack of hemiplegia.

To return to the original family (A, &c.). Their mother died of cirrhosis, induced by an incurable tendency to drink, accompanied by melancholia. She had marked lateral curvature. She was one of six children, viz.—

α 1. (*m.*) Died insane, of phthisis, at the age of 28.

β 1. (*m.*) Had a tendency to drink. Died of phthisis at the age of 30. Married; had one child.

γ 1. (*f.*) Had lateral curvature; had hæmoptysis, and died of lung disease. Married, but no children.

δ 1. (*f.*) Had lateral curvature, but otherwise healthy. Married, and had several children.

ϵ 1. (*f.*) The mother of the family.

ζ 1. (*m.*) Without any other sign of disease than a tendency to drink.

The father of these children died insane at an advanced age.

His father died of phthisis, and his mother became melancholic and killed herself.

Their mother had three sisters, two of whom were incurable drunkards, while the third had lateral curvature.

I was thus able to collect some history of 29 persons, most of whom I actually saw, and among these the following hereditary affections were distributed:—

Phthisis	5
Lateral curvature or bone-disease .	6
Insanity	3
A tendency to drink . . .	5
Epilepsy	2
Making a total of . .	21

One of the cases of phthisis was also a lunatic and another a drunkard. I have but little doubt that, had a more extended investigation been possible, the proportion would not have been very greatly reduced.

The *phthisis asthmatica* of Morton was to be seen very often in the Casualty Department, and is surely an excellent term for one form of the disease. It is common in night-watchmen. Men employed for this duty are of two kinds. One set are robust, muscular men, who are, I suppose, expected to defend as well as to watch property. These become subjects of general emphysema, but true phthisis asthmatica is found in the other class, who are debilitated men, chosen for a post in which strength is not required, and often because they are crippled and cannot earn money in any other way. They have a chronic cough, worse in winter, but not leaving them in summer. Their chests are not barrel-shaped, and very often their cardiac area exhibits the normal extent of dulness; but the respiratory muscles are hypertrophied, and slight exertion or slight venous congestion from any cause brings on an attack of dyspnœa. In some cases, of which I have notes, dulness was observed under one or both clavicles, but not above them. A subcrepitant rale was usually to be heard, though not every day that the patient attended. When at his worst, the patient's temperature was raised, and he had to take to bed more than once in the course of the winter and spring, and though sometimes stationary in bulk for a time, wasted gradually, and never gained flesh or became of a good colour. The history usually stated that the cough had been in

existence for some years. I made a post-mortem examination of one of these cases, and found all the signs of a lung disease, sometimes progressive, sometimes stationary. The bases of the lungs were without internal disease or external adhesion. The apices above the clavicles were formed of a few greatly dilated vesicles. The lungs were firmly adherent to the chest wall, at the level of the clavicles and upper two pairs of ribs, and at this point in their tissue were bands of fibrous tissue, with old gritty material here and there, and a few patches of recent grey tubercles. In this particular case there was some hæmoptysis before death, and slight hæmoptysis now and then helps to distinguish these cases, where dulness is not marked, from cases of bronchitis with emphysema.

I observed numerous additional cases, confirming the observation published by me in the "St. Bartholomew's Hospital Reports,"[1] that enlarged tonsils are a cause of cup-shaped depression of the chest, and that with their removal the depression disappears. The daily pressure of a last is another cause of such depressions, and may be observed in many shoemakers.

Robert Lye, aged 39, a shoemaker, from childhood had a chest the physical signs of which were normal. He had never suffered from lung or heart disease, and his tonsils were not enlarged. His chest exhibited the depression shown in this diagram.

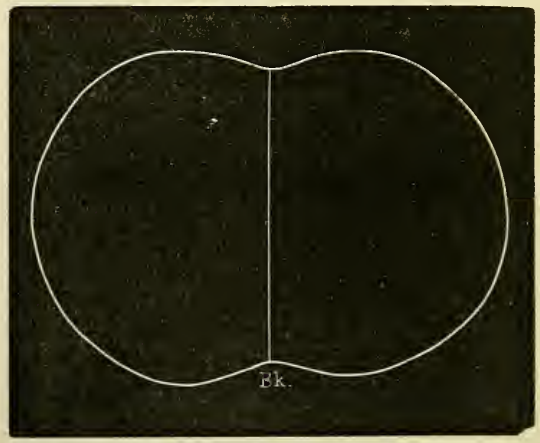


Fig. 4.

Most accounts of changes in the shape of the chest being due to external blows, &c., are to be received with caution; but in this kind there can be no doubt that the constant pressure of the last counteracts internal air-pressure and prevents expansion.

[1] Vol. x. p. 129.

The primary case is therefore the converse of that acting in cases of enlarged tonsils. There it is the internal collapse which enables the atmosphere to press in the chest wall.

I observed one external feature of the chest due to a trade, and hitherto, I believe, unnoticed in books on medicine; and as in some cases it was associated with physical signs of internal changes, it deserves notice.

Chairmakers use a chisel in cutting the deep mortices by which the several parts of the woodwork of a chair are fitted together, and the handle of this chisel they often place against the upper part of the chest wall; as the woods are often very hard, the pressure required is great. A brownish callosity of the size of a florin may often be observed just below the middle point of the clavicle. The pressure on a part where the pleura is but little protected often causes some internal inflammation, and a local thickening of the pleura.

The first case which led me to observe this affection was that of a man, Thomas Crossingham, aged 56 years. I had made him take his clothes off in order to examine his heart. I found its sounds normal. His chest was somewhat too round, from emphysema, and cardiac and hepatic dulness were diminished. For the rest, the percussion note and breathing sounds were normal, except at one spot, of half-crown size, on the right side, just under the middle point of the clavicle. Over this spot resonance was distinctly impaired, and a well-marked friction sound was audible. This was evidently due to some old condition, as his temperature and pulse were normal No discoloured callosity was apparent, though a close examination showed some thickening of the skin. On inquiry, I found that he was a chairmaker, and always worked with his chisel on this spot. In this case, the internal physical signs led me to their external cause; after it, I examined every chairmaker who came. When there was a callosity over the first intercostal space, I usually found physical signs pointing to a thickened pleura. Where there was no callosity, I found either the man put together wood in ready-made pieces, which is another variety of the trade, or that he placed the chisel against some other part. I met several who put it against the forehead. Some press from the upper part of the humerus, others from the distal end of the clavicle. In one case a man put the chisel against the most prominent part of the anterior convexity of the clavicle. He had a distinct thickening there, but the first intercostal space was unaffected, and his chest showed no abnormal physical signs.

I append notes of six other cases of chairmakers, in which the callosity and the signs of old local pleurisy were well marked.

William Cole, aged 22 years, had slight thickening of the skin over a small area of the first right intercostal space, one inch and a half from the edge of the sternum. Over the same area there is on firm percussion a distinct impairment of resonance. At the same spot, when he draws a deep breath, and there only, a distinct dry creaking sound is audible.

Charles Houghton, aged 46 years, has a shallow chest, and has had hæmoptysis. There is a slight callosity under the right clavicle, one inch from the right edge of the sternum. It is rather less than a florin. Over this spot, and near it, the resonance is impaired on deep as well as on slight percussion. He has bronchitis, and rhonchal sounds are audible all over the chest, but at this spot a distinct friction sound is to be heard. This was on June 8. On July 27 the bronchitis was well, and all rhonchal sound had gone, but the local friction sound remained.

John Brown, aged 32 years, has a shallow chest. There is a callosity on the chest wall under the middle point of his right clavicle, and over the same region there is distinct impairment of resonance. He has bronchitis, with loud rhonchal and sibilant rales all over the chest. No local friction sound.

George Baker, aged 22 years, has a well-shaped chest. Just below the middle point of the right clavicle is a brownish callosity as large as a florin. Over this area, and around it for a little way, there is impairment of resonance. On auscultation a very distinct friction sound, confined to this locality, is audible. On making him speak, no ægophony was heard.

John Ollington, aged 29 years, a left-handed man. His chest has some marks of old rickets, but is otherwise normal. Two and a quarter inches from the left edge of the sternum, just below the clavicle, is a callosity of no great thickness. Over its area resonance is slightly impaired, and there is a very loud sharp friction sound. For the rest, the physical signs of the chest are normal.

In the case of Henry Patterson, aged 26 years, I noticed a patch of dulness and a localised friction sound on the right side of the chest, two inches from the right edge of the sternum, and on inquiry found that he had followed chairmaking for some years, and had given it up to become a cabinetmaker.

In these seven cases, in two of which the physical signs led to the discovery of the occupation, the pressing of the chisel was no doubt the cause of the local pleurisy.

Croupous bronchitis was rare, and I only came across three distinct cases. The physical signs, in a patient who produced a well-marked branched fibrinous cast, were :—

Percussion: no impairment of resonance, front or back.

Auscultation: a subcrepitant rale, not at all sharp in tone, was to be heard at the left apex and right apex; elsewhere, in front and all over the back, a rhonchal sound was heard.

This patient never showed any acute febrile symptoms, but had occasional attacks of hæmoptysis. She was a married woman, aged 28 years, and had had a cough from the beginning of April to July 7, on which day I first saw her. I saw her three times, and then not for about two months, when she had ceased to bring up fibrinous sputa, and was without cough.

It is stated by Niemeyer that the sputa of croupous bronchitis are usually marked with blood, and this case illustrated the assertion. It was probably this fact, added to the branched appearance of the sputum, that led Tulpius and other discerning physicians to think that the fibrinous clots were actual blood-vessels.

It is not very rare to see ascaris lumbricoides come out of the mouth. A cough may cause its expulsion, but it, of course, comes from the alimentary, and not from the respiratory track. In the Casualty Department, a patient named Katharine Drury, aged 58 years, had attended from 2d June for a cough which she had had for two months. The cough began by an attack of hæmoptysis. Her sputum on two occasions contained a whiteish gritty material, which was calcareous, and under the microscope only showed amorphous granules.

On 12th June she coughed up, in my presence, a small oxyuris vermicularis. It was living, and seemed to me to come from the respiratory tract. I examined it under the microscope, and determined the species and sex. The patient was a sensible person, without any hysterical tendency. She coughed up no more grit and no other worm, and ceased to attend because her cough became less.

Rheumatism in every form was, of course, represented by hundreds of cases; but a table of cases noted of three diseases often associated with acute rheumatism does not bring out the relation strongly, though a previous attack of rheumatism was always asked for. In the nineteen cases of erythema nodosum and herpes zoster there was no history of rheumatism, and out of twenty-three cases of chorea only five had a history of rheumatism. The tables further illustrate the age of occurrence, the frequency of cardiac murmurs in chorea, and the situation of the eruption in herpes zoster.

Table of Cases of Chorea.

Sex.	Age.	Heart.	Previous Attack.	Rheumatism.
F.	5	Systolic apex-murmur audible behind.	...	...
F.	18	...	2 years ago, then also herpes zoster.	...
F.	7	...	1	...
M.	12	...	3 years ago.	...
F.	11	Systolic apex-murmur audible behind.	4	...
F.	10	...	...	1 year ago.
M.	12	...	...	Several attacks.
F.	10	...	...	3 years ago.
F.	16	Præsystolic murmur at apex.	...	...
F.	14	...	...	...
F.	8	...	...	...
F.	8	...	...	...
F.	17	...	...	...
F.	9	...	...	3 years ago.
F.	6	Systolic murmur not audible behind.	...	...
F.	11	...	3	...
F.	9	Systolic apex-murmur audible behind.	3	...
F.	8	...	1	...
F.	9	Systolic apex-murmur not audible behind.	...	...
F.	17	...	...	...
F.	15	Systolic apex-murmur audible behind.	...	...
M.	14	...	...	...
F.	12	...	...	Several attacks.

Table of Cases of Erythema Nodosum.

Sex.	Age, in Years.	Heart.	Previous Attack.
M.	10	Not affected.	...
M.	48	Do.	One a year ago.
F.	50	Do.	One.
M.	13	Do.	...
F.	48	Do.	...
F.	16	Do.	...
F.	21	Mitral Disease.	...

TABLE OF CASES OF HERPES ZOSTER.

Sex.	Age, in Years.	Situation.	Previous Attack.
F.	12	4th rib right side.	None in any of the Cases.
F.	10	3rd rib behind, left side, 4th in front at sternum, 5th in axilla.	
M.	50	Costal arch left.	
F.	24	4th rib.	
M.	16	Level of tip of ensiform cartilage.	
F.	14	4th rib left.	
F.	18	3rd rib.	
F.	10	3rd rib.	
F.	8	Level of angle of scapula.	
F.	18	3rd rib.	
M.	9	Left spine of scapula.	
F.	12	Right costal arch.	

The opportunities of the Department do not allow of a minute investigation of the many forms of disease of the nervous system which appear; the observation of the most interesting of which the casualty physician is compelled to relegate to the out-patient room.

A case of alternate hemiplegia, of which my first notes were made in John Ward when house-physician for Dr. Harris, deserves record from the rarity of the affection.

James Keyser, aged 36 years, a benchmaker, was admitted on February 4, 1874. On January 25 he had an attack of vomiting one morning before getting up, and on getting up he found his mouth drawn to the left side, and the left side of his body numb. His face had always been quite right before. He had not been drunk the night before, and does not drink regularly, but on the previous day he sometimes saw double.

February 4.—His pupils are equal. His mouth is drawn to the left side, his right cheek hangs when he tries to whistle, and fluids and food run out at the right corner of his mouth. Sensation and motion are impaired on the left side, but he can walk, though he does not, he says, feel the ground properly. He cannot walk without support, as he can only just move his left leg. His left arm does not move as well as the right, but is less affected than the leg. He does not feel very ill, and has a fair appetite. The physical signs of his chest are normal. His urine is normal.

February 5.—When he frowns the left side of the forehead only is wrinkled, the right is motionless. He cannot shut his

right eye. He seems to have a difficulty in protruding his tongue, but it is protruded straight forwards. He is somewhat deaf (and says he was not so before) on the left side; on the right side his hearing is perfect.

February 7.—He has regained almost complete freedom of movement with left arm.

February 9.—Sensation is distinctly impaired, as ascertained by a pair of pointed compasses, on both the left arm and left leg, though on the two sides of the chest sensation is equal. On the dorsum of the left foot he feels the two points as one up to $1\frac{2}{8}$ inches; while, on the right foot, he can feel two points distinctly as two, though only $\frac{1}{8}$th of an inch apart. The movements of the head are unaffected. The paralysis in the face is unchanged, except that he has less difficulty in protruding his tongue. It is still protruded straight forwards. He speaks tolerably clearly, and has no aphasia.

February 14.—He still has difficulty in walking, but walks a little better than before. He can put out his tongue somewhat farther, but the two sides have not the same feeling on being touched. The right side is soft, the left quite firm, as felt when the tongue is protruded. Taste is absent on the right side; he noticed no difference between sugar, salt, acetic acid, and ink, when I placed each in turn on the right side of his tongue; on the left side taste was perfect. The inability to frown on the right side and to shut his eye is as marked as before. The uvula hangs straight.

February 17.—He complains of headache and buzzing in the left ear. When he has walked a little he feels giddy.

February 21.—The giddiness, buzzing in the left ear, and frontal headache continue. He can walk better, but uses his left leg stiffly.

March 14.—On this day he went out. His condition as to his face and as to taste was unchanged; his arm was quite well as to motion, his leg nearly so; sensation was still slightly impaired in both.

Two years later I saw him in the Casualty Department. He had not regained taste, but he had the power of shutting his eye and of frowning, though both were distinctly less on the right than on the left side. Sensation and motion were still slightly impaired on the left side, but he has been able to follow his trade since he was in Hospital. He came for a frontal headache, with which, and with constipation, he is much troubled.

Some cases of supposed alternate hemiplegia have been really cases in which there was a facial paralysis due to local cause, and

unconnected with the lesion which produced the hemiplegia. But in this case the history was clear, and a lesion of the pons varolii may be presumed to exist. I could make out no indication of its precise nature, but the almost complete recovery would seem to point to hæmorrhage rather than to tumour.

I met with two curious examples of partial aphasia, of which I could learn no precise cause. George Quarrell, aged 20, brought his name written on a slip of paper. I asked why? He said he could not say it. I asked him to try. He said he could not; that he had tried it, and it pained him so much that he would not try any more. The difficulty had come on suddenly a year ago. A relative had written down the name, as he himself could not write. I tried in every way to get him to say his name, but he could not. Sometimes he talked with obvious effort, but he recollected all the words necessary to continue a long conversation on his work and residence. He said that he could not get out some words, but I could not come across any of these, nor could he tell what kind of words they were. He had no paralysis, and gave no history of any, and he was intelligent and straightforward in his talk. His heart-sounds were normal. He had come for a cold, and came but once.

Robert Davey, aged 52 years, had had an attack of paralysis seven months before, and when I saw him on January 9, 1877, could not get his surname right, saying Havey instead of Davey. I got him to write it, and he wrote Robert Havey, but said it was wrong, and after looking at it for a time corrected it into Davey, which he could then say. He had no distinct fit, but suddenly, as he said, became dumb on May 31, 1876, and continued unable to get out a word for three days. He speaks well enough now, except that he cannot regulate the pitch or force of his voice accurately. He did not recover completely at once, but gradually seemed to get back most words. He is a printer; but though he can read a heading, he cannot now follow a newspaper, nor can he, he says, indite a letter. He has, he adds, no orthography. At some times his words seem to come to him better than at others. He can force himself to write a few sentences by taking a dictionary and searching till he finds the words he wants to spell. His right hand was a little affected, but is now quite well. His leg was not affected.

Four cases of facial paralysis were observed from near the beginning to a favourable termination, and illustrate the progress and duration of the disease.

I. George Kimber, aged 17 years, a tinman, had had paralysis of the left side of his face for fourteen days when he first came.

He could give no history of its origin. His face was drawn to the right side, his tongue on protrusion pushed over to the left, and he was unable to shut his left eye. This was on January 23, 1876.

On January 26, he could shut his eye more nearly, but for the rest the paralysis was unchanged.

On January 30, his eye was still better; and on February 2, there was the further improvement that his mouth was less drawn to the right. And on February 6, though his eye was very watery, and not any further improved, his mouth was a little straighter.

On February 27, his mouth was very little drawn to the right, but when shut at the right, remained slightly open at the left angle. He could shut his left eye, though not so tightly as the right, and the left eye still waters very much. He said that the night before he whistled for the first time since his seizure, but he could not do so before me in the morning. The tongue was this day protruded quite straight, but his brow is still capable of but little movement on the left side.

On March 6, his left eye still watered much, but he could for the first time close it without closing the other.

On March 20, except that his left eye still waters, and that his lip quivers a little on action, he was quite well, and could frown and whistle perfectly.

I treated the case by giving him linimentum saponis co., to be rubbed on the left side of the face, and by galvanism over the affected nerve and muscles twice a week.

II. William Hanson, aged 32 years, came on August 6, 1875, having had paralysis of the left side of his face for twenty-three days. His left eye is seen to be more widely open than his right. He cannot shut it, but pulls the lid down at night, and says that it stays down. When he tries to shut his eye, the lids do not move, but the eye itself rolls upwards. There is no watering of the eye. His tongue is protruded to the left, but the occipito-frontalis muscle is unaffected.

He cannot tell how it occurred. He complained of slight soreness on pressure just under the edge of the left malar bone. The mouth was unaffected. On August 23, he had a little power, though very little, in the left upper eyelid. His tongue was somewhat straighter when protruded.

On September 2, his face was much better, though he could not yet shut his left eye completely; and on September 28, his tongue was protruded straight, and the only paralysis remaining was that of the left eye. This did not quite disappear till October 22, when he could for the first time shut the left eye

by itself, and both eyes with equal force. He was treated by rubbing in of lin. saponis co., and by a draught of quinine and iodide of potassium.

III. Francis O'Maelchonaire, aged 63 years, a butcher, had been deaf on the left side after waking with an ear-ache a week ago. At the same time he noticed his face awry.

He could not shut his left eye, and it watered much. His mouth was much drawn to the right, but his tongue is protruded straight. His brow was not affected much. On January 30, his eye began to be a little better. On February 2, his mouth was somewhat straighter. On April 10, his mouth was straight and his face quite well, except that his eye still watered a little. The deafness continued. He is sure it did not exist before the attack of paralysis.

The case was treated with lin. sap. co.

John Day, aged 14 years, came on June 15, 1875, with paralysis of the left side of the face, of about a week's duration. His whole face was drawn to the right side; he could not frown on the left side, nor shut the left angle of his mouth completely. He noticed the paralysis on waking one morning, but had not been sleeping near a window or door.

In three days his face was almost well; the only symptom of paralysis being that he could not quite shut the left eye, and in one week more his face was quite well. He was also treated by rubbing in of lin. sap. co.

It will be noticed that in three of these cases from seventy to ninety days elapsed between the attack and recovery, while the last was of less than twenty days' duration.

I met with one case of laryngismus stridulus at the somewhat late age of eight years. The subject was a boy, whom I saw in the attack. He gave out a loud crowing sound with inspiration. He did not get blue, and his pulse was regular and not rapid. He had slightly enlarged tonsils. The attacks were said to last from one to six hours, and sometimes to recur every day for a fortnight. The first, his mother said, occurred when he was six years old.

Cases of chronic hydrocephalus were rare. In one case, by the kindness of Dr. Black, I was able to try the effect of tapping the skull. The child had been born without difficulty, but at five weeks old was noticed to have a large head, which rapidly increased. When I saw the child on September 8, 1875, it was three months old. Its orbital plates were much depressed, and its head enormously enlarged. On September 14, Mr. Langton, at my request, pierced its head in the descending part of the great fontanelle on the right side with a trocar of somewhat more than

crowquill size, driven a full inch into the head. The operation gave rise to no nervous symptoms, nor was the pulse quickened. A large quantity (I have lost the note of its precise amount) of clear fluid was let out, the head seemed about to collapse as the frontal, parietal, and occipital bones fell together. The child, which had before lain moaning without sleep, seemed much relieved, and fell asleep.

The head was bandaged, but soon filled again, and on September 20 it was again tapped, and fifteen ounces of highly albuminous clear fluid let out, and again with obvious relief. There were no nervous symptoms at the time. After this the child went home, and the parents foolishly refused to have it tapped any more. In a few days the head filled, and the child died in a convulsion on October 5th. Since the tapping gave relief and caused no nervous disturbance, it would have been worth while to continue it with the chance that the removal of pressure might have enabled the brain to regain a normal condition, though of course the chance of this was very small indeed. The accompanying outline is of the

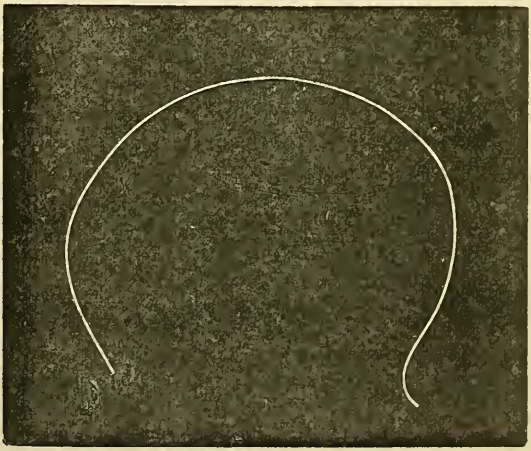


Fig. 5.

head before tapping, from the root of the nose to the hollow of the neck. From the most prominent part of the frontal bone to that of the occipital, taking a horizontal line, measured on the unreduced drawing seven inches and a quarter. In a healthy child of the same age the same line measured $5\frac{3}{8}$ inches.

Anæmia in all its forms was seen in hundreds of patients, but I met with one example which differed from any I have seen before or since. The patient was named Eleanor MacBloscaidh, and was

fifteen months old. The child was at the breast, and the mother was well built and of a good complexion. The infant was of an extreme waxy paleness. Its spleen and its lymphatics showed no enlargement; it had lost no blood; its lungs gave normal physical signs. It had no diarrhœa. I examined it minutely for an abscess, but found none. The gums showed no blue line, and it had teeth. It had been of this colour from birth. At the third intercostal space on the left side there was a distinct systolic murmur, and the second sound was accentuated at the base. I ordered it to be weaned. A fortnight after I saw it once more, and it then had a slightly less waxy colour. I could find no cause but the over-suckling for the anæmia, and if the pallor had existed from birth, this cannot have been the cause.

I came across two curious congenital malformations in children.

In George Free, aged 1 year and 8 months, the right eyeball was very small indeed, the left of normal size. The orbits were equal in size, but the opening of the eyelids was smaller on the right than on the left side. The iris and pupil seemed well formed, and the mother asserted that he saw with the small eye; but of this I could not satisfy myself. At birth the defect was noticed; scarcely any eye at all was to be seen then. The iris of the small eye is of the same colour as that of the normal eye. The eyes of both father and mother were normal.

Florence Grant, aged 1 year and 5 months, had a large right ear and a very small but perfect left ear. It was not quite half as large as the right ear, which was of natural size. The right leg and arm were a little larger than those of the left side, though all four were properly formed and useful.

Cases of goitre were not rare in women. The following table exhibits the chief features of eleven cases. In all these cases a bougie was passed down the œsophagus, and what adhered to it on withdrawal was examined microscopically, in hopes of finding proof of some ulceration of the œsophagus. Dr. Matthew Baillie[1] expresses the opinion that enlargements of the thyroid may have some relation to ulcers of the œsophagus. In the following eleven cases, however, there was no pain on swallowing, and none on passing the bougie, and the microscope never showed any pus cells. The case of Kate Crawley deserves attention, because it seems to have been one of temporary engorgement reduced by hæmorrhage, though what was the precise seat of the hæmorrhage I did not succeed in determining.

[1] Morbid Anatomy, 3d edition, London, 1807, p. 87.

TABLE OF CASES OF ENLARGEMENT OF THE THYROID GLAND.

Name.	Age, in Years.	Occupation.	Description of Enlargement.	Exophthalmos.	History.
Ashford, Emma	7	School	The whole gland somewhat enlarged.	...	Health good.
Kenny, Anne	15	Tiemaker	Both sides, right most, and isthmus	...	Has enlarged gradually for a year.
Simpson, Eleanor	17	Shop girl	Both sides enlarged, rightmost so. Not very hard.	...	Has been noticed for 8 months. She was born in London. Complains of palpitation of heart.
Crawley, Kate	20	Collarmaker	Isthmus only enlarged. Not painful on pressure.	...	She first came on Sept. 18, 1875, and had then noticed the swelling 8 weeks. On Oct. 13 she had an attack of spitting of blood, and by Nov. 20 this had ceased, and the thyroid was of normal size. Chest: normal.
Dyall, Eliza	22	Maid-servant	Left lobe enlarged; soft. No pain.	...	After treatment from July 5 to Oct. 4, the tumour was a little smaller. Quinine and iodide of potassium were given. She was born in London.
Cleveland, Anne	23	Housewife	Very small local tumour on right side.	...	
Williams, Deborah	23	Sempstress	Left lobe much enlarged; right slightly so.	...	The enlargement has been noticed for 5 months.
Blatch, Sarah	28	Cook	Both lobes, the right most.	...	Swelling has existed 13 years. She was born in Essex.
Gaw, Ainm	40	Not noted	A small local tumour of the right side.	...	Born in Germany.
Mountier, Rebecca	42	Not noted	Right lobe slightly enlarged.	...	The swelling has been noticed 6 months.
Richards, Elizabeth	...	Housewife	Both lobes enlarged.	...	2 years' duration.

The general experience of the Casualty Department leads to the conviction of how much a little education might do to prevent disease. An enormous proportion of the cases are due to preventible causes. Every form of disease engendered by tight lacing is common among the women. It aggravates every attack of bronchitis, and is a chief factor of half the cases of

indigestion. The accompanying drawing has been made from a photograph of the liver of a tight-laced woman (fig. 6).

More extreme examples might be found, but in this the lower part of the liver was separated from the upper by a band of atrophied tissue, in which there can have been but little functional activity. I put the drawing here because it is a key to the history of so many of the female casualty cases. Among the children, improper feeding and over-suckling are the cause of a large number of the maladies.

The male patients, who are always fewer in number than the women, show a smaller proportion of preventible disease; but

Fig. 6.

amongst them a large number of cases are due to the practice of drinking beer and spirits between meals. I found this to be the cause of hundreds of cases of disordered digestive functions.

Two groups of preventible diseases, those due to actual drunkenness and those arising from want of cleanliness, were to be seen among both men and women.

As regards the prevention of disease, the Casualty Department convinced me that it is our duty to take every opportunity of promoting the teaching of elementary physiology and elementary hygiene in all schools. In the practice of medicine, I think the chief lesson I learnt was the importance of not thinking too exclusively of this or that organ, but of paying attention to the general result of disease upon a patient.

AN ACCOUNT

OF

THE CASUALTY DEPARTMENT.

BY

ROBERT BRIDGES, M.B.

The number of persons who annually make use of the public charities of London is a matter of varied interest; not only is it a source of emulation and comparative self-congratulation to the benevolent and active bodies of men whose pride it is to rule these institutions, but it has become a practical inconvenience to the physicians, and of late a subject for the criticism of economical reformers, who, having established their first principles on common sense, have thereupon exposed a vast system of undeniable abuse. Since the days of David the pride of numbers has never received such a crushing rebuke as they have meted out to hospital statistics: their sweeping condemnation of all gratuitous relief has made Charity herself shake in her shoes; and they have at least thrown the onus of self-examination, if not of self-justification, on the shoulders of those whom they proclaim the chiefest offenders.

It is not for physicians and surgeons to meddle in any politico-economical question that is not purely sanitary, or concerned with the rights and duties of their profession. No reproach can be cast on them above others for their share in this matter, nor can they be called upon to defend it, or to initiate any measure for its rectification. But it lies in their power to give evidence of a sort not attainable elsewhere; and it is the publication of such evidence that is the aim and excuse of this paper.

Any one with an eye for figures reading the clerk's report of St. Bartholomew's Hospital for the year, say 1877, must, if previously unused to such facts, feel his mind somewhat unhinged by the statement that 157,947 patients were relieved at that

institution in the course of the year. He might cut out the five thousand and odd in-patients, and the 780 women attended at their homes, but he would still be left with a total of 151,836 persons who were actually registered as visiting the Hospital, presumably for the first time, and having their complaints investigated and treated. He will see that this is at the rate of more than 20 patients an hour day and night for all days but Sundays throughout the year; or, counting the days as of twelve hours, which is but reasonable, 40 patients per hour.

What a busy scene he will picture to himself! Where in the world, he will ask, do all these patients come from? What is the matter with them? Have they anything the matter with them? What becomes of them afterwards? Do they ever go there again? How is it possible to attend to them when they do go? How are they counted, sorted, recognised, prescribed for, dispensed for? What quantity and what sort of medicine do they consume? What does it all cost? Who pays for it, and what is the use of it?

These and many other questions actually arise, but two above others demand solution. First, where do they come from? Now, though we are not concerned to answer this at all, it is in itself a matter of importance; for it requires very little calculation to show that if 150,000 and odd patients are attended every year, then in thirty years, or one generation, more than four and a half millions of persons (that is, every man, woman, and child of the whole population of London) suffer from some ailment or accident for which they seek and obtain relief at St. Bartholomew's Hospital: and a further question arises as to whether the competency of the casualty physicians may not affect the death-rate, or even the future prosperity of the kingdom. I leave this for the political economists.

But on the second question, How can they be attended to? I hope to throw some light. However, before I do so, it would be well to dispel any doubt the reader may have as to the credibility of the figures. Strange as it may appear, the fact is that they much understate the reality. In the clerk's report, it is true, many cases are registered twice, since most of the out-patients have already made their appearance as casualty patients; but since they come as out-patients under a different medical officer, they are virtually, as far as time and trouble go, new patients a second time; while, on the other hand, there is no allowance made for the numerous patients who escape registration, nor is there any account taken of the number of the visits that a large proportion of all patients make to their respective physicians and surgeons before their cure is pro-

nounced complete or hopeless, or indifference or weariness of the whole concern lead them to break off their connection with it. Now, as the relation of old cases to new is in the Casualty Department about one to three, and in the Out-patient Department three to one, the total 151,836 should be put nearer 200,000, which is about a patient a minute, supposing physicians and surgeons to work twelve hours a day. The question now is, How is this performed?—and since any account of it will be difficult to follow without a glimpse of the machinery, I intend to describe the "Casualty" Department, as it is called, before I enter into those details of the working of it which my experience and the statistics I have collected enable me to give.

The surgery is a large hall, 90 feet by 30 feet, with rooms opening off it at the four corners, and two enclosed spaces about the centre of it, shut in with screens; the rest of the area is set out with forms. In the middle of the long side facing the market is the entrance, the men and women entering by different doors. In the middle of the other long side, opposite the entrance, are the counters of the dispensary of common drugs, served by nurses. One half of the hall, with the rooms off it, is devoted to the women, the other half to men. A casualty physician and a house-surgeon attend at each end; the centre enclosures contain besides the junior assistant-surgeon, and on busy mornings the junior assistant-physician.

The work is done in the mornings, and patients are admitted at nine o'clock. To say that the doors are thrown open to them, however, would give a false idea of the extreme jealousy which regulates their admission. The doors are forcibly held ajar by the porters in livery, just so as to let them squeeze in one by one, and each, before he enters and receives his zinc ticket, must answer a crucial question, which determines him, rightly or wrongly, to be a medical or surgical patient. If he has been there before, and can show a paper bearing the name of one of the physicians or surgeons present on that day, he is asked no questions, but walks off and takes the nearest vacant seat he can find to the place where he was attended to before. This goes on from nine o'clock, till the stream, gradually failing, is shut off by closing the doors at ten o'clock precisely.

If any one should go into the hall at about twenty minutes past nine, he would see some hundred persons standing in an orderly manner, trying to look as if they were not pushing towards the various exits and entrances, and some four hundred others ranged on the forms; the women engaged in conversation, the men waiting in silence. If he goes out and comes in again at eleven, he will frequently find the room nearly or quite empty.

The staff of persons who perform this feat of clearing the hall consists of the junior assistant-physician and three casualty physicians, the assistant-surgeon, the four house-surgeons with their dressers. I am not concerned with the surgeons, and I do not wish anything I may assert of the medical side to be construed to their prejudice. Reference to the statistics suggests that they are not so much pressed for time; while the absence of any surgical officers corresponding to the casualty physicians shows that the work that falls to their lot is not considered so laborious, though without this assistance it may reasonably be inferred to be more so.

The medical staff, then, consists of three casualty physicians, each of whom attends on four mornings of the week, twice at the men's and twice at the women's end; and on the four busiest mornings of the week the junior assistant-physician also sits in the room made of screens from nine till ten. So that there is always one physician at each end every morning, one for the men and one for the women, and occasionally a physician with general duties in the centre.

Having seen the physicians to their rooms and the patients to their forms, it only remains to describe the arrangement of the dispensary. In the surgical dispensary, a certain number of drugs and lotions are kept for common use; emetics, drastics, tonics, astringents, and emollients of unquestioned efficacy. Small square tickets, bearing the printed initials of these medicines, are supplied freely to the physicians, who give them freely to the patients, who show them at the windows with a bottle, which is at once filled from the corresponding jug, M or N, as the case may be. But cases which require specifics or remedies not in this elemental repertory have their prescriptions made up for them at the Hospital dispensary, which cannot be reached except by passing through the Hospital quadrangle, a thing to be avoided as much as possible; and these prescriptions may be written either on a slip of paper which is kept at the dispensary, or on a printed form, which is really an out-patient letter with all its duties and responsibilities.

It might perhaps be thought that the virtue of a casualty physician was distributive justice. In a better world no doubt it would be; as things are, there are several considerations which override strict justice. He has, for instance, to weigh the inconvenience of overcrowding the Hospital dispensary against the lesser, or at least less visible, inconvenience of treating a number of different complaints with the same medicine; but what stands most in his way is no doubt his want of time. How much time he has, I should rather say how little, I will show later on. At

present, I will merely state that it is not unusual for a casualty physician to see 150 patients in less than two hours; and I shall not be using extravagant language if I call this quick work, and say that very great accuracy cannot be arrived at in such hasty proceedings. Indeed, it is not easy to see what he can be supposed to do except work miracles, considering that if he had only to take down the patients' names and addresses he would be over-occupied; and yet his duties are very distinctly understood. A metaphor is usually employed to define them. If a casualty physician were to complain of the number of cases he has to see, he would probably be told that he is not supposed to attend to them or prescribe for them very much; that the surgery is the filter of the hospital, or that he himself is the filter. It is in vain to point out that filtering is of necessity a process slow in proportion to its efficacy, while the quick filtering of patients is almost unintelligible. Making bricks without straw cannot be compared to it; that is done every day, but filtering quickly is a contradiction in terms. And yet filter he must, and filter quickly too; and be prepared to hear his quick filtrate shamefully ill-spoken of in the wards and in the out-patient rooms. But this theory of a system, which breaks down as soon as it is seriously examined, and has only one ground of defence, which I will examine later, vanishes like smoke when a physician finds himself face to face with some 200 paupers, who are many of them seriously ill, some mortally, many but slightly, but nearly all with considerable bodily inconvenience or pain, which, unless disease be a joke, and this the whole constitution of our Hospital forbids us to suppose, entitles them to his patient attention and investigation, and demands his skill and advice. He will decide at once that what he has to do is the best that can be done for every individual case under the circumstances, and he will make the best of a bad business, and take it patiently, even when his filtrate comes bubbling back into the surgery from the steward's office because there is no vacant bed, or from the out-patient room because it was not filtered before eleven A.M.

From the first day when I, with much fear and reluctance, which I am glad I overcame, undertook the duties of filtrator, I was unpleasantly aware of the responsibility and difficulty of the task; and being afraid lest, through seeing this great number so hastily day after day, I should, from ignorance of what happened to them, slide into indifference, I made a system of hieroglyphics, by means of which I checked off each patient as I dismissed him, the sign showing me what medicine he had had, whether I considered him seriously ill or no, whether he had

attended before, and if so with what result. I used these signs for a year, and have put together one quarter's figures, made up partly from the winter and partly from the summer months. These are the statistics I depend on for my facts, and as I have just been through the dreary labour of adding them up, I feel inclined to begin by presenting the reader with the total.

I saw, then, in three months 7735 patients, and of these 5330 were new cases.

Before going further into details, I will compare these vast numbers with those of the clerk's report. According to mine, I see 30,940 patients in the year. Each of the other casualty physicians doing the same work, the total amongst us for the year would be 92,820. Add to this 25,168 seen by the assistant-physician (which is a total made up from an average of eight or nine weeks), and the whole annual total of medical casualty patients will be 117,988. Now, to find the number of surgical patients to be added to this, we may use the relation between the number of medical and surgical patients in the clerk's report; and this, which is very much under the mark, will give 45,205 for surgical casualty visits. Add again 21,324 out-patient visits (which is the number of new cases multiplied by 4), and the whole or grand total is 187,517 visits; which a truer estimate of surgical visits would no doubt raise to 190,000.

Thirty thousand patients in the year! I have examined every possible source of error. I have even looked in the almanac to reassure myself as to the number of months and days in the year, and am, after all, reduced to asking others to believe, on my authority, a statement which I have difficulty in believing myself. Let us suppose it an hypothesis, and not a fact, but proceeding on this hypothesis that I saw 30,000 patients in the year—I may disregard the odd hundreds—it will seem reasonable in me to ask for some allowance if I fall short of the reader's expectation, as I have of my own, in the minuteness of the detail which I have promised him.

I will speak first of the old patients, who, in my quarter of a year, numbered 2392. Of these, 1606, or about two-thirds of the whole, "expressed themselves as feeling better," and in my opinion were the better for their treatment; 218 became out-patients, the greater part because they were too late for filtration on their first visit, others because I was dissatisfied with their progress, or wished to be rid of them; and 27 became obstetrical out-patients. So that out of 2392 there remain only 541 who are not satisfactorily accounted for.

But these figures are very deceptive; they are visits and not patients. The 1606 represents merely the number of times that

all the patients who took medicine with benefit returned for more; and as most of those were very regular attendants, either rickety infants, who took ol. morrh., or under-fed schoolboys, "cod-liver-oil-boys," as they called themselves, or adults who took quassia and iron, it is evident that the number of patients who pay a second visit to the Casualty Department is very small. Put it in this way. Out of my total 5330 new patients, 428 were put *hors de concours* by being admitted or made out-patients, thus reducing the total to 4902. Out of these only so many returned as to make 2392 visits. The average number of visits that each patient made might be about four, so that this number of visits represents only 598 persons. So that about one in eight of the new cases actually reappeared.

As for the 541 visits of patients who do not seem to have got any good from their attendance, the most obstinate of these eventually became out-patients, some improved and joined the 1606; but though the number of visits must by any calculation be much greater than the number of persons, I am sorry that it is so large.

Lastly, I admittted 13 of the old patients into the Hospital. These would be in almost every case instances of patients waiting for vacancies.

I now pass to the new cases. These, as I said, were 5330 in number. Of these, 46 were made in-patients. Thus, adding the 13 just mentioned above, it appears that if the other casualty physicians admitted as many as I did—and I think that as circumstances were calculated to reduce our various abilities to a level, they probably did—the department supplies the medical wards with nearly one-fourth of its cases. What happened to my quota subsequently when in the wards, I cannot say. Whether they were welcomed, or whether the house-physician turned up his nose at them, whether any of them died, whether any of them were cured, is unknown to me. The ill success of the few efforts which I made to follow up my cases in the wards so discouraged me that I relinquished the idea. It is needless to say that by the time one has got to one's 150th patient, earlier impressions have faded, and that one has a difficulty in recognising in a washed, placid, or even smiling countenance, pillowing its chin upon clean linen, the breathless, anxious, flurried, and neglected-looking face that one had regarded for a few seconds merely as a means of diagnosis. The change from perpendicular to horizontal is in itself perplexing, and, as far as memory went, the clue was lost. Then the only time I had for visiting the wards was the patients' dinner-time, when nobody was very glad to see me; and if they had been, they had no

means of knowing which were mine, or which were anybody else's cases. One needed to be reminded, and there was nothing to remind one. Since this difficulty would be at once overcome if the name of the medical officer who admitted each case was entered upon the board at the bedside, on which other particulars concerning the patient are recorded, I think it is much to be wished that such a plan should be adopted. It is done at another hospital where I see the out-patients, and I know the advantage of it. At St. Bartholomew's it would yield this further benefit, that whereas at present the casualty physicians only get the credit of the bad cases, as they are called, this overworked and under-estimated body of men would be vindicated from a reproach which I believe they are far from deserving.

To return from my digression to my statistics; 294 were made out-patients and 88 referred to the obstetrical department; 3724 received their medicine in the surgery, and of these 1430 took quassia and iron, a medicine which I selected to give as frequently as possible, in consideration of its strong taste, cheapness, and innocuous properties; 975 had their medicine made up at the dispensary.

I am afraid that these dry statements must be wearying to the reader; and I do not think it is worth while to draw any averages from the old and new cases separately. Taken together they supply the following facts:—

I gave away as many as nine out-patient letters every morning, and in fifty-two days I admitted 59 patients into the Hospital. I sent 34 patients to the dispensary across the square every morning, and 102 to the jugs. On the twenty-six mornings on which I saw the women, I relegated 115 to the care of Dr. Godson, or rather more than four every morning; while of all my 7000, I gave to 751 tickets for cod-liver oil, and to as many as 1942 tickets for quassia and iron.

Now, as there is also iron in the cod-liver oil mixture, it is plain that I treated 2693 persons with the martial remedy, without counting the many others who took it in written prescriptions. This seems at first sight a large proportion, and even after all Trousseau wrote in praise of the *médicament reconstitant*, I feel surprised when I think that I should come to order over 200,000 doses of it in the course of one year; and the reader may look for some account of the numbers whom I launched on this *chemin de fer*. Making some deduction, then, on account of those to whose palates the "Queen Anne" mixture, as they called it, mistaking quassia for quinine, was only a grateful placebo, the figures do not unfairly represent the actual state of things. *Naturam morborum curationes ostendunt*, and my

treatment points to rickets, struma, phthisis, anæmia, chlorosis, neuralgia, and dyspepsia, "to pining atrophy and marasmus," rather than to the "maladies of ghastly spasm and racking torture." Atonic dyspepsia was quite as frequent as one would imagine it would be from a knowledge of the long hours that machinists and buttonhole-makers have to work, the stale air they breathe, and the cheap miscellaneous food that they are obliged to live on, and often have no appetite to eat. Q. c. F. acts like a charm upon them; the anæmia is admirably met by the iron and quassia, the former, as Claude Bernard taught, stimulating the circulation of the stomach. And this appears to me a fair account of the deep-rooted affection and respect which casualty patients all feel for this medicine. If it was prescribed by the other casualty physicians as frequently as it was by me, 30,000 patients must have carried off their pints of it during the year, without taking any account of the use the surgeons and out-patient physicians may have made of it; and their number is so large that the reader will no doubt share the desire which I felt to investigate this item of hospital expenditure.

What, then, was the cost of treating my 1942 patients with Q. c. F.? Quassia costs about 18s. per cwt., and two ounces of it will make a gallon of the infusion; therefore, a cwt., or 18s. worth, will make 896 gallons, which is 7168 pints; and, as far as quassia goes, if I had had 7168 patients (who may be reckoned as pints), instead of 1942, they would have cost the Hospital only 18s.—that is, about 1s. per 400 patients, or 100 for 3d., or 0.03d. per patient.

The perchloride of iron is more costly. A pound of it sells for about 2s. 4d.; that is, four ounces cost 7d., and five ounces, which is the quantity of it contained in a gallon of the mixture, will cost 8·75d.; and the cost of the mixture per pint, as far as iron goes, will be 1·093d. And adding the cost of the quassia to this, each pint, or patient, costs the Hospital about 1⅛d. Or, calculating another way, as each of my patients took away five drachms of the perchloride, that will be 1213·75 ounces in all; and this divided by 16, will give the number of two and fourpences, which is 75·86, which is less that £8, 10s.; and, allowing 5s. for the quassia, the whole 1942 were doctored for £8, 15s., and the cost of treating 30,000 patients would be about £135, a fact which reflects great credit on the economy of our system.

And this is far from being the cheapest medicine in our pharmacopœia. For instance, the famous H.M.S. cum M.S., which, for popularity and general use, contests the palm with Q. c. F., would, as far as its chief ingredient goes, the sulphate of magnesia, cost about £9, 10s. for 30,000 patients. Of the other

ingredients, the six million minims of sulphuric acid would amount to about £5, 5s.; while the syrup of poppies, which is, as it were, thrown in for the sake of appearance, constitutes the chief money value of the medicine, and costs of itself as much as £78, 2s. 6d. per 30,000 patients. The vehicle of mint tea I put at £13, 17s. 2d., so that, adding these together, I make the whole cost of this medicine £106, 14s. 8d. per 30,000 patients, or 0·85286d. per patient. The item of the sweet colouring matter, when regarded in this light, appears a gross extravagance.

But it will be at once said, this represents only the cost of the materials. There is no account here of the preparation or mixing of the drugs, or of the labour of pouring them into the bottles, and nothing is said of the salaries of attendants and physicians. Now, whatever this may amount to, it is evident that the whole total of attendance on out-patients has to be divided by 190,000. But as I am only giving an account of the Casualty Department, and that from its physician's point of view, I shall confine myself to asking what the medical attendance costs there per patient.

Now it is plain enough, at the first glance, that if we were paid at so-much per patient, even according to the humblest scale of fees with which the public are accustomed to reward our services, we should all of us long ago have retired from the turmoil of the surgery, and should be living in affluence. But this is neither to be expected nor desired, and, indeed, the munificence of our Hospital is so well known, and so far in advance of that of similar institutions, that I cannot speak of it but with respect, nor shall I be suspected of any other feeling than that of gratitude in stating that, deducting income-tax, which promises to be a permanent charge, the sum paid to the casualty physician per patient is about $\frac{7}{10}$d. per patient, which raises the total cost of my "Queen Anne" patients from 1·123d. to 1·835d., which is still well under 2d. This fee presents an amusing discrepancy with the 30,000 and odd guineas which the Royal College of Physicians might consider us annually entitled to. There are extremes certainly which do not meet, and it seems a pity that there is no resting-place in the wide interval which separates them. For instance, if the patients were to fee us sixpence a visit, which is not much considering that many of them owe their complaints to drinking eight pennyworth of beer a day, we should each of us draw from them an income of over £750 a year. Now, not far from the Hospital gates there lives a medical practitioner, as I hear, who sees his patients and gives them medicine for this very sum, and the prodigal charity of our Hospital, which seems on such a grand scale, is in actual com-

petition with this individual, whose extreme confidence in venturing so near us is truly admirable, while his success, interpreted by my figures, shows that there is something to be said for his principle, and that he has not built his house upon the sand.

In fact, this principle of small payments is much urged by some of the reformers to whom I have alluded, who assert that it would deter mere vagabonds, encourage thrift and self-respect, and raise generally the standard of all the relations between hospital physician and hospital patient. It seems to me that the only objection to it is that it would be too successful, for it would at once render any institution that adopted it self-supporting, and would drive all the lesser doctors and practitioners off the face of the earth.

The existence of these vagabonds is not wholly a myth. It was only the other day that one of our patients, when asked what was the matter with him, replied, "Well, sir, I don't know that there's anything the matter with me; but as I was passing the Hospital, I thought I'd just step in and have a dose of medicine." I should have been sorry to have drunk the dose that was prescribed for him. But there are really not as many of this sort as is generally supposed. I had been accustomed to believe that the casualty patients were chiefly made up of that weird class of persons that one sees in Cruikshank's etchings, who are said to haunt purlieus, whatever that may mean; that idleness was their excuse for coming to the Hospital, and an hereditary taste for anything out of a bottle the unconscious motive of their seeking medicine. I had heard tales of their sitting on the steps outside, comparing the various liquids that haste and chance had distributed among them; each one tasting all before he finally gave his judgment as to which was intrinsically best. I had heard of the shop where linctus tarts used to be sold, and of cod-liver oil being collected to burn in their lamps. All this and a great deal more; but I can testify that I saw very little of this class of persons; in fact, the majority of those I saw seemed patients in good faith; the worst objection that one could raise to them as patients being, either that their complaints were trifling, or that they had brought them on themselves by indiscretion, to which discretion rather than epsom salts was the antidote, or that their perhaps miserable state was the result of traditional, inveterate, and wilful ignorance, which only Acts of Parliament and police regulations could grapple with. Ignorance lay at the root of most of the evils, whether it was the oversuckled rickety baby whose mother prided herself on its fatness, or the working man whom, late 'homeward returning,' cold French beans and English cholera had brought to the brink of the grave.

Other objections indeed there were. *Non omnes possunt olere unguenta exotica:* One had opportunities of confirming that ancient observation; while, had one had the time and desire to investigate the habits of common parasites, the field was ample. But for such patients the ready and effectual treatment which they met with was the best for them, and, with the fearlessness of contagion that long immunity provides, I was glad to be so easily of such great service to them. Some must be very unpleasant neighbours to the better class of patients, who nevertheless are contented to sit side by side with them on the forms; and I wondered to see how far people would come, and how much discomfort and even ignominy they would put up with, to consult for one moment the oracle of St. Bartholomew. It is not everywhere in the country, to be sure, that one can have the opinion of a Fellow of the Royal Society for a halfpenny, and have that sum paid for one by ancient endowments and public subscription; the spirit of pilgrimage too must have its goal; and one could only look for a brilliant result from this union of charity and faith with science. "Where do you come from, pray?" I asked one morning of a well-dressed middle-aged woman in whom I could discover little or nothing wrong. "From ——, in Bedfordshire," she replied. "And what in the world has made you come all this way when you have little or nothing the matter with you?" "Because, sir," she said, "I have not felt strong for a long while, and you've done so many of my neighbours so much good, that I thought I'd come and see you myself." *So many* of my neighbours! The county practitioner of ——, in Bedfordshire, must take this sort of thing rather to heart if it is true that *so many* of his clients spend in railway journeys what should go to fee him. If this system of charity were perfected, we should soon have cheap early trains running into London from all parts of the country, carrying passengers to our Casualty Department. Each of the physicians might take a different line of railway. I think the trains would be well filled, for, without this encouragement, I had a great number of country patients, whom I in vain endeavoured to persuade to return to their home doctors. The prophet evidently had no honour in his own country.

On the other hand, this gravitation to the centre is quite natural, and within its proper limits desirable. But the patients who come up from the country to London should be those whom their home doctors recommend to come, and not just this, that, and the other, who take it into their heads to come. There is a story of Sydenham, that he once cured a patient by sending him from London on a wild-goose chase after a hypothetical doctor at Inverness; but this man must have been a hypochondriac, and

it is worth observing that Sydenham sent him out of town into the country, while, had he travelled by the Scotch mail instead of by the coach, the result might not have been so satisfactory.

The best instance I saw of long distances and faith rewarded was in a woman, who, to my usual question, "Well, what's the matter with *you*, madam?" answered, "Please, sir, I want you to write me out the prescription of the medicine you gave me last week." "I don't remember, madam, that I ever saw you before." "Yes, sir, you saw me this day week, and gave me some medicine that cured me." "Then why do you want any more?" "Because, sir, I want to go home, and have some by me in case I should be ill again." "Where do you live?" "In Devonshire." "Did you come up from Devonshire to London for medical treatment?" "Yes, sir; I had been ill for four months, and none of the doctors did me any good, and your medicine cured me in three days." On inquiry I found that she had had a sore mouth, which had yielded at once to the surgery stomachic. I gave her some more for family use in Devonshire.

The casualty physician does not learn much from a case like that, and if he could be flattered with such results, how easily he might fall into those habits of slovenliness and hasty generalisation which are the exact opposite of the care, accuracy, and discrimination necessary to excellence in our profession. I find that in the year I took book-notes of only seventy cases, and these necessarily imperfect ones, and of the nature rather of recorded observations than of the course and treatment of disease. Thirty of these, however, were all illustrations of one disease that I was collecting facts about, and this shows what a rich material for study is daily thrown away. Generally one may say that it is impossible to learn anything in the Casualty Department except a knowledge of the *facies*, as it is called, which with a smaller experience it would take years to acquire, since it comes of a multiplicity of impressions, and the value of this it is difficult to over-estimate. The necessity of coming to an opinion at once may lead also to a discrimination of pathognomonic signs which might not with more leisure be so distinguished; but I am bound to add that I have seen original observations made by my distinguished colleagues, of value certainly, if not quite up to the strides of progress that one might look for in the labours of a Legg, a Brunton, or even of a Champneys.

The reader who has followed me so far will now be glad to hear how much time is spent in seeing these patients, and what are the traditional methods for clearing the hall.

First of all, it is certain that about 600 patients, medical and

surgical, are often got rid of as early as half-past eleven in the morning; and a good medical filtrator, working at high pressure, will pass at least 100 patients per hour. But as I must speak for myself—and I confess that I never attained this speed—I am compelled by my figures to reckon that, counting the interruptions to which one is subject as time devoted to the patients, the average time I spent on each patient was 1·28 minute, or a little over one minute and a quarter. I saw 148 patients a day, so that the whole duration of my work every morning was about three hours and ten minutes—that is, if I came at nine A.M., I did not leave till past noon.

Now, if I had allowed each patient ten minutes, and had worked the whole twenty-four hours of every day on which I was engaged at the Hospital, I should on quarter-day, had my constitution stood the trial and the patients remained at their posts, have been two days in arrear, and should still have had 250 of the last quarter's patients waiting for me on the surgery forms; from which calculation it is evident how great a practical difference there is between one and a quarter and ten minutes, how important speed is, and how nearly I approached the limits of deliberation possible under the circumstances.

The casualty physician being freed by such considerations from any blame that might otherwise attach to his haste, must also receive full indulgence for the uncourteous and almost violent behaviour which he finds it necessary to adopt in order to arrive as quickly as possible at the facts of each case. With the lowest estimate of female garrulity, one must recognise the grandeur of the feat accomplished in giving separate audience to the troubles of 150 women in three hours and a quarter. Indeed, with all I could do, though their complaints were generally less worthy of attention than those of the men, though I learned to enforce laconicism by making them stand with their tongues out much longer than was necessary for medical diagnosis, I yet find that an average female case lasted one-fiftieth of a minute longer than a male case. The impossibility of listening to long stories with patience, or of acknowledging the receipt of crooked answers, soon led me to assume a tyrannous air that forbade them to seek sympathy by plaintive recitals; and by dint of talking very loud, and asking every question three times, I arrived sooner than one would expect at the facts. Since I tried to make negative physical examination of every one who seemed to me seriously ill, or who had not been benefited by his treatment, it was necessary for such a patient to strip while others were being interviewed; and in the prevalence of sore throats, those who complained of them were set on one side till a long enough row

of them had been collected to justify my rising from my seat to visit them all at once with the spatula. No description could do justice to the strange hubbub in which auscultation had to be carried on. The rattle of carts in the street, the hum of voices inside, the slamming of doors, the noise of people walking about, the coughings of all kinds, the crying of babies, the scraping of impatient feet, the stamping of cold ones, the chinking of the bottles and zinc tickets, and, after eleven o'clock, the hammering, sawing, and tinkering of the carpenters and blacksmiths who came not unfrequently at that hour to set things generally to rights.

There was one source of interruption and delay which I scarcely like to mention, for fear, if its serious nature should not be recognised, of getting credited with exaggeration. Yet it was a difficulty I found it hard to wrestle with, and one which experience tended rather to aggravate than overcome; and this was the total upsetting of one's gravity and the dislocation of one's attention by the ridiculous statements and bizarre answers which the patients occasionally made. It is not without regret that I come to the decision that I must not offer the reader any sample of these distractions. They would be certainly out of place in our Reports, and, unless a special volume of the wit and humour of our Hospital should be published, I do not see their place even in general literature.

But I begin to be aware that I am approaching the bounds within which editorial censure must confine my paper, if I have not already exceeded them, and the lesser limits of the reader's patience; so I will break off, only alluding to two further particulars.

First, I said in the beginning of my paper that there was one reason alleged for the encouragement of this congregation of cripples and dyspeptics that deserved attention. That reason is, that this great assemblage is the material out of which are selected those serious cases and valuable examples of disease which are worthy of the Hospital, and without which the school of medicine would suffer. I have no space for discussion, and will only state, first, that I have shown that the Casualty Department supplies less than one-fourth of the cases in the wards; and, secondly, that it is my opinion that the serious cases bear no relation at all to the trifling ones, and that the former would come in as great numbers as they do now were the latter discouraged. How these could be persuaded to keep away is another matter; not by refusing them medicine, because giving it is at present the only way we have of getting rid of them; and the large proportion of honest illness and real relief which I maintain there

is suggests that, whatever changes are made, they should be in the direction of affording a more reasonable assistance, rather than in that of taking away what already exists.

Secondly, and lastly, I wish to excuse myself for having written on this subject, and for the point of view that I have chosen. If any one should say that mistakes are at present very rare, and that the treatment is, on my own showing, fairly satisfactory, this I should be the last person to deny. But if he were to go further, and argue that for these reasons the system must be a tolerable one, I should then venture to differ from him, and I should assert that in my opinion it is intolerable. While to the objection that all this detail can have no interest to those who have the thing itself under their eyes, I reply that the Casualty Department is of very recent growth. Sir George Burrows, our present consulting physician, was the first physician who ever treated an "out-patient" at St. Bartholomew's Hospital. Patients were sometimes kept under the care of the physician after they were discharged from the wards, but there were no out-patients proper till about thirty-five years ago, while the first casualty physician was created as lately as 1870. I will leave it to the reader, if he has any further taste for figures, to calculate the rule-of-three sum, if in thirty-five years 0 patients increase to 190,000, how many will 190,000 have become at the end of the world? It is probable that before that time a necessity will arise of reforming our Casualty Department, and without living to the Millennium, one may hope to see the day when the objection to the figures in my report will be, not that they are matter of fact, which I fear may now very well be said, or that everybody knows them, but that they are fabulous and incredible.

SEVEN YEARS OF HOSPITAL PRACTICE.

BY

GEORGE W. CALLENDER, F.R.S.

Note I.

Although still guided by the great principles which lie at its foundation as a science, the practice of surgery is now in many respects quite unlike that of even a comparatively recent period. The time is not long passed, is scarcely yet passed, when directions were given against closing wounds of depth (thereby losing the advantage of primary union), because of the danger supposed to be incurred in the attempt. It used even to be taught that some wounds—such, for instance, as of the scalp—should not be brought together by sutures, for fear of exciting local irritation; pyæmia or septicæmia, erysipelas, and delirium tremens were the common and not infrequently fatal complications of injuries and of operations. The dressing of a wound was a painful process; amputation operations were regarded as very perilous to life; compound fractures were often followed by disastrous results; the question of primary amputation used to be usually entertained when a compound fracture involved a joint; serous membranes were not to be incised; and as to the synovial sac of and the other structures forming a joint, it would have been thought hazardous to have touched them, except, in certain cases, for the purpose of excising them altogether.

It was commonly taught that the opening of such abscesses as those connected with disease of the vertebræ was a procedure often followed by serious local and constitutional disturbances, and one involving, through an increased discharge, the more rapid exhaustion of the patient; it was never thought that a large acute abscess could be emptied and cured within a few hours. Opera-

tions for the re-union of divided nerves, and other operations upon nerves, were scarcely if at all referred to.

In continuation of a paper entitled "Two Years of Hospital Practice,"[1] I propose to show, from the cases drawn from a series of seven years, and with reference at least to the subjects which have just been named (for there are yet many more which might be written of), that the practice now, and the results of the practice of surgery, are quite unlike those of former times.

It is not necessary to insist again upon the importance of exact observation, of precision, and of care for details, which every surgeon must bring to bear upon his cases if he is to make certain of good results from his treatment; but it may be said that of all things it is important that the surgeon should not delegate this care for these things to others, for his own daily and close supervision is absolutely essential. I say it is not necessary to insist again upon these things, because in previous writings the objects and the advantages of clinical precision have been stated as fully as it seems to me that their great importance deserves.

If it appears that I obtrude too much the work done in my own wards, my excuse must be, that in setting forth new facts one is driven to rely upon one's own experiences, and to support statements by a reference to them.

I will now pass to the consideration of the various points which I propose further to allude to.

Pyæmia—Erysipelas.

It may suffice, with reference to pyæmia, to state that there has not been a single case of this disease in the wards during the last five years amongst the patients under my care. In referring to the amputation cases, extending over seven years, mention will be made of a woman who died presumably from some kind of blood-poisoning, and of a second case in which repeated attacks of erysipelas preceded the fatal results in connection with an amputation at the thigh. This is the only fatal case connected with erysipelas occurring amongst the patients under treatment during the last five years. Before this, a man, after removal of the upper maxilla, died from this complication—making in all two fatal cases in the seven years.

Whilst pyæmia has been absolutely avoided, it has been found impossible to prevent an occasional attack of erysipelas. By keeping a close and daily watch over the general condition of each patient, we are, however, able to recognise the very beginning of the trouble, as was explained in a previous paper;[2] and to this, and

[1] St. Bartholomew's Hospital Reports, vol. ix. p. 1.
[2] Ibid., p. 14.

to our consequently placing the patient at once under appropriate treatment, I attribute the fact that the attacks of erysipelas have always had a favourable ending (with the exception, of course, of the two cases which have been named). I am quite at a loss to account for the attacks of erysipelas: sometimes they have seemed to grow out of the irritation caused by some acrid secretion by error allowed to remain in a wound, but oftener no cause could be found for the outbreak. So I am bound to say, and this in view of all that has recently been suggested on the subject, I consider, from a practical point of view, that we do not as yet know how this affection originates, and consequently I do not profess to be able to prevent its occasional occurrence, although by care in attending to the well-being of a sore or of a wound its occurrence is apparently minimised; and by early recognition and treatment, danger to life is rarely, if ever, to be feared.

I said that pyæmia troubles us no longer. Its prevention, there can be no doubt, comes out from the careful treatment of the wounds, from their cleanliness, and, above all, from their thorough drainage.

General Results.

In addressing the Surgical Section of the British Medical Association at Bath, I stated, using the expression generally, that the mortality after operations was not a tithe of what it was in comparatively recent years. The statement may be justified by the following facts:—In the two wards, Sitwell and Darker, in which the surgical diseases and operations under my care have lain, there have been under treatment during five years 2070 cases, with 68 deaths, giving a mortality of 34 per 1000, or of about 3·4 per cent. During the last seven years there have been 100 cases of compound fracture treated in the accident wards with two deaths, and there have been 69 amputations with four deaths. Some notes respecting these cases will be subsequently given. 168 tumours, not including ovarian, were removed by operation in the theatre, with one death, that of a male, previously referred to, who died of erysipelas after excision of an upper jaw-bone for a malignant tumour, and of 175 various major operations upon bones, all did well.

With regard to the compound fractures of bones, one may perhaps include with them all the various cases in which, for rachitis or for malversion of bone, it has been considered right to cut down upon the deformity, and to saw or to cut through the bone or bones, sometimes removing a wedge-shaped portion, so as to allow of the remedying of the deformity. With such also may be mentioned five operation cases in which the knee-joint was opened and the internal condyle sawn off, so as to allow of the straighten-

ing of the limb in certain instances of genu valgum. All these cases did well without any unfavourable symptoms, recovering with good use of the knee-joint.

The ordinary compound fractures under treatment, omitting lesser ones of the bones of the feet and hands, have been the following:—

Compound Fractures.	No.	Rec.	Died.
Of humerus	6	6	...
Of humerus into elbow-joint	4	4	...
Of olecranon into elbow-joint	3	3	...
Of ulna	2	2	...
Of radius and ulna	4	4	...
Of femur (from bed-sore)	1	...	1
Of femur	3	3	...
Of femur into knee-joint	2	2	...
Of patella into knee-joint	3	3	...
Of fibula	2	2	...
Of tibia	4	4	...
Of tibia and fibula	40	39	1
Of tibia and fibula into ankle-joint	4	4	...
Of astragalus into ankle-joint	3	3	...
Of maxillary bones	19	19	...
	100	98	2

This list does not include thirteen cases in which primary amputation was performed for compound fracture. All these amputations recovered—viz., four of the arm, four of forearm, two of the leg, and three of the thigh. It does, however, include two cases which were under treatment as compound fractures, and for which it was necessary to have recourse to secondary amputation; one of these, below the knee, for compound fracture of the bones of the leg, recovered; one, in a man aged 69, was performed because of the inability of the patient to mend a compound fracture of the bones of the leg, attended with destruction of a large portion of the skin of the limb. The patient lived for three weeks after an amputation at the knee-joint, and then sank from exhaustion. The second fatal case was one of simple fracture; but just before the patient's death a bed-sore formed on the limb, and the fracture was thus rendered compound. Amongst these fractures, one, in a male aged 34, was made compound by sloughing of damaged tissues; one, a male aged 14, by the formation of an abscess; and one, a male aged 19, by the occurrence of the fracture at a part where the bone had over it an old and deep ulcer.

A-symmetry of Limbs.

Dr. Cox, of Philadelphia, and Dr. Wight, of Brooklyn, have recently asked attention to the question of the unequal length of limbs, and especially of the lower limbs. The importance of this question, as bearing upon the repair of fractures, especially of the thigh, and upon the occurrence of shortening, is evident. Dr. F. H. Hamilton, in a note to Dr. Wight,[1] states that observations which he has made (which he proposes to extend) satisfy him that Dr. Wight is correct in stating that the greater number of normal lower limbs are unequal in length.

I suppose that it will readily be granted that differences often exist between the two sides of the body. It is a matter of common observation : the eyebrow is arched differently from its fellow, the cartilages of the nose may have a list to one side, an arm is more bulky, a foot larger than the opposite one. In the hands the size of the right, the girth of the thumb especially, is frequently greater than that of the left. I remember noticing this in the figure of the dying gladiator in the Museum of the Capitol at Rome. The right hand has been restored. The sculptor has made it larger than the left—considerably so, as I found by measuring it, showing his appreciation of an ordinary relationship between the two hands, although in this instance the artist has much exaggerated the difference. But these differences may, as the rule, be accounted for by changes during growth, from the greater use of a part, by over-development of muscles, or by continuous action of some set of muscles.

The question as to the unequal length of limbs is of a different nature, and although I was strongly impressed with the accuracy of all observations conducted by American surgeons, I could not, offhand, recall to myself having noticed any such want of symmetry in cases under observation in the wards of St. Bartholomew's Hospital. I therefore took the measurements, as directed by Dr. Wight, in forty cases, and I am bound to say, although following his directions closely, I found it, as I always have found it, by no means an easy matter to measure with accuracy from such a starting-point as the anterior superior spine of the ilium. The rules followed were, to depart from the under edge of the anterior superior spinous processes of the ilia at the insertion of the tensor fasciæ (vaginæ) femoris, (1) to the external malleoli, (2) to the internal malleoli. To reject all differences less than one-eighth of an inch ; the tape-line to be applied to the limb with the figures

[1] Proceedings of the Medical Society of the County of Kings, U.S.A., p. 349, Feb. 18, 1878.

down, so that they cannot be seen; after fixing the line, turn it and read off the figures. I give the first twenty-five measurements of lower limbs. It is needless to give more, for the remainder do but repeat the same results as those here printed. By the accident of the day all those measured were Englishmen. The parts of an inch are figured in eighths, so as to correspond with the measurements by Dr. Wight. I may remark again, to emphasise the statement, that all tape measurements are, in my experience, somewhat uncertain in their results, especially when taken from the spine of the ilium.

No.	Age.	Nativity.	Occupation.	Length in Inches.		Differences, if any.			
						Internal.		External.	
				R. limb.	L. limb.	R. limb.	L. limb.	R. limb.	L. limb.
1	63	England.	Tobacconist .	35^{6}	35^{6}	35^{4}	35^{4}	35^{6}	35^{6}
2	53	,,	Gasfitter . .	33^{3}	33^{3}	33^{1}	33^{1}	33^{3}	33^{3}
3	37	,,	Groom . .	33^{3}	33^{5}	33^{1}	33^{3}	33^{4}	34
4	27	,,	Collier . .	34	34	33^{5}	33^{5}	34	34
5	54	,,	Gasfitter . .	32^{7}	32^{7}	32^{4}	32^{4}	32^{7}	32^{7}
6	50	,,	Labourer .	33^{1}	33^{1}	32^{7}	32^{7}	33^{1}	33^{1}
7	40	,,	Do. .	34^{2}	34^{2}	33^{7}	33^{7}	34^{2}	34^{2}
8	7	,,	Schoolboy .	21^{3}	21^{3}	21^{1}	21^{1}	21^{3}	21^{3}
9	17	,,	Grocer . .	32^{5}	32^{5}	32^{3}	32^{3}	32^{5}	32^{5}
10	10	,,	Schoolboy .	26	26	25^{6}	25^{6}	26	26
11	21	,,	Typefounder .	31^{4}	31^{4}	31^{1}	31^{1}	31^{4}	31^{4}
12	38	,,	Shoemaker .	32^{3}	32^{3}	31^{5}	31^{5}	32^{3}	32^{3}
13	20	,,	Porter . .	35^{6}	35^{6}	35^{3}	35^{3}	35^{6}	35^{6}
14	37	,,	Shoemaker .	31^{6}	32^{5}	31^{7}	32^{2}	31^{6}	32^{5}
15	52	,,	Sodawater filler	35^{6}	35^{6}	35^{4}	35^{4}	35^{6}	35^{6}
16	32	,,	Hawker . .	31^{6}	31^{6}	31^{2}	31^{2}	31^{6}	31^{6}
17	26	,,	Porter . .	33^{6}	33^{6}	33^{2}	33^{2}	33^{6}	33^{6}
18	39	,,	Bricklayer .	35	35	34	34	35	35
19	66	,,	Warehouseman	32^{2}	32^{2}	31^{7}	31^{7}	32^{2}	32^{2}
20	36	,,	Labourer . .	33	33	32^{6}	32^{6}	33	33
21	52	,,	Clerk . .	32^{6}	32^{6}	32^{3}	32^{3}	32^{6}	32^{6}
22	12	,,	Schoolboy .	26^{4}	26^{4}	26^{2}	26^{2}	26^{4}	26^{4}
23	26	,,	Groom . .	33^{5}	33^{5}	33^{1}	33^{1}	33^{5}	33^{5}
24	50	,,	Carman . .	35	35	34^{4}	34^{4}	35	35
25	18	,,	Carter's lad .	33	33	32^{5}	32^{5}	33	33

The general uniformity resulting from these measurements as to the length of opposite lower limbs is apparent. In one or two cases differences were noted. Thus in Case No. 14, the right tibia and fibula were much curved, accounting for some shortening, as compared with the left-side bones; whilst in Case No. 18, the bones of the leg on either side were equally curved, explaining the considerable difference observed in measuring the limbs on the inner and outer sides respectively.

The result of my personal observations leads me to conclude that more extended data must be before us ere we can accept the a-symmetry of limbs as proven.

Operations for Genu Valgum.

The cases in which Ogston's operation for genu valgum was performed were five in number; I have already stated that they recovered without an unfavourable symptom. Each operation was practised by making a fairly free incision, nearly three inches above the inner condyle, and about an inch in length, through which a knife was passed, dividing the soft parts down to the bone and into the joint. The condyle was then sawn off. There was no difficulty met with, after withdrawing the saw, in reintroducing it into the groove it had been first worked in. The operation seems to me an excellent one, perfectly safe, and securing the desired result in the straightening of the crooked limb. Two remarks may be added respecting it—(1.) The cases of genu valgum vary amongst themselves. This operation is in my opinion applicable to those in which there is a distinct overgrowth or over-development of the internal condyle; it ought not to be indiscriminately practised upon all genu valgum cases. (2.) In one instance I operated upon a child of nine years. The ossification of the condyle was far from completed, and it was difficult to make sure of having entirely severed the (comparatively) soft cartilage structure, and some anxiety necessarily attended the operation lest the saw, allowed to travel too deeply, should injure the subjacent vessels. It seems to me that in cases treated so early in life, one may reasonably expect a good result from mechanical appliances, although it is true that, in the instance referred to, such measures had been tried and given up as hopeless; for this reason, and because of the practical difficulty in dividing the cartilage, the procedure, it seems to me, should scarcely be essayed at so tender an age.

Cleansing of Brain Wounds.

Amongst compound fractures, I have not tabulated those of the skull. These cases are serious, because of the hurt usually sustained in connection with them by the brain and its membranes. It has long been my opinion that no difference should be made between the treatment of brain laceration going with fractures of the vault and that of wounds of other tissues, and, consequently, where the occasion permits, that these brain hurts should be thoroughly cleared out with some cleansing lotion, and then left so as to be freely drained. I will mention two cases in point:—

F. G., aged 17, was engaged in tending a steam sawmill when

a block of wood was displaced, and was driven violently against his forehead. He was admitted into Harley Ward, March 6, 1876, and I was sent for to see him. I found him stunned, with a large and lacerated wound to the right of the middle line, from which brain was freely escaping, and in which was found a badly comminuted fracture of the frontal bone. Having removed some loose fragments, and having raised a depressed portion of bone, when more brain matter welled out, a large rent in the membranes was observed, and through this the finger passed into broken-down brain substance. Considering it best to clear away this spoiled tissue, the brain was freely washed out with tepid carbolic acid lotion (1 in 30), and in this process a large amount of cerebral debris was gotten rid of. I give no estimate in weight of the quantity. I can only repeat that it was considerable. When the brain had been thoroughly cleansed, the wound was left so as to drain freely through its depending portion, and it was dressed with carbolised oil lint, one layer next to the wound, a second twice folded covering this, and the whole protected by some gutta-percha tissue. The lad, who from the first was blind in the right eye, which was the seat of severe ecchymosis, had no unfavourable symptom. The wound healed, and he was sent out well on August 25.

The following table gives his pulse, temperature, and respiration for nine days succeeding the operation :—

Pulse.	Temp.	Resp.	Pulse.	Temp.	Resp.
64	98·0	20	64	98·6	20
64	100·0	20	70	98·5	19
64	98·4	20	75	98·6	20
64	98·6	22	75	98·5	20
64	99·2	20	...	...	...

R. A., aged 44, had a heavy plank fall upon his head. He was admitted into Harley Ward, August 15, 1878. When I got to the Hospital to see him, I found him coming out of a state of concussion. There was an extensive wound over the upper left occipital region ; its edges and surface were covered with brain tissue, and it led to a depressed fracture of the bones of the vault, partly of the occipital and partly of the left parietal. I enlarged the wound, and at its lower portion trephined, so as to be able to get a purchase for raising the depressed bone ; and finding a triangular piece about two inches long detached, I removed it. As it was extracted, a good deal of brain tissue continued to escape, and examining the wound with the forefinger, a large rent in the

membranes was easily detected, and through this the finger passed for an inch or more into pulpified tissue. As it seemed to me right to cleanse out all this spoiled brain-substance, it was then thoroughly washed by syringing (if the word may be thus used) into the brain from sponges a tepid solution (1 in 30) of carbolic acid in water. By this means a considerable quantity of brain debris was got rid of. The wound was left open, and drained from its posterior and lower angles. In the earlier days, during the period of over-action, the patient suffered from defective co-ordination of the muscles of the right side and of the parts supplied from the cerebral motor nerves, the signs being especially well marked in the patient's entire inability to protrude the tongue. Conscious of, and desiring to respond to, the request, he evidently made, fruitlessly, the greatest efforts to put it out, opening his mouth so that the tongue could be seen resting motionless against the floor. When the lips were tickled, however, the tongue was involuntarily protruded and moved in an endeavour to get rid of the cause of the irritation. Later on, as the remainder of the bruised brain-tissue was being cast off, I presume, as in the case of other tissues, by the formation of a so-called line of demarcation, the patient became restless, and on the fourth day was convulsed on the right side, and on the tenth day had no less than twelve of these attacks. From this time, however, they ceased to trouble him; his command over his muscles was regained, for the tongue by the twenty-fifth day, for the limbs by the thirtieth day, and he is now, November 14th, well, being up and about the ward; and he is quite right in his mind faculties, except that he has slight difficulty in reading certain words, but the difficulty is such as might have pre-existed from defective education.

Pulse.	Temp.	Resp.	Pulse.	Temp.	Resp.
108	99·3	19	90	98·8	Natural.
104	99·0	Natural.	88	98·0	do.
101	99·2	do.	84	99·4	do.
106	99·4	do.	88	99·2	do.
88	99·3	do.	84	99·1	do.

These cases will certainly encourage me to pursue a similar treatment in like instances of injury to the brain. They seem also to have, and as the cases multiply will have, greater interest as bearing upon the localisation of brain function, and upon the extent to which certain portions of the cerebrum may be removed without serious hurt to the patient. I refer to them

to advocate the thorough cleansing and free drainage of such brain wounds, treating them, in fact, as before stated, just the same as like injuries of other tissues—for example, of the soft parts lacerated in connection with a compound fracture.

Compound Fractures.

The treatment used in the management of compound fractures has been uniformly this:—The wound is thoroughly cleansed in the first instance with carbolic acid solution in water (1 in 20); the limbs carefully fixed and swung, so as not to require any change of bandage, or needing to be in any way disturbed during the after progress of the case; the wound or wounds are covered with a piece of lint twice folded, soaked in carbolised oil (1 in 12); a second and somewhat larger piece of lint is laid over this (also soaked in the carbolised oil), and over all a wide sheet of thin gutta-percha tissue. In redressing, the gutta-percha tissue is turned aside, the outer piece of lint removed, and the inner one re-oiled. The outer lint and the tissue are then replaced. The inner piece of lint is never disturbed, if possible, and we have left it over a wound for weeks. In one instance in which union was slow it was not taken off for six weeks, the wound, of course, having healed under it. This plan of dressing is efficient, and presents no difficulty in its practice.

Amputations.

Each year we learn to avoid the need for amputating in an increasingly large number of cases. This is certainly most marked with reference to the compound fractures and other severe wounds of limbs; such, for instance, as extensive lacerations involving joints. And with diseases of the joints, the more conservative surgery, by the use of long-continued rest and improved mechanical contrivances, or, in certain severe cases, by the excision of the parts diseased, tends to lessen the number of these operations. The following table, in continuation of those before published, gives the general results of the amputation cases:—

Amputations at the	Recovered.	Died.	Totals.
Hip	...	1	1
Thigh	24	2	26
Knee-joint . . .	...	1	1
Leg	24	...	24
Arm	8	...	8
Forearm . . .	9	...	9
Totals . . .	65	4	69

Of these amputations, thirteen were primary, and recovered. They have been previously referred to. Two were secondary—one of the leg recovered, one at the knee-joint died. I hold myself to blame for the fatal result in the secondary amputation. The patient was in his seventieth year, and I ought to have removed the limb by a primary operation. I have no doubt but that I was in error in not doing so. There has been in no instance any trouble from recurrent or secondary hæmorrhage, the vessels having been secured either by torsion or by carbolised catgut ligature.

The hip-joint amputation was performed for the removal of a mass of cancer growing from the femur. I failed in securing good drainage in this case, and I attribute the blood-poisoning which resulted to changes occurring in the materials thus retained. The patient, like all who breed rapidly large masses of soft cancer, was of course in a general health-condition unfavourable for passing through a severe operation.

Avoidance of Pain.

It may be added, that by due arrangement of the dressings, by the use of the hinged splints, and by swinging of stumps (whether of the upper or of the lower extremity), the wound after an amputation may be kept so absolutely at rest,[1] even whilst the dressings are being changed, that the patient shall suffer neither ache nor pain at the hands of the surgeon. And if, with this, movement of the cut surfaces from accumulation of fluid in the wound is guarded against by thorough drainage, the patient will pass through his convalescence without any suffering whatever.

Nerve-Stretching in Tetanus.

It is now some years since I asked attention to the question of the treatment of tetanus by nerve stretching, and I then expressed my regret that I had not tried this treatment in a case of tetanus which came under my notice in the Hospital. Fortunately it has so happened that no case of tetanus has since then occurred in my wards, but there have been several experiences in the practice of other surgeons, and the results are not encouraging. Besides the cases quite recently narrated by Dr. Heron Watson and by Mr. Nankivel, there has been one under the care of my colleague, Mr. Langton, in which he stretched the popliteal nerve in a male aged 43, for tetanus ending fatally; and there are the cases which were under the care of my friend M. Verneuil. Although the last-named have often been referred to, it is only quite recently they have been published and that M. Verneuil has

[1] On the Avoidance of Pain, British Medical Journal, August 10, 1878.

been able to send me the detailed reports. As these experiences have been referred to as instances of satisfactory treatment, I translate in brief the chief points concerning them.

On the 31st December 1875, a man, 39 years of age, had his right hand crushed between a cart and its wheel. The ring-finger was destroyed and the index and middle fingers were severely contused. After his admission into the Hospital, all went on apparently well until the 11th of January, when the patient complained of severe pain in the thumb, excited by pressure, and by pressure also upon the line of the median-nerve in the arm. Painful contractions of the hand ensued, and pain extended through the limb from the shoulder. The following day the pain involved the side of the head. Five days later there was some stiffness about the muscles of mastication, and the painful arm-contractions persisted, and told upon the patient's rest and upon his general condition. M. Verneuil now decided upon stretching the ulnar and median nerves in the middle of the arm. The patient was so far relieved that the contractions became less frequent and less painful; after some days they ceased altogether, and the man was discharged well on the 17th of March.

On the 15th of March 1876, a woman, 60 years of age, was operated on for the removal of recurrent cancer, involving more especially the axillary glands. It was necessary to divide the pectorals, and parts of the growth had to be taken from around the axillary vein, which required ligature. The day following, when the arm was to be moved, there was an unusual fear of pain on the part of the patient, and on the evening of the next day she was seized, without any apparent cause, with an attack of mania. Becoming more tranquil, nothing noteworthy occurred (except that the arm was hyperæsthetic) until the evening of the fifth day, when pain was complained of in the arm, violent shooting pain recurring every six to ten minutes. On the eleventh day these pains became intolerable; the shocks succeeded one another with great rapidity, the arm being drawn towards the side convulsively, and the biceps was continuously contracted. On the twelfth day there was some difficulty in mastication, and now, all other treatment having failed, and the muscular contractions referring more especially to the parts supplied by the musculo-cutaneous nerve, M. Verneuil determined to stretch this nerve. The same evening the pain was much less. The other signs subsided. The following evening there was some pain, chiefly about the shoulders. An attack of erysipelas supervened, and on the seventeenth day a condition of mania recurred, and she died from the erysipelas and from exhaustion on the twenty-first day.[1]

[1] Alexandre Duvault, Thèse pour le Doctorat en Médecine. Paris, 1876, p. 65 *et seq.*

These cases seem to me to show that as yet no great result has followed from this treatment of tetanus; for admitting that all these cases were examples of this disease (which some might question), all but one have ended in death; and I have told at length enough of the story of the one who recovered, to enable a judgment to be formed as to the value of the cases as bearing upon the treatment of tetanus.

There has always appeared to me to be a great difficulty in applying treatment by nerve-stretching in these cases. If the ischiatic in the thigh be operated on, why not the anterior crural? if the musculo-cutaneous in the arm, why not the median and the ulnar? It is so difficult to be sure as to the line of nerve involved (if any), that it appears to me the only practical solution would be to stretch the great plexus from which limb branches originate, and this in the case of the lower extremity would be scarcely feasible, whatever it may be in the upper. On the whole, I doubt, I am sorry to say, if much good will come from nerve-stretching in the treatment of true tetanus.

CASES

FROM

THE THROAT DEPARTMENT.

BY

F. DE HAVILLAND HALL, M.D.

By the kind permission of Dr. Lauder Brunton, I am enabled to report the following cases, which have been under treatment during the past twelve months in the Throat Department. The notes are fragmentary, as they were not written with a view for publication; but on looking over them, it struck me that they contained some points of interest to which it might be advisable to draw attention, especially as laryngoscopy is now no longer confined to a few specialists, but is taught practically in all the medical schools.

Case I.

H. D., female, aged 24. First attended on 16th April 1877, when she stated that she had been hoarse from the beginning of the year. There was a history of sore throat after marriage, and evidences of ulceration about the leg and face.

Laryngoscopic examination showed that vocal cords did not approximate, and that they were slightly congested. She was ordered a mixture containing the iodide of potassium and the liquor hydrargyri perchloridi; a solution of the sulphate of copper (10 grains to the ounce) and chloride of zinc (30 grains to the ounce) being applied locally. On October 23rd a small sessile growth was noticed between the arytænoid cartilages.

November 28th.—Voice clearer.

December 12th.—Growth much less marked.

January 30th, 1878.—Growth disappeared.

February 6th.—Voice almost restored.

The points of interest about this case are, firstly, the growth taking place, as it were, under one's eye, in spite of the anti-syphilitic treatment adopted; and here it is to be observed that the growth developing from the part of the mucous membrane most exposed to friction, and therefore most liable to become affected, showed the mucous membrane to be in an unhealthy state; secondly, the good result obtained by the prolonged use of constitutional remedies against the dyscrasia, together with the employment of topical astringents. Here I may remark that I usually begin with a solution of chloride of zinc locally; should any spasm be excited by it, the patient must be told to hold his breath for a few seconds, or to swallow a mouthful of water, but it is seldom that any inconvenience follows the use of even stronger solutions than those I have indicated.

Case II.

E. M., female, aged 25. Married 8 years. Date of first visit, 17th October 1877. Has been pregnant four times; once she miscarried, and three times she gave birth to dead children, two at seven months, and one at full time. Eight years ago she had ulcerated sore throat, and two months later her nose became affected, pieces of bone coming away. Seven months ago she was in Guy's Hospital for enlargement of the liver. Till the last month her breath has been fairly good, and then her throat was attacked. She has a slight nasal twang to the voice. On making an examination, a slight loss of substance covered by a slough was found on the posterior wall of the pharynx. Vocal cords healthy; mucous membrane covering the arytænoid cartilages slightly congested. Ordered iodide of potassium with hemidesmus thrice daily, and the ulcerated surface was painted with tincture of iodine.

October 24th.—Throat very much better; slough almost cleared off.

October 31st.—Slough quite cleared away, and ulcerating surface cicatrising. Mucous membrane of larynx not congested. Voice nearly well. Solution of sulphate of copper applied.

In this case it is to be noted that, in spite of the extensive mischief in the pharynx, the vocal cords were throughout unaffected, the change in the voice being due to the naso-pharyngeal mischief. It is certainly astonishing to observe the amount of syphilitic disease which may occur in the pharynx—the glottis,

nevertheless, being unaffected; whereas even a small amount of post-nasal catarrh is almost always accompanied by more or less congestion of the vocal cords and adjacent parts. The combination of iodide of potassium internally with the local application of tincture of iodine seems to me of especial use in secondary and tertiary syphilitic affections of the mouth and pharynx.

Case III.

G. S., a boy, aged 16. Has been hoarse four or five years. Larynx perfectly healthy. Two nasal polypi removed, and voice completely restored. The above case I have transcribed verbatim from my notebook in all its unvarnished brevity, and I think it will emphasise the advice I am constantly giving in cases of supposed throat-disease, viz.: Don't be content with a laryngoscopic examination of the throat, but investigate the condition of the adjacent passages, as in the pharynx or nose may be found the cause of the hoarseness.

Case IV.

E. H., aged 18. A plethoric, hysterical-looking girl. Has been hoarse three months. Has enlarged tonsils. Complete loss of movement of vocal cords, and almost complete aphonia; otherwise healthy. Ordered the ammonio-citrate of iron, with the ammoniated tincture of valerian. From the date of the patient's first visit, on 16th September 1878, till she discontinued her attendance on 28th November, she was frequently faradised with the intra-laryngeal electrodes, and she also had a strong current of electricity employed percutaneously, but with little if any benefit. I then adopted the advice of Dr. Cohen,[1] and commenced the administration of strychnia; but unfortunately the patient did not appear to report progress. I have brought this case forward as an instance of the want of success which occasionally attends one in the treatment of functional aphonia. This is the second case I have seen during the last two years at St. Bartholomew's which has resisted treatment; the other was also a young woman, who had previously been an out-patient at the Throat Hospital for the same complaint, but at neither Hospital did she get any benefit.

Case V.

F. E., aged 42, a comic singer. Attended 13th February 1878. Has been a great drinker. His voice has been getting feeble for

[1] Diseases of the Throat, p. 473.

the last four months, much worse the last three weeks; the loss of voice came on after a severe bout of drinking. He has been unable to follow his occupation from the commencement of the attack. Very debilitated, flabby tongue, feeble pulse, and cold extremities. Vocal cords healthy, but they do not close completely, evidently from loss of tension. Ordered the tincture of the perchloride of iron and strychnia.

February 20th.—Better. To continue the mixture, and take a tea-spoonful of cod-liver oil three times a day. The patient, whose case I have briefly narrated, was one of a type unfortunately only too common in practice. The abuse of alcohol soon causes the finer combined movements to be less perfectly made, and when, as in this instance, the patient's living depends on his voice, a speedy cure of the sub-paralytic condition of the cords is most desirable. I pointed out to the man the necessity of discontinuing his drunken habits, so that I do not think the whole of the improvement which occurred in the week can be attributed to the iron and strychnia. Had these remedies not been successful, I intended to have employed faradisation by means of the intra-laryngeal electrode. The paralysis in this instance was in all probability due to affection of the thyro-arytænoidei, as the want of approximation seemed due to loss of tension in the cords themselves.

Case VI.

C. A., female, aged 26. Applied as out-patient, 3rd October 1877. As regards this patient, it will suffice to say that she had laryngeal phthisis in its most typical form, so tersely described by Dr. Morell Mackenzie,[1] as showing "pale solid pyriform swelling of the ary-epiglottic folds—turban-like tumefaction of the epiglottis," the whole of the mucous membrane being bathed in the "white milky secretion" to which Dr. Marcet[2] has drawn attention as being met with in nearly every case of inflammation of the larynx accompanying phthisis. In addition to the laryngeal mischief, there were well-marked physical signs of pulmonary phthisis at both apices. It is not, however, so much to the condition of the patient to which I wish to draw attention as to the great benefit she experienced from the insufflation of morphia on to the laryngeal mucous membrane. The formula used at St. Bartholomew's is morphiæ acetatis, gr. $\frac{1}{3}$; pulv. amyli, gr. 2. I usually commence with half this quantity, and increase the amount when necessary up to a third or even half a grain of

[1] Lancet, January 6, 1872. [2] Med. Chir. Trans., vol. lviii. p. 130.

morphia. In this patient, as so frequently happens in laryngeal phthisis, there was great pain and difficulty in swallowing. In reference to this point Von Ziemssen truly observes,[1] "Every act of swallowing becomes torture, and all the patient's complaints are concentrated upon this difficulty of swallowing." For this painful symptom I have found no remedy at all to be compared to the local use of morphia. The above-mentioned patient volunteered the statement that the relief consequent on the application of the powder sometimes lasted three days, and I have frequently found patients quite unable to swallow until the morphia insufflation had been made use of. I have only selected one out of many cases at my disposal to illustrate the good effect of this remedy, and though objections have been raised that the application of powders to mucous membranes is unphysiological, the practical experience of the benefit to be derived from their use will far outweigh any theoretical objections that may be brought forward.

Case VII.

W. D. A., male, aged 30. First attended as an out-patient on 5th December 1877. This was also a well-marked case of combined laryngeal and pulmonary phthisis, and I have only recorded it in order to mention that, after attending some months, he spontaneously complained of an aching pain in the left ear, extending up from the lower jaw. Since my attention has been directed to this circumstance, I have met with two or three cases of laryngeal phthisis in which the patients have complained of ear-ache. And this is somewhat important, inasmuch as Von Ziemssen[2] goes so far as to say, "In view of the difficulty of the diagnosis of laryngeal cancer at the beginning, the presence of ear-ache might serve as a positive argument in favour of cancer, at least in view of the experience that it is but rarely met with in other affections of the larynx, excepting, of course, ulcerations." This patient had also great difficulty in swallowing, but derived benefit from the morphia insufflations. The ear-ache was considerably increased on swallowing. After a time he requested me to discontinue the application of the powder, as he thought it rather irritated the throat; but on 29th May I have the following note:—"Ears ache very much, the left constantly, the right occasionally. Returned to the morphia, as he felt more soreness about the larynx since it was discontinued." This was done at the patient's desire.

[1] Cyclopædia of the Practice of Medicine, vol. vii. p. 846.
[2] Op. cit., p. 893.

Case VIII.

J. F., male, aged 61, applied on 28th November 1877, suffering from hoarseness and stoppage in the nostrils, with expectoration of tough black mucus. The posterior wall of the pharynx was coated with thick tenacious mucus, and on this being removed the pharynx was found to be very vascular. Vocal cords congested; the larynx coated with tenacious mucus. The nasal spray was used, the fluid employed consisting of bicarbonate and biborate of soda, of each half an ounce, half an ounce of the glycerine of carbolic acid in twelve ounces of water; and he was ordered to syringe the nostrils with the following lotion:—Sodæ bicarb., ℥ss., glycerini, ℥i., aquæ ad ℥xx., and to take the hst. potass. iodidi ammon. ter die.

February 13th.—Greatly improved in all respects. The pharynx was painted with tr. iodi.

February 20th.—As bad as ever. Solutio cupri sulph. (gr. x. ad ℥j.) applied to pharynx. To inhale vapor creasoti. The other remedies as before.

April 24th.—Throat and larynx very much improved. Voice clear. Was discharged greatly relieved.

It may be with safety stated that post-nasal catarrh and ozæna are two of as troublesome diseases as there are to treat; so I have brought forward the case as an instance of the good to be effected by the regular and persevering treatment of post-nasal catarrh associated with chronic pharyngitis. Of course it would have shortened the treatment could the patient have used the spray daily; but when employed twice a week, or even only weekly, considerable benefit is to be derived from its use. It will be noticed that, in addition to the spray and the lotion for the nostrils, the patient was directed to inhale the vapor creasoti. In all cases of relaxed mucous membranes with hyper-secretion, I have found the vapor creasoti most beneficial. In the "Lancet" for 29th June Dr. Eade speaks very highly of the inhalation of the homologous substance carbolic acid in cases of bronchitis and phthisis, and attributes its good effects to the destructive power it has over bacteria. Creasote may possibly act in the same way in throat affections. While on the treatment of post-nasal catarrh, I would draw attention to the necessity of having the solution employed for cleansing the nostrils at about the specific gravity of the blood, otherwise an acute catarrh may be set up, or, at all events, unpleasant smarting, in the mucous membrane. The best drugs to use for this purpose are the neutral salts, such as phosphate of soda, chloride of sodium, and chlorate of potash, the last being especially recommended by Beard.[1] In spite, however, of the

[1] Translation of Tobold's Chronic Diseases of the Larynx, p. 36.

greatest attention, cases of ozæna drag on in a most tedious manner; and, in the hope of finding a more patent remedy, Dr. Brunton and I have been trying iodoform, both as a spray and also in the form of pigment, but as yet the success which has attended its use in our hands is not marked; but we intend giving it a fair trial before discarding it.

Case IX.

M. A. S., female, aged 52. Married. Attended 23d May 1877. Did not marry till she was 40. Has not had any children. Up till two years ago she enjoyed good health; about this time she caught cold, and she has suffered from shortness of breath since that time. In August 1876 she had a fit, and was insensible from Wednesday night till Sunday morning. Has been under treatment at the Hospital for Diseases of the Throat from March 1876 till the time she applied here, but she did not derive any benefit.

The patient suffers from dyspnœa with marked stridor. Voice not affected; has occasional short, hoarse cough. Vocal cords quite healthy, and so is the upper part of the trachea, of which a good view can be obtained. Nothing abnormal to be detected on making a physical examination of the chest, except that though the air enters freely there is a tracheal stridor. Heart sounds clear, rather clanging; apex in normal situation. No difference in pulse or pupils.

This patient remained under observation for two or three months, with little or no alteration in her symptoms and physical signs. I have recently, but without success, endeavoured to discover what has become of the woman. Her symptoms led both Dr. Brunton and myself to suspect an aneurysm pressing on the lower part of the trachea; but though we examined the chest most carefully on several occasions, we entirely failed to discover any evidence besides the stridulous breathing to support this view. In spite of our inability to localise the lesion, I think we may fairly assume that the calibre of the trachea was in some way narrowed. The purity of the voice in this case confirms an observation of Dr. George Johnson in the "British Medical Journal," 23d May 1874: —"Excluding cases of purely spasmodic laryngismus stridulus, we find that when stridulous breathing is the result of obstruction in the larynx, the voice is always more or less feeble and husky; while in cases of tracheal obstruction and stridor, whether the result of constriction of the trachea by syphilitic cicatrices or the pressure of an aneurysm, the voice is unaffected." Though in this case the laryngoscope gave no positive indication as to the seat of the obstruction, the negative information we acquired was most

valuable, as it enabled us at once to determine that, in the event of the dyspnœa increasing, tracheotomy would be useless, as it would be impossible to get below the obstruction. As regards the cause of the stridor, in the absence of an aneurysm or other tumour pressing upon the trachea, stenosis, as the result of the cicatricial contraction of a syphilitic ulcer, is to be suspected. In this patient, however, I think the idea of syphilis may probably be excluded, as there was nothing in her history to favour that supposition. In the April number of "Deutsches Archiv für Klinische Medicin," 1878, there is a very interesting paper by Dr. Vierling on "Syphilis of the Trachea and Bronchi," in which he draws attention to the fact that the simpler syphilitic forms of disease (condylomata, &c.) scarcely ever take their seat in the trachea, but that almost solely ulcerative processes and their remains, scars, are to be found. As a rule, the extensive formation of cicatrices leads to stenosis of the trachea, but ulceration may occur, either spreading externally, or a neighbouring blood-vessel may be eroded. From the cases collected by Dr. Vierling, it would seem that when the trachea alone is attacked, the part affected is generally somewhat above the bifurcation; in the case I have recorded, supposing the lesion to have been of syphilitic origin, this is where it must have had its seat, as we were able to see a considerable distance down the trachea without discovering any obstruction.

ON

MANIPULATION;

OR,

THE USE OF FORCIBLE MOVEMENT AS A MEANS OF SURGICAL TREATMENT.

BY

HOWARD MARSH.

The following notes will serve to direct attention to the good results which may be obtained by manipulation, or the use of forcible movements in the treatment of a variety of surgical cases. The subject has been already discussed by Sir James Paget[1] and Dr. Wharton Hood[2] in essays that are well known and highly valued; but it may be useful to return to it, for it is still either passed over without notice, or is very slightly alluded to in the current handbooks, and is a great deal too much ignored in practice. It is this method which has secured for bone-setters a great reputation in joint cases. When they are consulted, they tell their patients that a bone is out, and they manipulate the limb and say the bone has gone in; and very often their assertions are, in the judgment of the patient, confirmed by the palpable fact that he is cured, or at least very much benefited by the treatment.

Many surgeons look with suspicion on this subject; they dislike its associations, and they consider the practice of wrenching damaged joints to be both unscientific and unsafe. But is it wise to treat the question with this indiscriminate and sweeping condemnation? In many country districts and in many large towns bone-setters can boast of the patronage not only of the ignorant, or over-credulous, or of those disaffected persons who have a natural turn against orthodoxy in all its forms, and who would

[1] Clinical Lectures and Essays, p. 84.

[2] On Bone-Setting, 1871.

much rather be cured by a bone-setter than by a surgeon, but also of those whose education and cultivated judgment lead them to think that surgery is by no means a thing in which it is safe to be

"Of mother wit and wise without the schools."

But how is it that intelligent and sensible people thus turn to bone-setters? How is it that while herbalists, who hold about the same relation to medicine that bone-setters hold to surgery, have fallen into the background, bone-setters have rather gained than lost in popularity? If sensible people are asked why they trust themselves in such hands, they reply that they and their friends obtain help in this quarter which they fail to get elsewhere; and, in confirmation of this unwelcome argument, must it not be admitted that few surgeons are long in practice without learning that some tedious and obscure case has been abruptly cured by one of these free lances?

These considerations, I think, show that the matter is one which calls for further attentive and patient examination.

Nothing is more remarkable at the present day than the rapid advance which is being made in every department of science, and surgery itself might be chosen to illustrate the fact. How is it, then, that bone-setters sometimes beat surgeons? Do they possess some secret of which surgeons are ignorant? Have they any special knowledge? Do they practise any particular art? For the past three-quarters of a century, indeed for much longer, surgeons have gone through a laborious apprenticeship in anatomy and pathology, in the course of which they dissect all the joints, and examine their textures and surrounding muscles and ligaments, and thus grow as familiar with the structure and functions of these parts as a watchmaker is with the works of a watch or an engineer with the interior of a steam-engine. A bone-setter, on the other hand, knows nothing of anatomy. Dr. Wharton Hood[1] once heard old Mr. Hutton of Watford, probably the most successful bone-setter who has ever practised, say, "Don't bother me with anatomy; I know nothing about it." In the eyes of a bone-setter a joint is an opaque solid, with bones inside; but how many there are, what they are like, or how they are placed in relation to one another, he neither knows nor cares to know. Then as to diagnosis. That surgeons are not wholly without capacity in this art is, with all becoming modesty be it said, fairly evident from what takes place every day in other departments of practice. How is it with bone-setters? Reasoning about the matter, it might well be asked, how should one who is ignorant of the number, shape, and relations of the bones—for instance, of the carpus

[1] Loc. cit.

or tarsus—be able to say whether they are in or out? We seem to be drifting towards the miraculous. But it will be better to look to facts. In Case I., related below, the bone-setter did not so much as have the patient undressed, but simply unfastened the top button of the boy's trousers, and passed his hand over the hip, and then said that a bone was out at a spot to which he pointed, and which was four inches down the thigh, in a line with the anterior superior spine of the ilium. Case II., I think there can be no doubt, was one of subacute inflammation of the hip-joint, uncomplicated with any displacement except flexion of the thigh on the pelvis. In Case III., another example of common hip-joint disease, with flexion and adduction following bone absorption, the joint was said to be out, and was to be put in by the "scientific twist." In Case IV. the patient's symptoms depended on cancerous disease within the pelvis, producing flexion of the limb, and, by pressure on the sacral plexus, severe suffering in the thigh; yet the hip was said to be out, and was forthwith "put in." In Case V. the bone-setter could not tell a large mass of malignant disease surrounding the lower end of the femur from a knee that was out, or, if he could, he kept a case in his hands which urgently required treatment which he knew was beyond his range.

Case I.

A. B., a delicate lad of 17, was sent up from the country with a suspicion of hip disease. He was so lame that he walked with a crutch and a stick, and could bear very little weight upon the limb. The thigh was held in a position of slight flexion, abduction, and external rotation. He complained of deep-seated pain at the back of the joint on any movement, and of tenderness on pressure in this situation. No swelling could be detected. On careful examination, it was found that the hip-joint was sound, but it was believed, from the situation of the pain and tenderness, and from the position of the limb, that the case was one of strumous periostitis of the innominate bone beneath the external rotator muscles. He was advised to rest for three months, to have a succession of blisters, and to take cod-liver oil. At the end of this time he was no better; his condition seemed to be wholly unaltered. His friends now took him to a bone-setter, who, after examining him by passing his hand under his trousers, pointed to a spot on the thigh four inches directly downwards from the anterior superior spine of the ilium, at which spot he said a bone was out. At the request of the boy's mother he put the bone in by movement of the limb, a snap being heard during the manipu-

lation.[1] The patient could now move his limb freely, and walk upon it with only slight pain, which disappeared in the course of two or three days, and left him quite well. Just twelve months later, having in the interval remained quite sound, he was asked while at breakfast to cut some bread, and while in the act of rising quickly from his seat, he was suddenly attacked with his old trouble. He had intense pain in the old spot, and felt sick and faint. The limb was found to be locked in its former posture, and he had intense pain if he threw any weight upon it. Getting no better, he was brought to London at the end of a fortnight. The limb was then stiff, slightly flexed and abducted, and he walked very lame with his crutch and stick. Movement of the limb at once brought on very painful spasmodic contractions of the muscles, and he suffered severely at night from muscular startings and twitchings of the thigh. No swelling could be detected, but he had excessive pain on pressure over the neighbourhood of the sciatic notch. Having heard how he was cured before, I put him under the influence of gas, and gently carried the limb through all its natural range of flexion, extension, abduction, adduction, and rotation. I felt nothing give way, and nothing seemed to slip; but when the patient recovered from the gas, all his symptoms had disappeared. He could move his limb freely, and in a few days he lost both his lameness and all his pain. He has had no relapse. This case is a very interesting one. When first seen, it was very obscure; yet, when all the symptoms had been carefully considered, the diagnosis of periostitis seemed grounded on very strong probability. Looking back on it, and noting what subsequently occurred, I think, however, it must have been an instance in which one of the deeply placed muscles or tendons had, on a sudden movement, slipped out of its place.

Case II.

A little girl, aged 7, had been lame for six months as the result of a mild attack of inflammation of the hip-

[1] The loud snap which is often heard when a joint that has long been stiff or at rest is suddenly moved, is a phenomenon to which bone-setters point as a plain demonstration that a bone was out and has been put in. A loud snap was heard in Case I., and it was this which had convinced the boy's mother that the surgeon had overlooked a dislocation which the bone-setter had detected and reduced. These snaps, however, are not produced by the concussion of two joint surfaces as they come suddenly into contact, but, on the contrary, are due to the sudden separation of two surfaces which have been stuck together by a too viscid and tenacious synovial fluid. Many persons can make all their fingers crack by steadily pulling at them till the joint surfaces suddenly separate. A very loud snap was heard in Case VII., when the articular surfaces of the tibia and astragalus, which had long been in contact, were separated by sudden flexion of the foot upon the leg.

joint. The limb was considerably drawn up, so that the toe did not touch the ground. She walked with a crutch, but had no pain or other symptoms of still-present disease. Her hip was said to be "out," and was "put in" under chloroform, and she was reported "cured." The immediate result was satisfactory, for the limb was now very nearly straight, and she could walk without her crutches, though she still limped. The father told me afterwards, that at the time he thought it a providential thing that the surgeon he had proposed to consult was away from home, so that his steps had been turned in another direction. In the course, however, of three weeks, pain and startings and restless nights came on, and the child could not put her foot to the ground. Three months later, when I saw the case, the limb was considerably flexed, and there was a large abscess in front of the joint.

Case III.

A lad, aged 17, with old-standing hip disease and extreme adduction, and consequently great apparent shortening, was furnished with a set of pulleys, and his friends were told to apply these to the limb, for ten minutes at a time, thrice daily, to pull it down, in order that, at the proper time, it might be put in by what was termed the "scientific twist." His brothers and sisters, being determined to cure him if pulling would do it, carried out this treatment regularly for some weeks. In spite, however, of all their pains, the result was disappointing.

Case IV.

A patient, aged about 60, with malignant disease in the pelvis, which had caused plugging of the iliac veins and pressure on the sacral plexus, was told that his hip was out. The joint was "put in" by wrenching, a form of treatment which greatly increased his suffering.

Case V.

A patient with a large sarcoma of the muscles of the thigh, just above the knee, was told that the knee was out, and must be put in. Arrangements were made for the operation, but other advice was taken, and the proceeding was declined.

Case VI.

In a case of far-advanced angular curvature of the dorsal spine in a little girl, the "buttons of the back" were said to be out. The treatment adopted terminated in the child's death at the end of about a fortnight

It may seem ungenerous to reproduce these examples of bone-setting. Were it not better, some may ask—since *humanum est errare*—to pass them by? But it is necessary for my present purpose, which is not to say hard things of bone-setters, but to rouse an interest in the question, to look at the subject in all its bearings. As these cases, however, are enough to indicate in what the diagnosis of bone-setters consists, others of a similar kind may be omitted. Now it may be expected that as clinical experience, assisted by morbid anatomy, advances, it will become possible, as it were, to see into and around damaged joints, and detect in one some adhesion of adjacent surfaces, in another some inflexion and pinching of a synovial fringe, in a third some displacement of an inter-articular cartilage or of a tendon. But whatever the future may have in store, it is certain that bone-setting at the present day is a mere haphazard practice, a leap in the dark, simply a rule of thumb, entirely independent of diagnosis.

As to treatment, Dr. Wharton Hood gives bone-setters the credit for very skilful manipulations, and no doubt they acquire much facility in the mere handling and moving of the various joints; they know how to seize the limb, with all the art of a wrestler, at such an advantage that, *coute qui coute*, all resistance can be overcome. This kind of skill the bone-setter is in many instances complete master of, but it is a skill that is limited to the application of simple physical force; hence blacksmiths sometimes make the best bone-setters, and entirely apart from any knowledge as to what the case really is. How is it, then, that bone-setters succeed? In other words, what cases do they cure? The best answer to this inquiry is to be found in Sir James Paget's essay and in the lectures of Dr. Wharton Hood, already referred to.

The latter writer gives the following list:—

I. Those in which joints remain stiff and painful after fracture of the bones forming them.

II. Sprains, whether old or recent, which have been treated by rigidly enforced rest.

III. Joints that have been kept at rest voluntarily for the avoidance of pain—*e.g.*, a stiff shoulder-joint following suppuration of a bursa under the deltoid.

IV. Rheumatic or gouty joints.

V. Displaced inter-articular cartilages.

VI. Ganglionic swellings about the carpus or tarsus.

VII. Subluxation of the bones of the carpus or tarsus.

VIII. Displaced tendons.

IX. Hysterical joints.

I cannot make any material addition to this list; but passing over ganglionic swellings, about which nothing need be said, a few

remarks may be offered in respect to some of the conditions alluded to by Dr. Hood. No doubt bone-setters sometimes obtain good results in all these cases, but in some of them much more commonly than in others.

I. Their most striking, and by far their most frequent, successes are met with in the first two groups—cases in which joints are left, either after fracture of a neighbouring bone, or much more commonly after a severe sprain, stiff, painful, and "weak." The condition of such joints is that they are stiff either from merely having been long at rest, or in consequence of the formation of adhesions from the organisation of inflammatory lymph between their adjacent surfaces, or in the sheaths and interspaces of the tendons or surrounding ligamentous structures. Such cases are, I believe, extremely common. Sprains and wrenches, with partial laceration of ligaments and of the sheaths of tendons, followed by swelling and effusion of lymph, are among the most frequent of accidents, and in a large number of them some matting together of parts is the result. In the short list of cases I have related, six were, it seems safe to say, of this nature ; for they were cured not by any secret twist, but simply by a sudden movement, and the adhesions were in several instances heard and felt to tear.

It may be remarked that the stories told of what bone-setters achieve are often very inaccurate. They doubtless sometimes work cures, which seem to the public almost like magic, at a first visit. Even one who is uninitiated may occasionally do as much. Cases VIII., IX., and X. were cured by a single operation. But in many instances the results seem much less astonishing when the facts are known, and when we learn that it has taken two or even three operations "to get the bone in." In such cases old and tough adhesions have been successively broken down at each repetition of the treatment, and the joint, which had long been stiff and disabled, is at length restored to use, not by magic or anything like it, but by a gradual and intelligible process. And bone-setters frequently supplement their wrenching by the highly important means of shampooing, friction, and daily passive movements. By these agencies, cases for which wrenching alone would have done no good are perfectly cured in the course of a month or six weeks. Now, in respect both to wrenching and shampooing, some surgeons have held a course which has driven their patients to the bone-setters. As I have already said, they look with little favour on the practice of wrenching; and if after using it they find the patient, though benefited, yet not cured, they are so lukewarm in the matter as not to repeat the proceeding, but instead rest and are thankful that no harm has followed the first venture; while, under similar circumstances, the bone-setter, who

is nothing if not manipulative, and who asserts that the joint is so badly out that it must be "put in in twice," goes boldly on and cures the patient. Again, the method of shampooing and passive movements is one which surgeons have long been familiar with; and if a patient were left with a stiff knee after rheumatic fever or cellulitis of the limb, many surgeons would as a matter of course recommend that the joint should be forcibly moved, and that the operation should be repeated if necessary, and that the part should be shampooed and subjected to daily passive movements. But the error, I venture to point out, has been in limiting the use of this plan to some exceptional cases, and omitting it in a large number of instances in which much the same conditions are present, and which, as bone-setters not rarely prove, may be cured in the same way. The following is a case in point:—A gentleman fell while hunting, and dislocated his humerus and bruised all the soft parts around the shoulder very severely. The dislocation was reduced, but he came to London two months afterwards with the limb almost absolutely stiff. He was told that if he took chloroform and had the adhesions broken down, he would regain movement at the joint. He submitted, but in the course of a week the limb was as stiff as ever. He was then informed that the operation must be repeated, and that then he would certainly find his arm cured. Again he submitted, and again complete stiffness soon returned. The opinion was now given that he must make up his mind to a stiff limb. But as he was much given to field-sports, and was still in the prime of life, he determined not to accept this verdict without appeal, and consulted another surgeon. His arm was again moved, and he was at once placed under a rubber and shampooer, who continued his offices for about six weeks. At the end of this time the stiffness had almost completely disappeared; and when I saw the patient (for the first time) five years afterwards, no trace of the accident could be detected. It is easy to understand why stiffness returned on each occasion on which a single wrenching of the arm was performed, and why wrenching, followed by shampooing and passive movements, effected a cure. An almost precisely similar case was in Stanley Ward in the summer. A woman, aged 62, had dislocated her shoulder. The dislocation had been reduced, and the limb kept bandaged to her side. When she was first seen at the Hospital, the whole limb was stiff from the shoulder to the fingers, and was very painful when any attempt was made to move it. Gas was administered, and the limb was carried through all its natural range, and then daily shampooed, moved, and douched. In about a fortnight she had lost all her pain, and had acquired almost completely the functions of the limb.

In some cases in which a joint is injured and inflamed, the surrounding muscles become rigidly contracted by reflex spasm, just as the masseter and other muscles of mastication sometimes firmly close the teeth when they are subject to reflex irritation, produced by a retained wisdom-tooth. When thus set, the masseter will so remain, as all surgeons know, and will fix the jaws for a long time after the tooth has been cut. Yet, if the jaws are forcibly separated while the patient is under gas, the contraction will not return. It is probable that some of the stiff joints which bone-setters cure may have been thus fixed by muscular contraction—a contraction which will not return if the muscles are once treated by forcible movement.

II. It seems very questionable whether rheumatic and gouty joints can be, as a rule, much benefited by forcible movement. Those which have become stiffened may sometimes be made more moveable, but as the stiffness commonly depends not on any adhesion that can be broken down and so got rid of, but on degeneration of the textures of the joint, wrenching is apt to do harm rather than good, by provoking renewed inflammation, and thus to lead to still further limitation of movement.

III. Ever since Hey related his cases of knee-joint displacement, locking of the semilunar cartilages between the articular ends of the bones has been a recognised form of trouble, and it is certainly by no means a rare accident. Yet it is frequently misunderstood in practice, and passed over as a simple sprain, or as an obscure injury, which time only can set right; and a similar accident is sometimes overlooked in other joints in which inter-articular cartilages exist, as in the wrist and lower jaw. I have on several occasions found the method recommended by Hey—that of flexion combined with rotation and then extension, by which, by the separation of the articular surfaces, the imprisoned cartilage is set free and enabled to slip back into its place—at once succeed in unlocking the knee-joint. Indeed, a patient who has a frequently slipping knee, and has seen it "put in," soon learns the trick, and will either practise it for himself, or tell some friend how to do it for him. A patient told me a few days ago that his knee often slipped, and that whenever it did so, he seated himself on the floor or on the ground, and directed any bystander to put it in for him. Shortly before I saw him, while he was walking alone in the Isle of Wight, the slip occurred, and he was compelled to wait for the next passer-by to put it right for him. These are cases with which the bone-setter is very likely to succeed, for although he does not know anything of the anatomy of the inter-articular cartilages, the method which he uses for all cases alike, that of forcibly

flexing and then extending and rotating the joint, happens to be very much the same as that which Hey adopted, and which the patient himself or a lay friend soon learns to apply.

IV. Some clear instances of the slipping of a tendon or of some strands of muscular fibre are on record. Sir James Paget has met with a few examples of the former accident. M. Martin[1] relates cases of slipping of the tibialis posticus tendon, the long tendon of the biceps, and the triceps of the arm, the rectus femoris, the sartorius, the plantaris, and the peronei; and Mr. Curling[2] has published a well-marked instance of slipping of the peroneus longus. Hamilton[3] quotes from Bloomfield the following:—"Mrs. B., a well-developed woman, aged 56, seven years since was thrown from a carriage, dislocating her right shoulder, which was reduced a short time after the accident; but the shoulder was painful and tender to touch, and almost useless for months after. She could carry the arm forward and backward, but could not raise it from the side, or carry the hand behind her, or raise it to her head, for fourteen months. She has gradually gained better use of her arm; but now, July 1858, she cannot raise her elbow from the side more than half-way to a horizontal position without assistance; but with assistance the arm may be carried into any position without pain or resistance. Measurement shows no appreciable difference in the size or length of the arm or size of the shoulder, but the point of the shoulder is still tender to the touch, is prominent in front, and correspondingly flattened behind. The head of the humerus appears to rest against the outside of the coracoid process, but the fulness of habit obscures the diagnosis. . . . I examined the shoulder again in November last; it presented the same general appearance, although the patient was much thinner in flesh from recent sickness. Some six weeks previous to this examination, in a sudden and thoughtless effort to raise the arm above the head, the muscles unexpectedly obeyed the will, since which time she has had perfect use of it, though the deformity still remains. She thinks she felt or heard a snap when the arm went up, but it was followed by no pain, soreness, or swelling." In remarking on this case Dr. Hamilton says:—"There can be no doubt, we think, that here, at least, the deformity and maiming were due in great measure to a displacement of the long tendon of the biceps." Mr. Callender has recently contributed to the "British Medical Journal" an interesting paper on displacement of muscles, and Cases I. and VII. were probably cases of slipping tendons. While, however, the displace-

[1] Bull. de l'Acad. de Med., January 6, 1874.
[2] British Medical Journal, January 2, 1869.
[3] Chir. Observ., vol. ii. p. 76.

ment of tendons is thus proved on ample evidence, it may well be doubted, seeing how few examples of the accident have been placed on record, whether it is not a rare occurrence. But if it were present, it is very probable that the manipulation employed by bone-setters would succeed in reducing it; and it is a condition which surgeons should be careful not to overlook.

Case VII.

Mr. A. C. told me that while in the act of stooping, when out walking in the country, he was suddenly seized with such sharp "tearing" pain at the insertion of his tendo achillis, that he felt cold and faint, and could not stand. After resting for a few minutes, and then trying to get up, he felt the pain leave him as suddenly as it had come on, and he could walk as well as before. An hour afterwards, in stepping over some rough ground, he was attacked again. Pain was intense, and he could rest his foot on the ground only on the outer border, and while the limb was kept in advance of the opposite leg. For some twenty steps he suffered so much that he thought he should be compelled to wait for some conveyance to take him home; but in a moment his pain left him. No stiffness, pain, or inconvenience of any kind remained, and he has since had no return of the trouble.

Case VIII.

Mr. B., aged 34, while walking along a dark passage, fell about nine feet through a trap-door, which had been left open, into a coal cellar, alighting on the foot with which he was in the act of stepping forward. Severe pain and rapid swelling of the ankle ensued, but he was able to limp to an omnibus and ride home. Considerable extravasation of blood took place in the muscles of the calf, and the swelling and pain only slowly subsided. When I saw him, a month after the accident, the ankle was perfectly cool, and there remained only some slight puffing at the sides of the tendo achillis. The joint was quite stiff, and he could bear no weight upon the limb. The foot was freely moved under gas, and in a few days the patient returned to his business cured.

Case IX.

A man, aged 45, slipped in the street, and severely sprained his ankle. Great pain, swelling, and ecchymosis followed, and he was confined to his bed for three weeks. At the end of this time he was able to walk with two sticks, but was very lame.

Some improvement gradually took place, but the ankle still remained, month after month, shapeless from chronic swelling, with the skin tense and shining, and with so much "weakness" that he could bear scarcely any weight upon it. Nine months after the accident I saw him. The joint was stiff, shapeless, and "weak," but it was perfectly free from heat; indeed, it was colder to the touch than the opposite limb; the foot was not at a right angle with the leg, but pointed in a position of slight equinus. When he had inhaled gas, I forcibly carried the foot through all its normal range of movement, both at the ankle and the tibio-tarsal joint. In doing so, I at first met with considerable elastic resistance, and as this yielded I could feel numerous rather tough adhesions giving way, and minute and deep-seated snaps and cracks were heard. No pain or trouble of any kind followed; the patient, though without leave, got up the same afternoon and walked about the ward. In two days he left the Hospital with the joint very slightly stiff; but he could bear his whole weight upon it, and could walk with very trifling lameness. A week later, when he came to be seen, he reported himself quite well.

Case X.

A man, aged 48, who had big knuckles and distorted fingers from rheumatic gout, fell and sprained his ankle. The accident was not very severe, but as it provoked an attack of gout in the part, it laid him up for a fortnight. He could then get about with the help of two sticks, but the joint remained swollen, and painful when the foot was put to the ground. For the next two months he could do no work, but remained at home under the care of a surgeon, who ordered various remedies, lotions, liniments, and medicines, but nothing did him good. At the two months' end he came to the Hospital, assisted by his wife, and travelling slowly and painfully with the further help of two sticks. He could not get his boot on, but had wrapped up his foot in a large piece of flannel. The joint was found quite free from abnormal heat, and the patient said it was generally cold, though at night, if he had tried to walk, it grew rather hotter than the other foot. The skin had a natural appearance, and there was but little swelling about the ankle; he complained of much pain and tenderness at the front of the instep, but nothing wrong could be felt in this situation. He took gas, and I moved the foot freely in all directions. When it was carried into full flexion, a loud sonorous snap was heard. On regaining consciousness, he could flex and extend the foot without pain. The same afternoon he walked about the

ward with scarcely a trace of stiffness, and in a day or two he went home. Three weeks later he came to the Hospital with gout in the opposite ankle, but that which had been "set" was quite well.

Case XI.

A woman, aged 38, fell as she was going downstairs, and struck the knuckle of the middle finger against the bannister. Much swelling and pain followed, but she was told nothing was either broken or put out. The hand was kept at rest on a splint, and cold lotions were applied to the bruise. The part, however, remained painful and disabled, and there was a good deal of swelling about the knuckle. Twelve weeks later I saw her. The finger was quite straight on the metacarpal bone, but quite stiff, and so painful on movement that she could not use her hand for anything. "She thought she should never get the use of it again." There was some heat, which she said was increased at night, and the joint was a little puffed. I bent the finger when she was under gas, carrying it to full flexion, and also moved it laterally. For several days the joint remained very sensitive, rather hot, and painful on movement, and seemed very little better for the treatment. But in a week it had grown quite cool and much less sensitive, and she could use the hand for dressing herself and lifting light objects, which she had been unable to do since the accident. I saw her a month later, when she reported the finger as being very nearly sound.

Case XII.

A lady, between 30 and 40, wrenched her knee two years ago in getting into her carriage. The joint was painful, hot, and a little swollen for a fortnight, but after that time seemed to have recovered, so that she felt neither pain nor disability in it, except when she carried the leg from semiflexion to full flexion on the thigh. She could stand long upon it and walk long distances, five or six miles, without inconvenience, either at the time or afterwards; but she was constantly annoyed and kept anxious by the fear of serious disease, and by the pain she felt on any attempt fully to flex the limb. Nothing that was wrong could be seen at the joint. She took gas, and the limb was suddenly carried into full flexion, and the leg was rotated in its long axis on the condyles of the femur. No pain or other trouble followed. This treatment did not at the time completely remove her pain, but so considerably diminished it, that I believe if she had been told that a bone had been out but was now safely in again, she would have

fully believed the story. When I saw her two months later, she still had some slight pain, but said she now thought very little about it, and believed she should get quite well.

Case XIII.

A girl, 10 years old, was under treatment at the Hospital for morbus coxæ, of about twelve months' duration. The disease had been only moderately acute, and there had been no suppuration. When she left the Hospital the limb was in good position. Shortly afterwards acute symptoms occurred, and she was confined to bed for two months, with night screams and pain at the knee. Then she was allowed to go about on her crutches. When I saw her six months later, her mother said that at the time she began using her crutches it was noticed that her limb was so much drawn up, that, as she stood, her foot was four inches off the ground, and it had so remained for four months, when she fell. A good deal of pain in the hip and thigh resulted from this accident, but passed off in two or three days. When she again resumed her crutches, her mother found that the limb was very nearly straight, and that the foot touched the ground. On examination of the joint two months after this, there was only slight flexion, and there was free movement of the femur in the acetabulum through an arc of about 15°. There can be no doubt, I think, that the patient was much improved by this accidental bone-setting. Adhesions at the joint had fixed the limb in a position of flexion, and these were torn through by the fall.

Case XIV.

A lad, aged 18, as the result of an injury some years before, had his elbow locked, so that he could not extend his forearm beyond an angle of 130°. When playing, one of his companions caught him by the hand and jerked him suddenly forward. He had severe pain at the elbow, lasting some few minutes, but this soon subsided. He then discovered he had regained the power of completely extending his forearm, and the stiffness has never returned.

Case XV.

A man, 72 years old, came to the Hospital a few months ago for advice about his arm. Six weeks before, he had slipped down in the street and injured his shoulder. He was told he had sustained neither fracture nor dislocation, but the limb had remained stiff, painful, and useless. On examination it was found that the arm could not be raised from the side, the shoulder-joint was stiff,

and any movement, except through a very narrow range, was very painful. There was no heat at the joint, and very little swelling. When he had inhaled gas I moved the limb freely in all directions, first practising rotation of the humerus in the glenoid cavity, and then bringing the forearm across the chest, raising it to the head, and carrying it backwards. On recovering consciousness, the patient could move his limb, though with much pain, and in the course of a fortnight reported himself cured.

It only remains to point out how the foregoing remarks and cases apply to the everyday practice of surgery. I think it is proved that bone-setters cure a number of cases many of which have previously been under surgical treatment without relief. Our knowledge of this subject seems to have arrived at a point from which it is easy to see that forcible movement, with its accessories of shampooing and douching, is a more efficient means of treatment, and more frequently useful, than has been hitherto believed; that in a large number of injuries, and often after inflammations, this method is capable, whether by the rupture of adhesions, the adjustment of displacements, or by the mere rousing or movement of muscles, of removing stiffness and relieving pain and the patient's sensation of weakness in the part; and that in many nervous affections, whether they come under the heading of hysteria or of nervous mimicry, the treatment will effect a cure, probably by the strong mental impression which it makes upon the patient, whether of fear or of strong belief. I need not try to group in a single sentence all the cases which are appropriate for this method—these may be gathered from the authors I have quoted and from the examples I have given. Neither is it necessary to repeat all the precautions with which alone it can be safely practised, for these all surgeons will understand. My object has been rather to induce practitioners to keep the method more prominently in view, and to employ it more frequently than has hitherto been customary. We have no concern with the mere prosperity of bone-setters, but we cannot look with indifference on either their successes or their failures, for their successes prove that we have been remiss, while for their failures, and for the mischief they not rarely inflict, we are in no small degree responsible, if by neglecting the manipulative treatment we encourage or even compel patients to seek their help.

ANALYSIS

OF

FORTY CASES OF RHEUMATIC FEVER.

BY

SAMUEL WEST, M.B.

I give in this paper the results of the analysis of forty cases of rheumatic fever which I had the opportunity of observing during the last year in Dr. Andrew's wards. I wish especially to express my thanks to him for his permission to make use of these cases, and for his ever-ready and friendly advice on this as on so many other occasions.

I have arranged the cases in three groups. Table I. contains those in which the observed attack was the first; Table II. those in which it was the second. In Table III. are found those in which there had been at least two previous attacks. They are all strictly comparable. All are cases of true rheumatic fever, and all were treated in the same way (viz., by the administration of salicylate of soda in doses of twenty grains every two hours until deafness was well marked, when the dose was reduced).

I shall discuss first each table by itself; I shall then consider the cases taken as a whole; and in conclusion I shall draw attention to certain forms of cardiac affection of especial interest in connection with this subject.

In discussing the statistics of the first attacks (Table I.) I shall consider, first, the period of life at which the first attack is most liable to occur; secondly, the liability to cardiac complications; and lastly, the nature of the cardiac complications.

I. *Age.*—Given the first attack, subsequent attacks may occur at any period, and hence, in discussing the relation of rheumatic fever to age, it is most important to consider only the dates of the first attacks. This Dr. Sibson, in his article in Reynold's "System of Medicine," has not done. He has massed together all his cases

Table I.—First Attack.

No. of Case.	Age.	Sex.		Persistent.				Disappearing.				Pericarditis.	Dilatation.		Pleurisy.	Albuminuria.	Summary of Case.
				Aortic.		Mitral.											
		Male.	Female.	Systolic.	Diastolic.	Systolic.	Diastolic.	Aortic.	Mitral.	Blowing (ventricular?).	Weak 1st Sound.		Temporary.	Persistent			
1	14	1	...	...	...	...	...	...	...	...	...	1	...	1	...	...	Peric. with effusion ; very slight history of rh. ; no endoc. ; probable adhesion of peric.
2	16	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	Persistent apex M. developing.
3	19	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Simple uncomplicated case.
4	16	1	...	1	1	1	...	...	...	...	...	1	...	...	...	...	Peric. ; double aortic ; syst. mitral.
5	15	1	...	...	...	...	...	...	...	1	...	...	1	...	1	1	Card. dilat. ; ? myocarditis ; ? anæmic M. ; albuminuria ; relapses ; pleurisy ; M. and dilatation disappear.
6	37	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	Weak first sound only.
7	37	*1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	Weak first sound ; delirium tremens.
8	20	...	1	...	...	...	...	...	..	1	...	...	...	...	...	...	Blowing M. which disappeared ; suckling.
9	14	...	1	...	...	*1	...	...	...	...	...	...	...	..	...	...	Faint syst. M. (persistent mitral).
10	20	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	Anæmic M. disappearing.
11	36	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	Uncomplicated case.
12	19	...	1	...	...	1	...	...	...	...	...	1	...	1	1	...	Severe peric. with effusion ; friction as effusion subsided ; pleurisy ; mitral M. ; sudden attack of cardiac dyspn. during convalescence ; dilatation, temporary, on getting up.
13	21	...	1	...	...	1	1	...	...	...	...	...	...	1	1	...	Double pleurisy ; double apex M.
14	26	...	1	...	...	...	...	..	...	1	...	...	...	...	...	...	After parturition ; delirium ; chorea ; anæmic M. ; slight syst. apex M ; acute bedsore ; M. disappears.
15	34	...	1	...	...	1	...	..	...	...	...	...	..	...	...	...	Development of persistent apex M.
16	10½	...	1	...	...	1	...	..	...	...	...	...	...	...	...	...	Development of persistent apex M.
17	22	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	Anæmic M. which disappears.
18	47	...	*1	...	...	...	...	...	...	...	...	1	...	...	...	...	? First attack ; peric. disappearing.
...	...	6 ?7	10 ?11	1	1	6 *7	1	...	...	5	2	4	1	3	3	1	

* Doubtful first attacks.

irrespective of the number of the attack the patient might be at the time suffering from. On this account his statistics relating to this point lose much of their value.

Of the 40 cases quoted in this paper, the date of the first attack is noted in 37. Two cases (ages 47 and 37), in which it was uncertain that the present attack was the first, have been omitted. In the remaining one, the date of the first attack could not be obtained, but it was before the age of 16.

The mean age of these 37 cases is $20\frac{2}{37}$ years. Of these, 30 occurred between 10 and 26 inclusive, and 20, *more than half* (5·4), between 14 and 20 inclusive.

Of the 37 cases, 20 were males and 17 females. The mean date of the first attack of the 20 males was $18\frac{16}{20}$; of the 17 females, $22\frac{3}{17}$. Between 10 and 26 inclusive, there were 18 male cases and 14 female cases. Between 14 and 20 inclusive, there were 16 male cases and 8 female cases.

From this it would seem that females are attacked on the average somewhat later in life than males, and that males are most liable during the period of adolescence (from 14 to 20), while in females the liability is spread over a longer period.

Of the cases in the first table, 16 in number, all of which were under observation during the first attack, the mean age was $21\frac{1}{4}$, *i.e.*, a little above the mean average of the total number of cases quoted. Of these 16, 13 occurred between 10 and 26, and 10 between 14 and 20, inclusive, results which agree very closely with those obtained from the larger numbers as given above.

II. *The liability to cardiac complications.*—Of the 16 cases, 8 had at some time or another some affection of the heart, endocardial or pericardial, and one had marked dilatation, which produced symptoms, and then subsequently disappeared. Of the rest, 5 had blowing murmurs, which disappeared; and in 2 the first sound is noted as being weak. Neglecting those in which the cause of the murmurs is uncertain, it follows that 8, and in in all probability 9, had some affection of the heart—*i.e.*, 50 or 55 per cent.

Dr. Sibson gives as his result 50 per cent., so that although, with a larger number of cases, my percentage might have been somewhat lower, it is clear that the proportion of cases in which the heart is attacked is larger than is commonly stated.[1] This is probably explained by the admixture in the older statistical tables of cases which should have been classed under other headings than that of rheumatic fever, such as gonorrheal rheumatism,

[1] Dickinson gives 22·4 per cent.; Wunderlich, 26·3 per cent.; Bamberger, 34 per cent.; Frerichs, 34 per cent.; Vogel, 50 per cent. Other observers give a percentage which is so low as to suggest some error in statistics.

acute and chronic osteo-arthritis, and especially synovial rheumatism or rheumatic gout. These cases are only very rarely complicated with cardiac affections, and in these tables they have been all carefully excluded.

III. *The nature of the cardiac complications.*—The 9 cases of cardiac complication group themselves thus :—

Pericarditis only.....	1.	In one other case (? first attack) there was also pericarditis, which disappeared, leaving no trace.
Peri- and Endo-carditis	2.	
Endocarditis alone.....	5.	
Myocarditis[1].....	1.	

Of the 7 cases in which a persistent murmur developed (5 females, 2 males), the average age was $18\frac{4}{7}$, but of 6 (*i.e.*, omitting one case, aged 34), 16. Hence the liability to cardiac affection decreases with the age at which the first attack occurs. This agrees with Dr. Sibson's conclusions, who states that cardiac complications are more common before the age of 21. Senator[2] similarly gives 33 as the percentage of cases complicated with cardiac affection before puberty, and states that the risk of cardiac complication diminishes rapidly after the age of 25. Dr. Peacock also has shown that mitral affections of rheumatic origin are met with at an earlier period of life than those of non-rheumatic origin.

In all these cases the mitral valve was attacked, in five giving rise to a systolic murmur alone; in one the systolic murmur was preceded by a short præsystolic; and in one, besides a systolic mitral murmur, there was also a double aortic.

Dr. Sibson's cases prove similarly that affections of the mitral valve preponderate after rheumatic fever, and that aortic disease is a comparatively rare complication. But he also states that when aortic disease occurs it is regurgitant in character; and all aortic systolic murmurs he calls anæmic. This is *a priori* improbable, and such a case as that last cited is sufficient to disprove that statement.[3]

Pericarditis occurred in three cases out of 16 (and in one other doubtful first attack. In this last case it disappeared, leaving no traces. Of the others, in one (male, 14) it was associated with no endocarditis, but it left behind it persistent dilatation, probably due to adhesion. In one (female, 19) it was associated with a mitral systolic murmur, and also left persistent dilatation, possibly also due to adhesion. In the last case it was associated with double aortic and systolic mitral murmurs.

[1] Further reference will be made to this case later.

[2] Ziemssen's Encyclop., under Rh. F.

[3] Dr. Peacock traces a rheumatic cause in cases of (α) mitral disease in 66·7 per cent.; (β) mitral and aortic disease combined, in 62·5 per cent.; or in (α) and (β) together, 63·6 per cent.; (γ) of aortic disease, 23 per cent.

Table II.—Second Attacks.

No. of Case.	Age.	Sex. Male.	Sex. Female.	Old. Aortic. Syst.	Old. Aortic. Diast.	Old. Mitral. Syst.	Old. Mitral. Diast.	New. Aortic. Syst.	New. Aortic. Diast.	New. Mitral. Syst.	New. Mitral. Diast.	Disappearing. Aortic.	Disappearing. Mitral.	Disappearing. Blowing.	Disappearing. Weak 1st Sd.	Pericarditis.	Dilatation. Temporary.	Dilatation. Persistent.	Pleurisy.	Albuminuria.	Age of 1st Attack.	Summary of Case.
1	25	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	21	Old Mitral M.
2	22	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	20	New persistent mitral systolic M.
3	20	1	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	15	Peric.; blowing syst. M.; left with heart normal.
4	27	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	20	Old apex M.; frequent relapses.
5	28	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	20	No M., but card. dulness increased upwards (persistent).
6	19	1	..	..	..	1	..	..	..	1	..	..	..	1	..	1	..	..	..	..	19	Peric.; old mitral mischief with new.
7	22	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	20	Old syst. mitral M.: temporary dilatation.
8	40	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	37	Weak 1st sound; no murmur.
9	17	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	16	Old systolic mitral M.
10	28	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	24	Uncomplicated case.
11	24	..	1	..	..	..	..	..	..	1 ? old.	..	..	..	..	..	1	..	..	1	1	23	Peric., bronchitis, albuminuria; high temp.; pleurisy (left). Discharged with large dilated heart; mitral incompetence, and probably adherent peric.
12	18	..	1	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	14	Persistent præsystolic M.; disappearing aortic systolic M.
13	18	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	14	Weak 1st sound; otherwise uncomplicated.
14	45	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	42	A blowing M., which disappeared; otherwise uncomplicated.
..	..	10	4	..	..	5	1	..	..	2 (? 3)	..	1	..	3	2	3	1	1	1	1	..	
15	47	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	36	The case left the Hospital after two days, and was therefore not complete. It is not further referred to in the paper.

Table III.—Third Attacks.

1	(?)	1	..	1	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	13 (22)	Persistent double aortic and double mitral.
2	19	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	7 (18)	Peric.; acute dilatation on getting up, which subsided.
3	24	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	20 (21)	Old syst. apex M.
4	22	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10 (13)	Old syst. apex M., faint at first, and becoming louder.
		3	1	1	1	3	1	..	..	..	..	..	..	..	..	1	1	..	..	..		

Fifth Attacks.

5	37	..	1	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	25 (29, 30, 32)	Old double mitral M.
6	19	..	1	..	..	1	1	1	1	..	..	..	..	..	..	1	..	..	..	..	(?) (? ? 16)	Peric.; old double mitral M.; double aortic develop.
..	..	..	2	..	..	2	2	(? Whether new or old.)				..	..	..	..	1	..	..	..	..		

Seventh Attack.

7	27	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	7	(12, 18, ?, ?, 24) No M. on admission; disappearing apex M.; 3 relapses; dilatation on getting up, which subsided in great part.

Table II. gives the results of those cases in which the observed attack was the second. They are 14 in number (10 males and 4 females), and of these, 9 had cardiac affection, old and new. Classifying these cases in the same way as those of the first table, we have these results:—

Pericarditis only	1	from which recovery seemed to be complete.
Pericarditis and endocarditis	2	in one there was extension of old mischief. in one it was uncertain whether the endocarditis was old or new.
Endocarditis alone	6	in four the lesion was old. in one it was uncertain whether the lesions were new or old. in one it was new.

In all these cases the murmur was mitral systolic. Of the remaining five, two had disappearing murmurs. In one it was aortic systolic; one had a weak apex first sound; and one was entirely uncomplicated.

Taking the results of Table III. together—*i.e.*, of those cases in which there had been two attacks at least of rheumatic fever before—we observe that out of seven, six had some cardiac affection, old in five and new in only one. In this last it was pericarditis, which led to temporary dilatation, but left no organic mischief behind it. Of the five old lesions, the mitral was attacked in all, in three giving rise to a double murmur, in the other two the murmur was systolic only. Of the former three, two had in addition a double aortic murmur, in one old, in one probably new and associated with pericarditis. These again are instances of the, occasional at any rate, rheumatic origin of aortic systolic murmurs. The only case in this table in which the heart was apparently free from mischief occurred in a man who was suffering from his ninth attack; but in him, as will be seen later, it is open to question whether the weakness of the heart, which was proved to exist by the temporary dilatation during convalescence, was not possibly due to some myocardial affection.

Combining now the results of Tables II. and III.—*i.e.*, of those cases in which the observed attack was not the first—we find that out of 21 cases, 14 had some permanent valvular lesion, and that one was left with permanent dilatation without any definite organic cause. This gives 66 (or 71·5) as the percentage of cases in which the heart was permanently affected. In one other case, be it observed, pericarditis occurred which produced no persistent lesion; so that, including this case, in 15 out of 21 the heart was affected at some time or another, and if we may also include the last case in Table III., 16 out of 21—*i.e.*, 76 per

cent. The percentage of the cases in which there was permanent lesion in the first table was 50 (or 54); in these last tables, 66 at the lowest. This shows, as would be expected, a progressive rise in the percentage as the number of attacks increases.

Of the cases in the last two tables, only four are above 30 years of age. Making allowance for a certain number of cases which have died from the severity of their heart lesions, we may draw the conclusion that, given the first attack of rheumatic fever, the liability to subsequent attacks diminishes rapidly after the age of 30.

Of the other complications which occurred in these cases, pleurisy was observed four times. In two it was on the left side and associated with pericarditis; in the other two it was accompanied by endocarditis. Albuminuria occurred twice—once in a very mild case, once in a severe case associated with pleurisy, pericarditis, endocarditis, and bronchitis. Bronchitis occurred also in one other case, but this ran a mild course.

The temperature in all these cases was never very high (there was no case of hyperpyrexia among them). It rarely reached 102°. It was usually between 100° and 101°, except on the first day in the Hospital, when it was always at its highest, often reaching 103°. Upon this point stress is often laid, and the fall in temperature referred to the action of drugs. It occurs, however, in nearly all cases alike, whether antipyretic drugs have been employed or not; and the probable explanation of the high temperature on the day of admission is, I believe, the great pain and increased irritation of the inflamed joints by the often very rough handling of the patients on the journey to the Hospital from their own homes.

Reference may be made here to the treatment adopted, which was, as stated in the commencement of the paper, in all cases the same, viz., the administration of salicylate of soda in 20-grain doses every two hours at first, the dose being diminished as the pains subsided, or as soon as deafness developed. Its influence upon the pain was in nearly every case most marked, the pain disappearing in a few hours almost as if by a charm. So that, although salicylate of soda cannot be regarded as an absolute specific,—for in a few cases it fails, like other drugs,—it is, at any rate, the most valuable anti-rheumatic remedy we possess at present. The fact that the administration of the drug was stopped, or the amount given diminished as soon as deafness was well established, accounts, no doubt, for the absence of any cerebral symptom due to the drug. In one case only (Case VII.) did such symptom develop. The patient was a heavy drinker, and it seemed most probable that the attack was one of delirium tremens.

I have reserved to the last a class of cases of some interest, especially in connection with the subject of rheumatic fever. I refer to cases of sudden or acute dilatation of the heart. Dilatation will occur in the heart whenever the work it has to do is more than it is competent to perform, and that form of chronic persistent dilatation which is associated with long-standing endocardial or pericardial lesions is a matter of common observation. I refer, however, not to this, but to an acute dilatation of a temporary character.

This acute dilatation is not uncommon in cases of organic disease of the heart, where the muscle is unable in the time given to respond to the call for extra work made upon it. It is observed on both sides of the heart, but it is of most serious importance when it attacks the left ventricle as a consequence of advanced degeneration of the muscular tissue, and is in these circumstances a not infrequent cause of sudden death. But organic disease, recognisable clinically, is not essential to the occurrence of this kind of dilatation. It occurs frequently in hearts which are, so far as can be judged, simply weak; and it is to this class of cases that I refer.[1] This weakness makes itself conspicuous, of course, where the work is heaviest, and that is on the left side of the heart. Dilatation of the left ventricle may be reasonably inferred when there is observed a sudden displacement of the apex downwards and outwards, and with a coincident increase in the cardiac dulness in this direction and upwards towards the left, with at the same time the absence of other causes to account for these phenomena. Two cases referred to in this paper afford good instances of this kind of dilatation, and, considered together, supply the reasonable explanation of the change.

Frederick M., aged 27, was suffering from his third attack of rheumatic fever. It was a mild case throughout. There was no old cardiac mischief. A faint blowing systolic ventricular murmur developed during the acute stage, but quickly disappeared; and there was no other evidence of cardiac lesion. After having been kept in bed for fourteen days, he was allowed to get up for three or four hours in the afternoon. The next day he had a slight return of pain in his shoulders and was kept in bed. The position of the apex and the cardiac dulness were, before getting up, normal. The apex was now half an inch outside the nipple, and the dulness extended from this point upwards outside the nipple to the upper border of the fourth rib, about two inches from the sternum. The first sound at the apex was reduplicated, not clear, and occasionally there was a doubtful systolic murmur.

The second case was that of Fred. W., æt. 19, who was also

[1] Stark, Arch. f. Heilk., vol. i. 1863, On Chlorosis. Dr. Peacock, &c., On a Consequence of Over-exertion ("Idiopathic Dilatation").

suffering from the third attack of rheumatic fever. In him the attack was rather more severe, and was complicated by pericarditis, which lasted, however, only a few days and disappeared. He was also in bed fourteen days, and was then allowed to get up. At this time his cardiac dulness was normal; but the next day the apex was found beating 1½ inch outside the nipple, and from this point the cardiac dulness extended upwards just outside the nipple to the middle of the second space, one inch from the left of the sternum. Towards the right it reached nearly to the right edge of the sternum. There was no murmur.

These two patients both got up on the same day. They both had dilatation, which was, however, most marked in the case in which there had been some cardiac mischief.

F. M. was now kept in bed, and the increase in cardiac dulness was the next day half an inch less. This decrease continued day by day, and with it the murmur disappeared. He had during this time a slight relapse, and was kept in bed for nearly three weeks longer. At the end of this time he got up, and again there was some dilatation, but much less in amount. This gradually subsided after he had been up a few days longer, and he left the Hospital with the cardiac dulness only very slightly larger than normal.

F. W., on the other hand, was allowed to remain up. The next day the cardiac dulness was still further increased and the apex half an inch farther out, and a faint blowing systolic murmur developed. A day later the apex had commenced to return. After a week it was still about half an inch outside the nipple, but the murmur had disappeared. When he left the Hospital the cardiac dulness was larger than normal, but the apex was within the nipple.

In both cases the cause of the increased strain was the same. By the exertion of being up, in both it produced dilatation, most marked where there was reason to believe the heart to be weakest. In the one where the strain was removed by keeping the patient in bed, the dilatation subsided. In the other, where the strain was maintained by allowing the patient to remain up, the dilatation increased at first, and then slowly subsided.

Such weakness of the heart as this does not occur in all cases of rheumatic fever, and whether there is sufficient ground for assuming in such cases an anatomical change in the structure of the heart itself, either of the nature of an inflammation (myocarditis) or a degeneration, is open to question. That such lesions are at any rate possible is evidenced by such cases as the two following, in the first of which the existence of some such lesion seemed to be the only satisfactory way of interpreting the symptom, and in the second, the myocarditis was proved beyond doubt

by microscopical examination of the heart tissue, the case being one of those rare instances in which sudden death occurred in the course of rheumatic fever not complicated with hyperpyrexia.

The first case was that of John H., aged 15, who was admitted into the Hospital on November 15, with rheumatic fever. It was his first attack, and he stated that he was taken ill on the 11th, and that on the 12th he had severe pains in his joints.

On admission the temperature was 102·5°, which rose towards evening to 103°, and a large number of joints were in the state of rheumatic inflammation; but what was most striking about the case was the dusky, half-cyanotic tint of his complexion and the embarrassment of his respiration. The distress of the patient rendered much examination unadvisable, but it was clear that there was no pericardial effusion, and a friction sound was absent. The patient complained of no pain in his chest, and his expression was not that of severe pericarditis. On auscultation the heart-sounds were so weak as to be almost imperceptible. The first sound was just audible within the apex-beat, but that was all.

The next day (November 16) the patient had lost nearly all the pain in his joints, but the dusky tint persisted, though perhaps it was not quite so marked, and the heart-sounds began to be more audible. No friction; no murmur; T. 101°; P. 96, dicrotous; R. 30.

November 17.—No pains; T. 98·6°. Cardiac dulness slightly increased upwards and to left. No friction; slight amount of albumen in the urine.

November 18.—Patient looks more dusky and pinched; is very drowsy; no pains; sick several times during the last twenty-four hours, especially after food.

Cardiac dulness increased towards right, reaching to right edge of sternum; apex not to be felt; heart-sounds very feeble, as yesterday; T. 99°; P. 84, very dicrotous. As some of the sickness, it was thought, might be due to the salicylate of soda which he was taking, it was stopped.

November 19.—Better. P. 76, dicrotous. Heart-sounds very feeble, especially the first apex sound; no friction; no murmur; no albumen in the urine. The patient now commenced gradually to improve. This note was taken on the 26th. Heart very feeble; at the apex first sound weak, second prolonged; no murmur; deep cardiac dulness, increasing slightly upwards, but more considerably towards the right.

November 29.—Cardiac dulness less than on 26th; sounds still very feeble, but stronger than they were; faint systolic murmur within apex, loudest at the left base over the pulmonary valves; at the base the sounds hardly audible at all.

From this time the heart gradually recovered itself, but convalescence was interrupted by a short relapse, and subsequently by slight pleurisy at the right base behind.

When the patient was discharged at the end of December, the cardiac dulness was normal, and there were no traces of any cardiac lesion.

This case was most interesting, for it was by far the most serious of all the cases recorded here as regards the general condition of the patient during the acute attack—so much so, that on the 18th of November his state was such as to cause very grave anxiety. It was evident that he was suffering from some affection of the heart; but it was also clear that it was not pericardial, and equally clear that it was not endocardial. The only conclusion to be drawn is, then, that it was myocardial.

It is often stated[1] that it is doubtful whether recovery has ever taken place after myocarditis. This, of course, refers to general myocarditis, for the scars found not unfrequently in the muscular tissue of hearts post-mortem is sufficient evidence that partial myocarditis is not by any means necessarily fatal. If the interpretation of the above case is correct, and it is difficult to see what other will account for the symptoms, an additional interest is given to it from this fact.

The second case was observed in St. Thomas' Hospital by Dr. Bristowe, to whose kindness I am indebted for permission to publish it, and for the notes of the case I tender my best thanks to Dr. Sharkey.

Eliza S., aged 24, single, was admitted on February 19 into St. Thomas' Hospital. She had been quite healthy up to the present attack.

On February 15 she was seized with pain in her great toe, and on the 16th she could not walk, as her feet and knees were swollen and painful.

On admission on the 19th, she had pain in both knees, both hands, and both wrists, with considerable effusion; she complained also of pain in the pericardial region. P. feeble, 100. R. quick and shallow, 60.

Heart's impulse, the apparent apex felt on a level with and just within the nipple; there was also pulsation, wavelike, in the left third intercostal space; superficial dulness increased a little upwards, reaching the nipple on the left, but scarcely if at all beyond the left edge of the sternum towards the right; heart's sounds somewhat muffled, but no murmur and no friction (? pericardial effusion, but if any evidently very slight).

[1] Reynolds' "System of Medicine," Art. "Carditis," by Dr. Gowers.

No cough; tongue dry and coated; thirsty; appetite bad; sleeps badly; no headache; urine acid, slight trace of albumen.

Ordered pulv. doveri, gr. x.; pot. bicarb., gr. xx.; tr. hyoscyam., m. x.; ex. aq. camph.; 4ts horis.

February 20.—P. 144, small. Heart's sounds very feeble; no murmur, no friction; pain less; had a bad night.

Patient looks very pale and anxious, complexion having a bluish tint; has been very sick this morning. This was thought to be cardiac vomiting, and the patient was ordered a blister to the pericardium and some brandy. She got better, and the vomiting ceased.

At 4·45 P.M. her friends raised her a little in bed to give her something, and she fell back dead.

Post-mortem examination.—The pericardium contained a small amount of serous fluid; the right and left ventricles were considerably dilated. There was a little lymph upon the pericardium, but a good deal of subpericardial ecchymosis. The cavities contained a considerable amount of firm decolorised clot, which was probably forming for some time before death. This was adherent in the right auricular appendix. The left ventricle was much dilated, the valves healthy. The pulmonary arteries contained in their larger branches clots, probably post-mortem, but farther on they were obstructed by what might have been emboli. The walls of the heart below the endocardium looked uniformly pale and streaky to some depth, and in the substance of the muscular tissues were numerous large pale patches. The spot at which this appearance was most marked was about at the point of junction of the upper with the middle third of the left ventricle. At this point the heart appeared bulging and approached nearest to the surface, corresponding closely with the spot at which the pulsation of the apparent apex was described above. The spleen was considerably enlarged. The knee-joints, which were still somewhat swollen, contained a good deal of golden-coloured, rather viscid, and somewhat turbid fluid, but beyond a slight vascularity of the synovial fringes there was nothing further abnormal.

Microscopical examination showed that in these white patches in the heart the muscular tissue had undergone acute granular (fatty) degeneration, its fibres being converted into granular cylinders. There was no interstitial growth.

Reading the two first cases in the light of the last, it seems probable that there was in them also an anatomical change in the muscular tissue of the heart, similar in kind but far less in degree. It is possible, too, that more extended and careful observation may show that such dilatation is not by any means so uncommon as is usually thought. It is capable, we know, of

producing murmurs which usually disappear with convalescence; and if, as seems possible, this dilatation has for its cause organic change in the muscular fibre, a reasonable explanation is provided of the true pathogeny of many of the so-called anæmic or blood murmurs of rheumatic fever, and a caution is given as to the need of the most careful treatment of such cases.

A dilatation similar in character, and producing similar murmurs, occurs also in other classes of anæmic or exhausting diseases, but I will not refer to them now, as I have in preparation a further communication on this subject.

In conclusion I give a short summary of the paper, and the chief points referred to in it:—

1. Rheumatic fever seems to attack both sexes equally.

2. The average age of the first attack is about 20; in females a little later, in males a little earlier.

3. The liability to the first attack extends in females over a longer period than in males.

4. Cardiac complications occur in 50 per cent. of the first attacks, and in 66 per cent. of the rest, showing that with the number of the attack the chance of the patient's escaping cardiac disease diminishes.

5. The earlier the age at which the first attack occurs, the greater the likelihood of cardiac affection, and the greater the probability that this will be severe.

6. Of the valves attacked, the mitral hardly ever escapes. With it sometimes the aortic is involved. Of aortic affections stenosis is rare, but does occur occasionally.

7. Acute dilatation of the heart (left ventricle) sometimes occurs, possibly more frequently than is commonly supposed. This may depend upon organic change in the muscular tissue, and in one case was proved to do so by microscopical examination.

I am aware of the danger of drawing too dogmatic statistical conclusions from a small number of cases. At the same time a large number brings with it fallacies and dangers of its own. All these cases have been very carefully observed, and so far are worthy of being recorded. If I am not able to add extensively to their number myself, at a later period I hope the analysis of these forty cases may be found useful to others in the preparation of larger tables.

A CASE

OF

PARAPLEGIA WITH SACRAL DECUBITUS,

BY

SAMUEL WEST, M.B.

Paraplegia with sacral decubitus, and ulcers in bladder and urethra, leading to extravasation of urine.

Sequence of events—Bronchiectasis—Pleurisy—Caries of ribs—Tracking of pus—Post-meningeal abscess in spinal canal—Acute softening of spinal cord—Paraplegia—Sacral decubitus—Ulcer in urethra—Extravasation of urine—Pneumonia—Death.

W. W., aged 26, an apothecary's assistant, was admitted into the Hospital on the 23d of April with the following history. Though he had never been a strong man, he had been in fairly good health until November last year (1877), when he had a slight attack of "congestion of the lungs," from which, however, he believed himself to have completely recovered. He remained well till about the end of February, when he was attacked by pain round the abdomen above the umbilicus on the right side, which lasted for three weeks, and then became so bad as to oblige him to lie up in bed. After a week's rest the pains ceased, and the patient returned to work, noticing nothing beyond a feeling of weakness in his legs, which he attributed to his having been laid up. This weakness increased rapidly, and was followed by a feeling of numbness. A week later he had lost all power over his legs. He still retained motion in his toes, but in a few days this disappeared, and a little later the loss of sensation was complete too. This was about six weeks from the commencement of his illness. Throughout this period he had had no twitchings or pains, or odd sensation beyond the feeling of numbness in his legs. At this time he had

some difficulty with his water, and a catheter was passed twice. His back became red, and he was removed to an infirmary, when a few days later a large bedsore developed, and he was then sent to this Hospital.

State on admission.—Patient thin, poorly nourished. Pupils large, equal, and react readily. Cheeks flushed, dusky red. Tongue red at tip and edge, centre furred, tremulous. Respiratory movements equal on both sides, but the diaphragm acts somewhat later than the intercostal muscles. Pulse 120; beats not quite equal in force, and occasionally in frequency; rather dicrotous. Temp. not raised.

No cardiac murmur. Heart sounds feeble. Slight impairment of resonance at the apices of the lungs, especially on the right side. Facial muscles natural placid expression. Muscles of back of neck rigid, so that head cannot be bent on neck. Pectorals in constant tremor, fibrillary twitchings, especially on the right side. The same twitchings but less marked in both arms, especially in the right, affecting both arm and forearm, and chiefly the flexor muscles. Deltoids also affected. These tremors increased on voluntary motion. Considerable loss of voluntary power in both, but no difference between the two sides. Diaphragm acts later than the intercostal muscles. Complete loss of power in the lower extremities, and in all muscles below the thorax.

In legs reflex movements absent entirely in the right, but occasional though only slight in the left. No spinal epilepsy. Sensation completely lost below the level of the umbilicus. Very much impaired between the umbilicus and sternum. Above this fairly normal, no hyperæsthesia here. Electrical contractility of muscles fairly natural. Evacuations passed unconsciously. Bladder empty.

Large sacral decubitus, as large as the palms of two hands, occupying the middle line, but extending slightly farther on the right side. No pain over the spines except between the scapula, and here only very slight on pressure or percussion.

No history of syphilis, injury, or sprain, and patient cannot assign any cause for his illness.

April 25.—For the last two or three days has had occasional shivering fits, but none of great severity.

Bedsore looks very red and angry, extending slightly; ordered alternate application of ice and poultice; ice for ten minutes; poultice for two hours.

1 P.M.—Very severe rigor, lasting for an hour. T. 104.6°.

11 P.M.—Sleeping quietly. T. 99·8°.

April 26.—No more shivering fits. T. 98·4°.

Slept fairly; slight dysphagia.

11 P.M.—Face much flushed. T. 103°. P. 130. R. 32.

April 27.—Slept fairly. B. O.

Twitchings in arms less; no apparent increase in loss of power in arms.

10 A.M.—Rigor lasting one hour. T. 103·2°. P. 140.

1 P.M.—Rigor for half an hour.

8 P.M.—Rigor for quarter of an hour. T. 104·6°. P. 144.

April 28.—Rigor at 6 A.M. for half an hour; complained of deep-seated pain between the scapula; bedsore the same. P. 103. T. not high.

11 P.M.—T. 102·6°. P. 120.

April 29.—No more rigors.

Penis, scrotum, and perineum much swollen and boggy, swelling extending upwards on to abdomen, evidently due to extravasation of urine; free incisions were made with great relief. T. 104°.

Bedsore cleaning slightly.

11 P.M.—T. 100°. P. 108.

April 30.—Wounds look fairly healthy; sick once. T. 100°. P. 108.

Midnight.—T. 102°. P. 130.

May 1.—Wounds sluggish. T. 101°. Occasional hiccough.

May 2.—Yesterday afternoon spat a little blood-stained phlegm; slight cough, not troublesome; sick again; appetite failing. T. 101·5°. P. 144. R. 44.

Looks pinched and sallow; hiccough still.

11 P.M.—Sick twice; hiccough very troublesome. P. 140.

Skin perspiring; temp. low; abdomen tympanitic and distended; patient evidently sinking.

May 3.—Patient died early this morning.

Post-mortem examination.—Body fairly nourished. Incisions into skin and subcutaneous tissue along penis scrotum and in perineum. Large bedsore over sacrum, extending slightly farther to right side than left.

Pleural cavities obliterated on both sides; at the apices firm adhesions, especially the right.

On removing the right lung a small abscess was discovered, corresponding with the 6th, 7th, and 8th ribs, at a distance of about two inches from the vertebræ. These ribs were carious on their visceral surface.

The right lung was solid throughout, at the apex being in a state of chronic fibroid induration with dilated bronchi, while below this the consolidation was due chiefly to recent pneumonia, but also in part to chronic fibroid change. Corresponding with the abscess described above was found a cavity in the lung of the

size of a walnut covered with much thickened pleura, with ragged ulcerating walls, probably a dilated bronchus in which suppuration had occurred. The left lung with the exception of a little induration at the apex was natural.

From the carious rib lines of pus extended along the course of the nerves to the intervertebral foramina, through which they passed into the spinal canal. Here, corresponding with the 6th, 7th, and 8th vertebræ, was found an accumulation of pus lying behind the dura mater. The membranes of the spinal cord were healthy; the spinal cord itself at this spot revealed no change to the naked eye, but about two inches lower, corresponding with the 8th, 9th and 10th vertebræ, it became so soft as to be almost diffluent. On section it presented a creamy appearance, and it was impossible any longer to distinguish between the grey and white substance.

The bladder and pelvis were removed together, and the urethra laid open in its whole extent.

The bladder was in a state of chronic catarrh, and on the left side, just above the trigone, was found a small oval ulcer extending a little way into the muscular coat.

In the urethra, just in front of the triangular ligament, was a second oval ulcer, about three-fourths of an inch long. This had perforated the walls, and communicated directly with the subcutaneous tissue of the penis. There was no trace of stricture.

The other organs were natural.

During life the diagnosis was made of acute myelitis, probably due to disease of the vertebræ in the mid-dorsal region. This diagnosis the post-mortem examination confirmed in the main, and revealed much that was of great interest in the pathogeny of the disease.

With the post-mortem facts before us, I would interpret the case as follows:—In a patient with chronic inflammation of the lungs and bronchiectasis, one of the dilated bronchi lay so close to the surface as to lead to a considerable thickening of the pleura over it. Through these adhesions the inflammation propagated itself to the ribs, where it set up caries, and led to the formation of an abscess. From this abscess the pus travelled along the course of the nerves towards the spinal column, entered the spinal canal through the intervertebral foramina, and led to suppurative inflammation of the post-meningeal tissue. An abscess formed here which produced by pressure acute softening of the spinal cord a short distance lower down. The spinal symptoms consequent upon the softening were associated with certain trophic lesions, the one common, viz., the sacral decubitus, which was most severe, be it observed, on the right side—*i.e.*, on the side of the primary lesion;

the other, most uncommon, viz., two ulcers similar probably in character to the sacral decubitus, though small in size, the one at the neck of the bladder, the other in the spongy portion of the urethra, to the perforation of which the extravasation of urine was due, which occurred a few days before death.

The points which make this case so remarkable are—

1. The connection between a bronchiectatic cavity and caries of the ribs.

2. The tracking of the pus from the rib-abscess into the spinal canal.

3. The acute ulceration of the urethra, for which no local cause could be found.

With reference to the two first points, I have been unable to find any similar case recorded. In illustration, however, of the third point, I may refer to two cases which are somewhat analogous. The one, published by Dr. Wilks,[1] was a case of acute paraplegia of sixteen days' duration, in which the bladder was paralysed. Post-mortem the whole mucous membrane of the bladder was found exfoliated, except a small patch near the trigone. The urine had infiltrated between the muscular coat and peritoneum. The other, recorded by Professor Eulenberg,[2] was a case of paraplegia after fracture of the lumbar vertebræ. The bladder was found in a state of chronic catarrh, with a diphtheritic patch, which the author attributed to altered innervation. Neither of these cases is strictly comparable with the one recorded above, but I have been unable to find any others which could serve even as illustrations.

[1] Patholog. Trans., xv. 140. [2] Schmidt's Jahrb., 141, p. 60.

A

CASE OF INTRA-THORACIC TUMOUR.

BY

W. S. CHURCH, M.D.

The following case is to be regarded as a contribution to the clinical history of intra-thoracic tumour. I am induced to place the case on record on account of the very accurate clinical notes which were daily taken of the case. For this record I am indebted to the care of Dr. Verco, who was acting as my house-physician during the time the patient was in the Hospital. It is much to be regretted that the exact nature of the tumour was not ascertained by a microscopical examination after death; but as my principal object is to record the clinical features of the case, the uncertainty concerning the exact pathological character of the tumour is not of very great moment.

Joseph K——, aged 12, admitted into John's Ward under my care, May 31, 1876.

Previous history.—He had been ill four months with pain in the left lower lateral region, sometimes accompanied with pain in the right side also. He had had a cough during the whole time, and for the last week had seen traces of blood in the sputa, which were scanty.

Condition on admission.—He looked a healthy, moderately well-nourished boy. The lips were red and slightly dry.

On inspection of his chest, it looked rounded at the lower part, and the ensiform cartilage was prominent. He was somewhat high-shouldered. On examining his back, the right side, as compared with the left, looked bulged. The respiratory movements were slight. The right side both before and behind everywhere

yielded a full and resonant note to percussion. On the left side in front, the percussion note was absolutely dull from the clavicle to the level of the nipple; from the nipple the dulness faded into stomach-resonance at the base and lateral region; the dulness slightly overlapped the mid-line of the sternum; posteriorly the percussion note was everywhere much impaired, but no part seemed absolutely dull. Air entered freely all over the right lung, with no moist sounds, but the breathing sounds were rather coarse, and expiration jerky. In front, on the left side of the chest, feeble respiratory sounds were heard at the apex, becoming entirely absent towards the base and lateral region; posteriorly some tubular breathing could be heard, becoming feebler from apex to base. No moist sounds were heard anywhere. Vocal vibrations were felt very distinctly all over the right side, very slightly at the left apex, and were totally absent over the left base and lateral regions. The heart's impulse was diffused towards the sternum, and its movements were visible at the epigastrium. The abdominal organs appeared natural. The legs and feet were not œdematous. It was questionable if there was any clubbing of the finger-ends; certainly the change, if any, was very slight. The skin was perspiring gently; numerous purple spots (flea-bites) the size of pin-heads were scattered over the chest and arms.

Pulse soft, 96; respirations, 34; temperature, 98·2°.

The urine contained an excess of water and phosphates, but no albumen.

He was placed on milk diet, arrowroot, and beef-tea, and ordered hst. quiniæ c. pot. iod. t.d.

As it would be profitless and wearisome to give the full daily notes of the case, I shall extract only those which have some direct bearing on the progress or treatment of the case. A table of the temperature, pulse, and respiration for the whole time that he was in the Hospital is appended.

June 1st.—A systolic murmur was heard all over the pericardial region.

June 2d.—He had passed a good night, and it was with surprise that his temperature was found to be 102.2°; pulse, 120; and respirations, 30. In the evening his temperature had fallen to 98°, his pulse to 78; it was soft, and occasionally intermitting. His skin was perspiring.

June 3d.—In the morning his skin was dry and pungent; the lips cherry-red; tongue clean; bowels open. He was in no pain; had had no shivering or feeling of chilliness. Temperature, 103.4°; pulse, 126; respirations, 42. In the evening at 11 P.M. he was sweating profusely. Temperature, 98.6°; pulse, 84; respirations, 36. I determined to try the effect a large dose of quinine would

TABLE I.—TABLE OF TEMPERATURE, PULSE, AND RESPIRATIONS OF JOSEPH K——, AGED 12.

DATE.	TEMPERATURE.	PULSE.	RESPIRATION.	REMARKS.
May	Degrees.			
31. P.M.	98.2	96	34	
June				
1.	...	...	...	
2. A.M.	102.2	120	30	
P.M.	98.0	78	...	
3. A.M.	103.4	126	42	
P.M.	98.6	84	36	
4. A.M.	103.8	130	48	10 grains of quinine at 9 A.M.
P.M.	98.6	76	30	
5. A.M.	102.8	116	42	
P.M.	98.6	66	26	
6. A.M.	103.1	122	42	
P.M.	...	...	...	
7. A.M.	102.0	...	...	
P.M.	99.2	66	26	
8. A.M.	102.6	120	52	
P.M.	...	...	...	
9. A.M.	103.5	124	42	
P.M.	98.0	61	24	
10. A.M.	102.8	112	40	
P.M.	98.6	76	28	
11. A.M.	102.4	120	52	
P.M.	97.6	60	24	
12. A.M.	101.2	108	34	
P.M.	98.6	72	36	
13. A.M.	103.7	112	42	
P.M.	97.8	64	26	
14. A.M.	103.3	106	36	
P.M.	97.6	62	24	
15. A.M.	103.6	112	52	10 grains of salicylate of soda.
P.M.	97.0	54	24	
16. A.M.	101.2	112	36	Do. do.
P.M.	97.8	60	22	15 grains of salicylate of soda.
17. A.M.	99.2	98	34	Do. do.
P.M.	99.0	80	26	
18. A.M.	103.3	108	46	
P.M.	97.8	80	24	
19. A.M.	102.4	104	36	
P.M.	97.2	64	24	
20. A.M.	98.8	84	26	Do. do.
P.M.	98.8	78	28	
21. A.M.	103.2	126	46	

TABLE I.—*Continued.*

DATE.	TEMPERATURE.	PULSE.	RESPIRATION.	REMARKS.
June	Degrees.			
21. P.M.	99.2	90	28	
22. A.M.	103.6	116	46	
P.M.	98.6	90	30	
23. A.M.	102.6	112	38	Quiniæ sulph. gr. iij. every four hours.
P.M.	97.3	64	22	
24. A.M.	103.2	122	44	
P.M.	98.4	86	26	
25. A.M.	103.2	114	50	Quinine stopped.
P.M.	97.2	60	24	
26. A.M.	103.9	110	46	
P.M.	97.6	70	24	
27. A.M.	103.9	118	46	
P.M.	98.6	84	30	
28. A.M.	101.6	110	36	
P.M.	97.7	72	24	
29. A.M.	103.0	112	...	
P.M.	97.8	78	28	
30. A.M.	101.6	98	36	
P.M.	...	...	...	
July				
1. A.M.	100.2	106	34	
P.M.	98.6	96	30	
2. A.M.	102.5	112	36	
P.M.	98.6	80	30	
3. A.M.	102.2	112	42	
P.M.	99.3	84	30	
4. A.M.	102.5	116	44	
P.M.	97.6	82	26	
5. A.M.	...	...	...	
P.M.	98.6	82	24	
6. A.M.	101.6	104	44	
P.M.	98.6	84	24	
7. A.M.	102.3	104	34	
P.M.	98.6	70	28	
8. A.M.	101.0	104	...	
P.M.	98.8	86	28	
9. A.M.	101.6	106	38	
P.M.	98.0	84	26	
10. A.M.	102.5	120	46	
P.M.	100.0	98	36	
11. A.M.	101.8	120	56	
P.M.	98.4	82	24	
12. A.M.	101.0	126	42	
P.M.	98.2	92	28	
13. A.M.	103.2	120	38	
P.M.	99.0	104	28	
14. A.M.	102.2	122	36	
P.M.	99.2	94	30	

TABLE I.—*Continued.*

DATE.	TEMPERATURE.	PULSE.	RESPIRATION.	REMARKS.
July	Degrees.			
15. A.M.	102.2	124	...	
P.M.	99.8	112	34	
16. A.M.	99.5	100	34	
P.M.	...	...	...	
17. A.M.	100.8	...	...	
P.M.	100.8	112	36	
18. A.M.	99.6	108	36	
P.M.	99.6	106	34	
19. A.M.	102.6	100	...	
P.M.	100.4	104	32	
20. A.M.	101.6	104	42	
P.M.	100.0	112	28	
21. A.M.	100.8	112	28	
P.M.	102.6	124	42	
22. A.M.	99.0	88	28	
P.M.	101.2	108	32	
23. A.M.	99.0	88	32	
P.M.	99.2	88	26	
24. A.M.	100.6	114	23	
P.M.	99.2	88	30	
25. A.M.	101.7	102	...	
P.M.	100.0	94	36	
26. A.M.	99.6	110	36	
P.M.	99.1	102	...	
27. A.M.	100.8	96	34	
P.M.	98.4	80	28	
28. A.M.	101.2	106	34	
P.M.	98.4	94	26	
29. A.M.	102.2	104	40	
P.M.	99.0	86	30	
30. A.M.	102.8	120	36	
P.M.	99.0	90	28	
31. A.M.	102.0	108	...	
P.M.	99.0	96	30	
Aug.				
1. A.M.	102.8	136	42	
P.M.	99.1	108	32	
2. A.M.	97.6	110	32	
P.M.	101.4	120	42	
3. A.M.	100.4	96	36	
P.M.	101.4	118	36	
4. A.M.	99.4	100	30	
P.M.	100.4	102	34	
5. A.M.	101.2	104	36	
P.M.	100.2	102	32	
6. A.M.	99.0	100	26	
P.M.	99.4	94	32	
7. A.M.	100.2	92	34	
P.M.	99.8	104	32	

TABLE I.—*Continued.*

DATE.	TEMPERATURE.	PULSE.	RESPIRATION.	REMARKS.
Aug.	Degrees.			
8. A.M.	100.4	104	42	
P.M.	...	...	...	
9. A.M.	100.0	88	...	
P.M.	...	...	...	
10. A.M.	100.2	90	32	
11. A.M.	99.6	94	...	
12. A.M.	99.6	96	...	
13. A.M.	100.3	98	...	
14. A.M.	102.0	120	38	
15. A.M.	100.6	96	36	
16. A.M.	100.6	110	40	
17. A.M.	100.8	92	36	
P.M.	98.6	86	26	
18. A.M.	102.2	96	34	
P.M.	99.2	96	...	
19. A.M.	100.0	96	38	
P.M.	98.2	98	32	
20.	...	...	...	
21. A.M	98.6	104	...	
P.M.	98.0	92	28	
22. A.M.	99.8	...	...	
P.M.	98.0	92	24	
23. A.M.	99.6	100	36	
P.M.	...	....	...	
24. A.M.	99.6	100	34	
P.M.	97.8	96	30	
25. A.M.	97 4	96	...	
P.M.	98.6	90	20	
26. A.M.	100.2	...	...	
27.	...	...	...	
28. A.M.	99.6	104	...	
29.	...	...	...	
30.	...	...	...	
Sept.				
1. A.M.	99.0	106	28	
P.M.	98.8	98	36	
2. A.M.	97.3	100	...	
P.M.	97.8	90	20	
3.	...	...	...	
4.	...	...	...	
5. A.M.	97.0	100	34	
6. A.M.		92		
7. A.M.	98.0	100	32	
P.M.	96.4	94	26	
8. A.M.	...	94	26	
9.	...	...	...	
10.	...	...	...	
11. A.M.	100.0	96	...	
P.M.	98.0	104	24	

have on the rise of temperature, and ordered 10 grains to be taken in the morning, in addition to the quinine and iodide of potassium draught.

TABLE II.

June 4th.	Temp.	Pulse.	Resp.	REMARKS.
	Degs.			
7.30 A.M.	98.8	92	40	Skin dry, soft.
9.0 A.M.	...	...	...	Took 10 grains of quinine.
10.0 A.M.	102.8	140	54	Was sick.
11.30 A.M.	103,8	130	48	Was sick again.
1.0. P.M.	102.8	122	44	
*5.15 P.M.	101.3	98	42	
7.0 P.M.	99.9	94	36	
10.15 P.M.	98.6	76	30	Has been sweating profusely; has had no more sickness.

June 5th, 11.30 A.M.—He had had a good night and slept well; has a short dry cough, but no pain in the chest. Temperature, 102.8°; pulse, 116; respirations, 42.

10.15 P.M.—Sweating in streams. Temperature, 98.6°; pulse, 68; respirations, 26.

June 7th, 11 P.M.—Soaking wet. Pulse very soft and weak, 66; respirations, 26; temperature, 99.2°.

June 9th.—Took one grain of oxide of zinc last night, but it did not seem to check the sweating. Has had a little pain in the right side.

He had a grain of oxide of zinc on the nights of the 8th, 9th, 10th, and 11th, but it did not appear to have any effect in checking the sweating. On the 12th he left off drugs altogether. On the 15th he had 10 grains of salicylate of soda at night, and 10 more the first thing on the morning of the 16th, and his temperature only rose to 101.2°, two degrees less than any of the three preceding days. On the night of the 16th he took 15 grains of the salicylate, and repeated the dose on the following morning, and his temperature on the 17th did not rise above 99.2°. On the night of the 17th, no salicylate of soda was given, and his temperature rose to 103.3° on the morning of the 18th, and to 102.4° on the morning of the 19th; but notwithstanding the rise of temperature, he expressed himself as feeling better than on the 16th and 17th. On the 20th he took 15 grains of salicylate of soda at 6 A.M., but was sick about half an hour after it; his temperature did not rise above 98.8° all day, but he complained of

* The thermometer in the axilla almost continuously since 1 P.M., but it has not registered any higher temperature than 102.8, showing the fall to be continuous.

feeling sick, and was obviously so much more uncomfortable on the days on which salicylate of soda was given, that I gave up using it.

June 23d.—He was ordered 3 grains of quinine every four hours, but as he complained of pain in the stomach, it was reduced in amount the next day, and on the 25th, as it had had no antipyretic effect, the quinine was stopped altogether. On the 26th he was ordered 10 drops of dilute sulphuric acid out of syrup and infusion of roses.

A glance at the table of temperature will show that during the month of June the daily rise and fall of the temperature, when not affected by drugs, had been very constant, and had ranged through 6.8°; the usual difference between the highest and lowest temperatures in the twenty-four hours was 4° or 4.5°; during this period the boy sweated profusely, and except when rendered uncomfortable by the drugs given him, took food well, and performed all the ordinary functions of the body regularly and normally.

I was anxious to find out the time occupied in the exacerbation and defervescence of the pyrexia, and on July 2d his temperature was taken at frequent intervals, with the following results:—

TABLE III.

July 2d.	Temp.	Pulse.	Resp.	REMARKS.
	Degs.			
6.0 A.M.	97.6	...	...	
9.0 A.M.	98.0	76	32	
10.0 A.M.	100.2	100	28	Lips pale.
11.0 A.M.	101.4	110	36	Lips redder, skin quite dry.
12.0 NOON.	102.5	112	36	Skin dry.
1.0 P.M.	101.8	118	42	
3.15 P.M.	101.3	116	40	Skin dry.
4.15 P.M.	101.4	118	36	
6.30 P.M.	101.4	110	36	Skin dry.
8.30 P.M.	100.0	90	30	Skin still dry; palms of the hands moist.
9.45 P.M.	98.9	80	30	Sweating somewhat; pulse slightly irregular.

July 7th.—On this day the first note was made which had reference to the condition of the abdominal organs. It was noted that the swelling supposed to be the spleen could be felt just beneath the ribs.

July 14th.—The (splenic) swelling is noted as reaching two fingers' breadths below the margin of the ribs.

July 20th.—He was sick just before tea-time without any discoverable cause.

July 21st.—The dulness of the left chest reached half an inch to the right of the right border of the sternum.

July 22d.—He vomited immediately after his tea, and on the 29th he did the same.

July 29th.—In the morning he was observed to be dusky, his finger-nails blue and his lips livid; this appearance had quite passed off at the time of my visit, 2 P.M. The same lividity and duskiness occurred on the morning of the next day, passing off by 10.45 A.M.

TABLE IV.

July 30th.	Temp.	Pulse.	Resp.	REMARKS.
	Degs.			
6.0 A.M.	98.2	...	...	
9.15 A.M.	100.0	86	32	Fingers slightly bluish, as are the lips.
10.45 A.M.	101.8	104	38	Blueness almost gone.
11.50 A.M.	102.8	120	36	
1.0 P.M.	101.6	118	36	
11.0 P.M.	99.0	90	28	Skin just moist.

August 1st.—For the last few days he has been troubled with slight cough. The left side of the chest tapped with the aspirator, but only a drop or two of pus-like fluid came through the canula.

August 4th.—He had a slight attack of epistaxis, and was very sick during the evening.

August 10th.—As he had at times had some dyspnœa, the left side of the chest was tapped again, this time with a small trocar; a drop or two of thick pus-like fluid came away again.

August 24th.—Was very sick last night. The spleen (abdominal tumour), which had been gradually enlarging since the beginning of the month, now reached nearly a hand's breadth below the ribs, but no notch could be felt.

August 31st.—Has been sick several times during the afternoon and evening.

September 5th.—Has been very sick after dinner; mouthfuls of watery fluid come up from time to time; this fluid contained no sulphocyanide of potassium.

September 7th.—There was a slightly jaundiced tint about his skin and conjunctivæ. No enlargement or tenderness of the liver. The jaundice, from its appearance until the boy's death, continued to increase in depth of colour, and from the advent of the jaundice

he became rapidly worse, the sickness and flow of watery fluid being almost constant; epistaxis occurring at times.

September 21st.—A purpurous spot was noticed over the right elbow, and œdema of the feet and legs. The œdema gradually increased, and eventually the face, neck, and right hand became œdematous. The dyspnœa greatly increased, and he gradually sank, and died on the 30th of September.

Post-mortem examination.—(I very greatly regret that at the time of the boy's death I was absent from London, and the notes of the post-mortem examination are not as full as I could have wished them to be. Portions of the tumours were kept for me, but before my return they had become so decomposed that they were not in a condition to be submitted to microscopical examination. The naked-eye appearances of the tumours, as well as their disposition in the body, left no doubt in my mind that the morbid growth was a lymphoma.)

Body intensely jaundiced; very thin; some œdema of the legs. Thorax: on opening the chest, the heart was seen to be pushed over to the right, so that the apex was beneath the sternum; the pericardium contained several ounces of bile-stained serum; there was no sign of inflammation, and the surface of the heart was quite smooth. Projecting into the left side of the pericardium was a red-looking fungous mass, which had displaced the heart; this mass was a portion of a large tumour which nearly filled the left side of the chest, compressing the lung against the chest walls, and rendering it airless. The tumour partly surrounded the œsophagus, but its walls were not involved in the disease. The tumour had not affected the walls of the chest either by extension into the tissues, or by causing absorption of them. There was no defined line of demarcation between the tumour and the lung which it compressed; the cavity of the left pleura was obliterated everywhere by very firm adhesions; the tumour appeared to have sprung from the root of the lung. The right pleura and lung were healthy.

Abdomen.—The abdominal cavity contained a considerable quantity of bile-stained fluid. A few adhesions existed between the intestines here and there. Below the stomach, and firmly connected with the duodenum, which passed over it, was a tumour the size of a small orange; it seemed to originate in a mesenteric gland, as it moved freely with the duodenum. The wall of the gut passing over it was very much thinned, but not ulcerated. Loosely connected with the top of the right kidney were a couple of smooth, rounded tumours, the largest the size of a bantam's egg. At the upper end of the left kidney, in connection with its inner and posterior surface, was a much larger tumour, firmly

connected with the kidney, having a roughened, nodulated surface. On section of this tumour and the kidney, the morbid growth seemed to have commenced in the hilum of the kidney, and to have destroyed some of the kidney substance; what was left appeared healthy. The liver was large, engorged with blood, and deeply bile-stained; the gall bladder distended with bile. The spleen was about its natural size, or a little larger; its capsule wrinkled. Sections of the growths in the thorax and abdomen were precisely similar in appearance. The growth was of pretty firm consistence, but here and there breaking down into a puriform fluid. The growth was bile-stained.

Remarks.

On the diagnosis.—Much has been written on the differential diagnosis of cancerous and other tumours within the chest from aneurysm, chronic pleurisy, chronic phthisis, hydatids, &c., but, after all, the diagnosis of intra-thoracic tumour remains one of the most difficult problems which comes before the physician. In the present instance, I at first concluded that I had to deal with a case of pleurisy with effusion, in which the pleuritic fluid had to some extent undergone, and was still undergoing, absorption, and the chest walls contracting. This explanation of the case seemed to me the most probable, although there were one or two physical signs not readily explicable on this view. Of these, the positions of the heart and stomach are the only ones worth alluding to.

It will be seen, by turning to the note of the physical examination made on admission, that the heart was not pushed over to the right side, as one expected it would be, considering that the dulness on the left side of chest overlapped the mid-line of the sternum. The stomach, as evidenced by percussion, rose high in the chest, and the limit of dulness was not well defined. From the level of the nipple downwards percussion elicited a gradually increasing note of stomach resonance.

Age.—Intra-thoracic tumour is rare at an early age, and in the various forms of disease known under the names of Hodgkin's disease, Adénie, lymphadenoma, &c., which occur more frequently in childhood and adolescence than at maturer ages, it is unusual to meet with cases like the present, in which no enlargement of the subcutaneous lymphatic glands could be found. Dr. Murchison (Transactions of the Pathological Society, vol. xx. p. 198) gives a case of a child, aged 12, in whom no enlargement of any subcutaneous lymphatic existed, who died with "lymphatic new formations" in the liver and enlargement of the glands in the fissure of the liver.

The chief clinical interest in the present case centres in the very prolonged pyrexia which accompanied the course of the disease. Dr. Risdon Bennett[1] gives a case of mediastinal lymphadenoma in a girl of 17, which presents many features very similar to those of Joseph K., and I insert here his table of her temperatures. The daily rise and fall is not nearly so great in Dr. Bennett's case as in my own.

TABLE V.—DR. R. BENNETT'S CASE OF LMYPHADENOMA OF THE ANTERIOR MEDIASTINUM.

DATE.	TEMP.	PULSE.	RESP.	DATE.	TEMP.	PULSE.	RESP.
Jan.	Degs.			Jan.	Degs.		
11. P.M.	102.5	148	36	24. A.M.	96.8	136	30
12. A.M.	103.7	132	40	25. A.M.	98.4	...	...
P.M.	103.5	152	36	26. A.M.	97.6	128	30
13. A.M.	100.8	140	36	27. A.M.	97.2	128	28
P.M.	103.0	144	40	P.M.	96.8	130	32
14. A.M.	103.2	152	36	28. P.M.	99.7	124	30
P.M.	102.1	146	40	29. P.M.	98.1	132	24
15. A.M.	102.7	150	44	30. P.M.	98.4	...	...
P.M.	102.8	...	...	Feb.			
16. A.M.	102.4	140	48	22. P.M.	103.3	140	36
P.M.	102.8	150	42	23. A.M.	102.4	140	28
17. A.M.	103.2	...	...	P.M.	103.2	140	36
P.M.	102.0	136	38	24. A.M.	102.6	128	30
18. A.M.	101.2	132	44	P.M.	102.0	128	36
P.M.	103.3	160	40	25.	...	...	...
19. A.M.	101.7	...	...	26. P.M.	100.7	108	32
P.M.	102.6	144	40	27. A.M.	100.7	108	32
20. A.M.	101.5	132	36	28. A.M.	100.5	116	32
P.M.	101.4	136	44				
21. A.M.	100.5	140	36				
P.M.	100.4	124	32	March—The temperature and pulse fell again during the early part of this month, and she was altogether much more comfortable.			
22. A.M.	98.5	...	...				
P.M.	101.8	136	40				
23. A.M.	97.6	136	38				
P.M.	...	...	...				

Dr. Murchison[2] has also given a table of the temperatures of a case of lymphadenoma for sixteen days, but the daily range of temperature was not so extensive in his patient as in Dr. Bennett's. During the discussion which occurred at the Pathological Society[3] on leukæmia and lymphadenoma, the height and irregularity of the temperature in some cases of these diseases were alluded to by several speakers; Dr. Greenfield brought before

[1] Cancerous and other Intra-Thoracic Growths; Lumleian Lectures, 1872.
[2] Trans. Path. Society, vol. xxi. p. 375. [3] March 19, 1878.

TABLE VI.—DR. MURCHISON'S CASE.

Day of the Month.	9 A.M.			2 P.M.			9 P.M.		
	Temp.	Pulse.	Resp.	Temp.	Pulse.	Resp.	Temp.	Pulse.	Resp.
	Degs.			Degs.			Degs.		
Dec. 30	...	...	...	102.5	140	30	104.8	152	30
,, 31	100.6	140	32	102.1	135	32	103.0	160	34
Jan. 1	100.4	150	32	102.8	135	28	102.8	150	38
,, 2	104.0	160	36	104.0	128	32	102.4	140	34
,, 3	101.5	160	35	101.0	160	30	101.0	144	36
,, 4	101.6	140	36	101.0	150	36	102.2	142	32
,, 5	101.0	124	32	101.4	136	38	101.2	130	36
,, 6	100.8	155	34	100.0	124	32	102.0	140	32
,, 7	100.2	155	34	101.0	132	32	102.2	165	36
,, 8	99.5	160	35	100.0	116	30	100.0	132	28
,, 9	99.4	134	33	99.6	123	28	99.8	136	30
,, 10	97.8	112	24	99.0	150	30	100.0	132	36
,, 11	99.2	140	32	100.0	135	28	100.4	146	28
,, 12	97.6	125	28	98.0	130	26	98.6	150	32
,, 13	98.8	114	26	100.0	135	28	101.0	150	30
,, 14	...	150	32	101.5	140	30	100.8	145	36
,, 15	102.0	135	30	101.8	135	26	101.0	144	36

the Clinical Society, 24th November 1876, a case of "Hodgkin's disease, with increase in the number of white corpuscles," in which an elevated temperature was observed for more than two months before death. Instances of high temperatures in Hodgkin's disease and lymphadenoma are brought forward by Dr. Greenfield and others in the last volume of the "Pathological Society's Transactions" (vol. xxix. p. 278 *et seq.*). In the present case, as well as in those of Drs. Bennett and Murchison, the temperature cannot be said to have been irregular, though if only occasional observations had been made, and at different hours on successive days, the regularity of the daily rise and fall of temperature would probably have escaped notice. In Dr. Bennett's and Murchison's cases, with very few exceptions, the evening temperature was in excess of the morning; the reverse was the case in Joseph K. It is interesting to observe that in Dr. Bennett's case, as well as in the present, the pyrexia declined and became less as the disease advanced towards death.

A low temperature, or at all events one not much above the normal standard, is thought by many to characterise cancer. In a case of rapidly growing cancer of the anterior mediastinum, involving the lungs, and accompanied with cancer of the skin and bones, lately under my care, the temperature, though frequently and carefully noted, was never observed to rise above 99°.

If further experience shows that the range of temperature

observed in these cases is the rule and not the exception, we shall have a valuable aid to the diagnosis of intra-thoracic tumours, which, resembling carcinomatous growths in their malignity and other clinical features, at the same time differ from them by their histological characters and accompanying pyrexia.

ON

A SIMPLE INSTRUMENT

FOR

EXAMINING THE COMPETENCY OF THE TRICUSPID AND MITRAL VALVES.

BY

T. LAUDER BRUNTON, M.D., F.R.S.

It has often seemed to me that the present method of examining the tricuspid and mitral valves of the heart in a post-mortem examination is not so satisfactory as that which we use for the aortic and pulmonary valves. In examining the latter, we pour water into the aorta and pulmonary artery, and actually see whether the valves are competent or not; but in the case of the tricuspid and mitral valves we determine their competency either by simple inspection, or at most by pouring a little water into the ventricular cavities, and observing the appearance of the valves as they float upwards upon it. It has occurred to me that a simple instrument, such as has been used for experiments on the cardiac sounds, might be useful for ascertaining the competency of these valves under such conditions of pressure as they are subjected to during life. Such an instrument may be very readily made from the nozzle of an ordinary india-rubber enema syringe. This consists of an ivory tube, about two and a half inches long, with a horizontal shield about half an inch from one end. The longer end of the nozzle is pushed through the auriculo-ventricular orifice, and onwards through the ventricle, until it projects on the outside of the ventricular wall close to the apex. It is then pulled through, and a thick india-rubber ring is pushed over it, so that the wall of the ventricle is compressed between the

ring outside and the ivory shield of the nozzle inside. The nozzle is then connected by a piece of india-rubber tubing either with a tap or with an enema syringe. If water be now made to pass into the ventricle through the nozzle, the valves float upwards, and become firmly opposed. The aorta and pulmonary artery are now firmly held with the finger and thumb, so as to prevent the water from flowing out at the ventricle through them, and the pressure inside the ventricle may be raised to any necessary degree. If the heart be healthy, no water will escape until the pressure becomes excessive, and then a small jet may be seen to issue from between the valves. By connecting the tube leading from the water supply to the heart with a mercurial manometer, the pressure at which the valves become incompetent may be at once ascertained. The ventricle may be then cut open, the nozzle removed, and the valves inspected in the usual way. I do not claim the idea as an entirely new one. The instrument has doubtless been used in various forms many times before, but the form in which I employ it is exceedingly cheap; and the time required for its application is very short, a couple of minutes sufficing to ascertain the competency of both valves, and it does not in the least injure the heart if it be wished to preserve it as a specimen afterwards. It may therefore, I think, be more widely employed than any other instrument of the sort, and may thus lead to the discovery of very interesting results.

OF THE

DIAGNOSIS AND TREATMENT OF APPARENT DRUNKENNESS.

BY

V. D. HARRIS, M.D.

The diagnosis of apoplexy from drunkenness appears to all but those who have been often called upon to make it a very simple matter. This is the reason, no doubt, that from time to time we meet with accounts in the newspapers (not seldom under the head of "Drunk or dying") of inquests at which medical men have been censured for not distinguishing between the two conditions. As a matter of fact, it is often very difficult to decide whether a patient apparently drunk is not suffering from some nervous lesion, producing symptoms like those of alcoholic poisoning; and, on the other hand, it is as difficult sometimes not to mistake a severe case of intoxication for apoplexy. Mistakes naturally arise, therefore, in diagnosis; but they also occur even where the diagnosis of intoxication has been rightly made in treatment. It is the custom to think that if a patient is simply under the influence of alcohol, he is quite safe; but we must remember that on a weakened nervous system a small overdose of alcohol may produce dangerous effects, putting the patient in very nearly as critical a state as though a new lesion of the brain had arisen. We must remember, too, that an extreme overdose of strong spirit in a healthy man is not unfrequently fatal, producing an effect upon the heart almost exactly like that of chloroform and æther (Anstie). Bearing in mind, then, on the one hand, the difficulty of the diagnosis between the two conditions, and, on the other, the critical state of many patients who are what is called "only drunk," we at once see that the treatment of all cases of insensibility should be most careful, and that in the surgery of a hos-

pital, where they are principally met with, too much trouble can hardly be taken, first of all, in thoroughly investigating the condition, and then in the treatment, of those apparently drunk.

The following cases, selected from a large collection, illustrate some of the difficulties of the subject; they have occurred in the surgery of St. Bartholomew's Hospital during years 1875–78. The first three or four are examples of apoplexy without marked and typical symptoms, which might easily have been treated as cases of drunkenness; then comes a case of old hemiplegia and severe drunkenness, mistaken for recent apoplexy; finally, cases of poisoning with large doses of spirit, some of which terminated fatally.

Case I.

Dizziness, with momentary unconsciousness, but no paralysis, followed, after several hours of insensibility, by sudden stupor, hemiplegia, and death.

Henry B., æt. 36, was brought to St. Bartholomew's Hospital in October 1875. He was able to give an account of himself, talking quite sensibly. He walked into the surgery. He told us that he was a carman, and whilst in charge of his horse and cart an hour or two before admission, he became suddenly dizzy, and had to hold the shaft to keep himself from falling. He fancied he became unconscious. Denied that he had been drinking. On careful examination, *the pupils were equal and acted to light; there was no paralysis or rigidity of muscles, and the pulse was regular, of good volume, and not noticeably slow.*

On the suspicion that he might have been drinking, he was told to remain in the surgery, and was allowed to lie down on a couch. He vomited some bilious matter, and in about an hour felt so much better that he was going off with his friends. As he walked out of the surgery, the house-physician, Mr. Bott (to whom I am indebted for the notes of the case), noticed that one leg seemed to drag slightly. This induced him to order the patient to be taken into the ward. Almost as soon as he was in bed he became insensible, with stertorous breathing and apparent hemiplegia. At 8.45 P.M., two hours after admission, he suddenly turned very livid, and died at once.

Autopsy revealed an immense hæmorrhage, which had ploughed up the left corpus striatum and optic thalamus, and had entered, filled up, and distended the lateral ventricles. There was no evidence of aneurysm.

The case was an example of either the premonitory symptoms of sanguineous apoplexy, or a capillary hæmorrhage with a fit, and no appreciable paralysis, preceding a large hæmorrhage. A car-

man falls down from his wagon, is suspected to have been drinking, and is brought to the Hospital. No signs of paralysis are found. He improves after vomiting, and therefore, as he is able to walk out of the surgery, his statement that he has not been drinking much is naturally disbelieved.

Case II.

Aphasia, with minutely contracted pupils, and perhaps slight facial palsy—No paralysis of extremities or fit—Death in forty-eight hours.

R. M. R., æt. 32, a clerk in a City bank, was brought to the Hospital, December 18, 1875. A fellow-clerk accompanied him, from whom the following history was obtained:—The patient was in a very good position at the bank, to which he had been attached many years. Latterly he was strongly suspected of drinking heavily. On the day before he was brought to the Hospital he seemed much out of sorts. Next day he came to the bank as usual, much to the astonishment of his fellow-clerks, who imagined that he would remain at home; but he did no work, and either would not or could not speak. He yawned a great deal. When the bank closed, he was prevailed upon to seek advice at the Hospital. On examination, he presented the appearance of a man in a dream; he was quite speechless, although he seemed to understand questions, and his pupils were minutely contracted. He presented no paralysis except slight drawing of one side of the face; neither was there any smell of drink about him. There was no history of opium-eating. He was admitted into the Hospital on December 18th, and died in about forty-eight hours, having presented no further symptoms. He had slight bronchial catarrh. There was no autopsy.

In the absence of post-mortem evidence, it is impossible to speak with much confidence as to the cause of death in this case, but it is not unlikely to have been hæmorrhage into the pons varolii. Dr. H. Jackson lays great stress upon the conjunction of the two symptoms of defect of speech and slight facial palsy as premonitory of apoplexy, but here there was absolute aphasia for two days before death, without the unilateral (limb) symptoms, which, he adds, mostly occur with (? or soon after) the defect of speech. This defect of speech occurs, however, as one of the earliest effects of alcohol upon the nervous system, and moreover sudden fear seems to take away the power of speech altogether, and so I doubt much whether the occurrence of aphasia alone would much help to the diagnosis of apoplexy.

Case III.

A drunken bout followed by epileptiform convulsions and death.

W. W. F., æt. 35, came to the surgery on October 20, 1875, in charge of some friends, who gave the following details about him:—Had been in a public-house drinking and talking all the evening; about 9 P.M. he suddenly became speechless; in this condition he remained for two hours, and was then brought to the Hospital. Had had no regular fit or spasm. On examination, had evidently been drinking and smelt strongly of spirits; would not or could not answer questions, remaining quite stolid when spoken to, although seeming to understand. *Pupils large and equal, acting to light. No paralysis or rigidity.*

The patient was considered to be in a state of intoxication, and his not answering questions or speaking was held to be due to the obstinacy *sometimes so marked in this condition.* The battery was administered, but almost on the first application of the poles, he had a slight spasm of the face, and his lips became blue. He was therefore ordered to be kept on the couch in the surgery. At 11.45 P.M. he got up and talked, and walked out of the Hospital without leave. Was brought in at 7 A.M. on 25th, having had a succession of fits during the night. He was at once admitted quite insensible. He passed from one fit into another until his death about seven hours afterwards. Heart sounds were natural. No œdema of legs.

Autopsy (extract from Dr. Legg's full account) nineteen hours after death.—"On drawing forwards the scalp, a reddish spot, size of a shilling, slightly raised, is seen on frontal bone; on section it appears to be a growth from periosteum. On taking off the calvaria, the inner surface of the frontal bone is seen to be beset with cauliflower-looking growths on each side of the middle line. The dura mater, corresponding to this spot on the right side, shows an appearance very like that on outside of the skull; the membrane is much thickened, somewhat jelly-like, and this appearance extends for about the space of half-a-crown on the right side of the face. The dura mater is here adherent to the brain beneath. The brain and membranes appear quite natural, save some meningeal hæmorrhage over cerebellum and posterior lobes. Scarring of both tonsils. None of the organs of the body elsewhere unhealthy."

Case IV.

Tumour of the brain and drunkenness, mistaken for the latter alone—Death in the street.

R. S., æt. 34, was brought to the surgery, July 21, 1876,

about 1 A.M., with a distinct history that he had been drinking freely. He was semi-conscious. An emetic was administered, and he was copiously sick. After remaining in the surgery for some time, he became quite sensible; gave his name and address. There was no paralysis of any kind, and the patient was able to walk out of the surgery. At 8 A.M. he was brought again to the Hospital quite dead. He had been picked up in the street almost, if not quite, dead.

Autopsy.—Body well nourished, legs œdematous, calvaria rather thick, convolutions of brain much pressed together, abundance of clear fluid in ventricles, membranes lining ventricles granular. The right optic thalamus twice the size of the left; a fringe, as it were, of a white colour and very soft, hangs from its forepart across the ventricles into the left optic thalamus, so that the two bodies are in some part continuous. The tumour under the microscope presents appearance of a glioma. Rest of brain very soft, but no other noteworthy disease. Kidneys congested; other organs healthy.

Here again there was nothing to make the medical officer who saw the case reject the theory of drunkenness as the cause of the fit and insensibility; no paralysis or inequality of the pupils; and, on the other hand, both the history of drink and the vomiting of spirituous material inclined to the supposition of pure drunkenness. Cases III. and IV. illustrate the fact that a small overdose of alcohol is dangerous in a diseased state of the nervous system; neither the gumma of dura mater and calvaria, nor the tumour of the optic thalamus, being sufficient of themselves to cause death so suddenly, unless with the additional factor of an overdose of alcohol.

Case V.

Sudden giddiness, without loss of consciousness or marked paralysis, followed in six hours by coma and death.

T. L. B., æt. 52, slaughterman, was admitted into St. Bartholomew's Hospital, October 26, 1877. On the same day whilst at work he had fallen off his seat, feeling giddy, but had had no convulsion or loss of consciousness. On examination complained of headache; the right side of face was flatter than the left; right pupil slightly dilated; tongue protruded straight; could stand and walk; no loss of power in upper extremities; speech not clear.

About five hours after admission, he uttered a cry and put his hand to the back of his neck; there was no convulsion. He at once became deeply comatose; pupils small and fixed; right not so small as left. Pulse 92, regular. Respirations, 6 per

minute. After a few minutes pulse and respirations quickened a little; there was a slight tonic spasm of all his muscles, with convergent squint followed by a cry, after which the coma became absolute. His respirations now became extremely infrequent and finally ceased. His pulse could be felt for two or three minutes after the breathing had ceased. His urine was free from albumen.

Autopsy eighteen hours after death.—At the base of the brain there was a large clot surrounding and pressing upon pons varolii and medulla. The left vertebral artery was much dilated, the right natural. The basilar, at the place of formation by the two vertebrals, was yellow, thickened, and dilated to the size of half a pea; about the middle of this, on the left side, was a small ragged opening. No atheroma of the other arteries at the base of the brain. Pericardium universally adherent; no hypertrophy of the left ventricle; no valvular disease; aorta, as far as end of arch, highly atheromatous. Kidneys granular.

In the above case (for the notes of which I have to thank Dr. John Abercrombie) there was little in the condition of the patient to indicate a lesion so serious as was discovered after death, viz., rupture of aneurysm of basilar artery.

In the following case we see illustrated a mistake on what I call the right side, where an excess of caution was manifested.

Case VI.

Drunkenness with old hemiplegia mistaken for recent apoplexy.

S. A. B., æt. 46, was brought insensible to the Hospital, April 25, 1875, at 2 P.M. On examination it was found that he was breathing stertorously and slowly, with one cheek flapping about during respiration. There was evident paralysis on left side; pupils equal, pulse rapid. The breath smelt strongly of spirits, but his friends said that they had given him brandy, and so this was not considered of much importance.

Both eyes were severely ecchymosed, and there was a cut over right one. About the body were many scars, apparently syphilitic. A medical man who accompanied the patient gave the following details about him :—That he was a clerk in the City in a position of high trust; that he had had a severe attack of syphilis, for which he had been under treatment eighteen months before; that he was a sober man; that on the morning of day of admission he was noticed to look queer, and that about 2 P.M. he fell down in a fit, so his fellow-clerks had stated, *after which* the paralysis was noticed; and that in his fall he had bruised his forehead, &c.

He was admitted into Hospital.

Four possibilities were suggested by this case—(1.) *That it was an attack of sanguineous apoplexy.* To support this was his deep coma with fit followed by loss of power in one side. (2.) *That it was due to a cerebral tumour*, as this sometimes causes such symptoms, and there was strong evidence of syphilis. (3.) *That there had been injury to the brain* resulting from the fall during what might have been an epileptic fit, as the bruising about the eyes seemed to show that the injury had been a severe one. (4.) *That it was simply a drunken fit*, but this appeared to be disproved by the evident paralysis.

The patient continued insensible all the afternoon. Late in the evening he was violently sick, and vomited an extraordinary amount of material evidently containing much alcohol. After this he gradually recovered his senses. About 10 P.M. he was able to give an account of himself, which account was afterwards supplemented by his wife, who arrived about this time. It then appeared that the partial hemiplegia was the remains of a fit of apoplexy several years before; that he had been in low spirits for some days, and had taken a good deal to drink, but not enough, he should have thought, on the day of his admission to make him drunk. He rapidly improved, and by next morning was able to go home. The paralysis had cleared up wonderfully, very little remaining when he left the Hospital.

Remarks.—This was a complicated case. The immediate attack was most likely due to the *effects of alcohol* upon an already weakened brain, which increased the previously existing paralysis. Whether or not *concussion* increased this is doubtful. As regards the treatment, no doubt the right thing would have been to empty the stomach, but the paralysis appeared so clearly to indicate an apoplexy, that it was judged right to keep the patient quite quiet. Watson, in his Lectures (5th ed. vol. i. p. 454), gives an account of a somewhat similar case, where, by the prompt use of the stomach-pump, much credit accrued to a house-surgeon. The case further illustrates the fact that the statements of friends about the patient tend very often to complicate matters. They do not give a correct account of the habits of the patient; they frequently vouch for an antecedent fit which they have not seen, and they almost always give brandy on the first symptom of a seizure.

The next cases illustrate the effects of extreme over-doses of alcohol; some of them terminated fatally.

Case VII.

Two boys, aged respectively 14 and 15, were brought to the

Hospital from the London Docks, where they had been sucking rum out of certain casks. On examination, the younger was found perfectly insensible, pale and cold, breathing slowly, with complete muscular relaxation, slow pulse. The other boy was flushed, could be roused when shouted at, and spoke indistinctly; he took an emetic, was copiously sick, and soon recovered. The younger boy was judged to be in a state of shock, as his temperature was certainly below normal, his face pale and his pulse slow, all of these symptoms being reversed in pure drunkenness; an emetic was therefore not given to him, but he was lightly flicked with a wet towel, laid down on a couch and kept warm. The stomach-pump was not used. After a time reaction occurred; he was copiously sick and recovered.

Case VIII.

A boy, æt. 15, drank a bottle of brandy straight off for a wager. He became insensible almost at once and was quickly brought to the Hospital. His condition was very similar to the younger boy in Case VII. Mr. Eve (the house-surgeon on duty) took his temperature, which was 95° Fahr. Under careful treatment directed to his condition of shock he recovered.

Bearing upon these cases, Dr. Anstie ("Stimulants and Narcotics") says, that the excessive rapidity of the pulse generally observed in slight cases of alcoholic poisoning is succeeded in fatal cases by a depression both in force and in frequency which places it below normal, and that in rarer instances of an enormous over-dose (as in Cases VII. and VIII.) life may come to an end without any other effect being produced upon the heart than that of a shock-like depression, which speedily brings it to a stand-still. Considerable help in the treatment, then, may be obtained from the condition of the pulse and temperature.

Case IX.

A. B., æt. 45, a female, was brought to the Hospital in May 1878 by a policeman, who stated that she had been knocked down by a cab twenty minutes before, and had been at once picked up and brought to the Hospital. *On examination*, breathing was stertorous, breath smelling strongly of spirits; pupils equal and acted to light; *easily roused from semi-sensibility by shouting;* when roused swore furiously, acknowledged that she was very drunk. *No paralysis or want of movement in her limbs, no tenderness.* A slight bruise on one cheek. An emetic was passed into the stomach by means of an elastic catheter through the nostril. Vomited spirituous matter. After this remained in

surgery for an hour or nearly, and was then handed over to the police. The patient died in the police cell at 4.30 A.M. the following morning. In the cell she had a pillow under her head and was covered with a rug. Autopsy showed nothing but engorgement of the cerebral vessels, probably produced by drink.

Case X.

An old man, to all appearance drunk, who died suddenly in the surgery after the administration of an ordinary emetic; on post-mortem examination no lesion was discovered to account for his sudden death.

It was probable that a large overdose of alcohol, acting upon a feeble constitution, had produced so much shock that the emetic in addition, by slightly increasing it, was sufficient to cause death.

Case XI.

A middle-aged man was brought to the surgery at about 6 P.M. one day, during the hottest part of last June (1878), quite insensible. On examination nothing abnormal was found about him; no paralysis or rigidity; pupils equal and acted to light. He smelt strongly of drink, and a history was obtained afterwards, firstly, that he was in the habit of getting very drunk, and secondly, that he had spent about fourteen shillings (probably in drink) since 1 P.M. The ordinary emetic produced no effect, neither was the battery more efficacious. He was laid down upon the couch for an hour or more, and about 8.15 P.M. the battery was again applied, and he was also flicked about the abdomen with a wet towel; after this he seemed to be roused, and mumbled his name indistinctly. To complete the recovery, a cold douche was used, not roughly, for a few seconds only; but a change suddenly came over him; his jaw dropped, he turned livid, and his pulse stopped; efforts at resuscitation proved quite useless. At the post-mortem examination, nothing but catarrh of the stomach was found, possibly the result of drink.

Summary.—When there is well-marked loss of power of one side, together with insensibility, with or without antecedent fit or stroke, we have sufficient to make us decide that the case is not one of drunkenness simply. Having arrived at this decision, it is unlikely that we should allow the patient to be removed from the Hospital. When there is insensibility with general paresis, or when there is dulness but no insensibility, with one or two abnormalities, as aphasia, there is often extreme difficulty. In the first case (insensibility and general paresis), as a rule, we have to do with alcoholism, but there are the following conditions which

may also induce it :—Hæmorrhage into or upon the brain ; minute emboli ; tumours in the brain; concussion ; uræmia ; syncope ; asphyxia; poisoning by opium or other drug, &c. The diagnosis between alcoholic intoxication and these other conditions is given as fully as possible in text-books ; but when Dr. Jackson says that neither age, degree of insensibility, stertor, conditions of pupil or the states of the circulation or respiration, taken singly or together, furnish any certain basis for the diagnosis, we see that, in some cases, it is all but impossible to make one. Again, when the only symptoms to lead one to suppose that there is danger to life are summed up in dulness of intellect and some partial paralysis—in fact, which present one or more of the almost endless symptoms which are enumerated as premonitory of apoplexy (of these hæmorrhage from the nose or into retinæ, and slight facial palsy or aphasia, are the worst), our diagnosis must be still more vague, and really, in doubtful cases, all we can do is to *treat them as though they belonged to the more serious class.*

Treatment.—We have only a few words to say on this subject, and those are principally about the doubtful cases. The use of the galvanic battery is dangerous (as seen in Case III.), and seldom efficacious. It is reasonable to suppose that any extra strain put upon the blood-vessels of the brain in a weakened or insufficiently supported condition would cause their rupture : this extra strain is supplied by the battery. Strong emetics are too much used, and not infrequently do damage. Supposing a patient be brought to the surgery apparently drunk, and supposing he have not been already sick, the stomach-pump should be gently introduced, and used with great care, equal quantities of lukewarm water being substituted for the matter withdrawn at each pumping. If in the material withdrawn there be evident proof of the presence of alcohol, it is best to proceed to wash out the stomach with lukewarm water, leaving in the stomach, on the completion of the washing, a cupful of tea or coffee, with an egg beaten up with it, especially where much alcohol has been withdrawn. After this the patient should be placed on a couch, and allowed to remain quiet for three or four hours, lying down in a warm room and covered with a blanket, as this time is generally sufficient for recovery, on the one hand, or, on the other, for the development of graver symptoms which will remove the case from the doubtful class. The introduction of a noisy patient into a quiet ward in the middle of the night, upon the mere supposition that he is something besides drunk, is manifestly unfair to the other patients, who are thus disturbed and awakened from sleep; and yet the dangerous condition of some patients who are "only drunk" altogether forbids the uncautious handing of them over to the

police, by whom they are lodged in cold and comfortless cells. It would be a great boon, therefore, to those who have to diagnose and treat the apparently drunk, if in our large hospitals a small special ward were set apart for the reception of all doubtful cases, well warmed and fitted with couches. Some such plan was advocated in the "Lancet" some months ago.

CASES

OF

DISEASE OF THE SPINAL CORD.

BY

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The following cases, being the most interesting of the kind that occurred in Dr. Church's wards between April 1877 and April 1878, will I hope be thought worthy of a place in the Reports.

The first two are cases of syphilitic spinal disease, which, though alike in their origin, differ in several other respects. In the first, no nervous symptoms had manifested themselves till a year after contraction of the primary disease, and they were of a year's duration on admission. Difficulty in walking was then almost the only symptom, the lesion appearing to be localised in the lower part of the spine. As might be expected from the duration of his disease, the patient did not improve much. In the second case, the spinal symptoms had commenced within three months after the first contraction of syphilis, and only ten days before the patient's admission. The lesion appeared to consist of a diffuse meningitis spreading rapidly at first and subsequently subsiding, though not without leaving (if we may so infer from the impaired sensory and motor powers in the lower limbs) some permanent disorganisation of the lower part of the spinal cord.

Case I.

John H., æt. 26, wine cooper, under Dr. Church in John Ward from July 18 to August 27, 1877. A well-nourished man, apparently in good general health.

History.—Two years ago he had been in Lazarus Ward for a

chancre followed by a bubo and sore throat; after that he was well till August 27, 1876; on rising from bed that morning he says he felt "a rush of blood" towards his feet, passed urine, semen, and fæces involuntarily, and found he could not stand. He was coughing at the time of the attack. He had felt nothing previously except a slight numbness and "shivering" of the legs for a few days. He lay in bed for a month, during which time the involuntary passage of urine and fæces continued, and he had a feeling of tightness in the hypogastrium, with pain on pressure. At the end of a month he could stand and just walk with help. Since getting up, his symptoms have not changed much, except he has now control over the fæces, and for the most part over the urine.

Condition on admission.—The lower limbs are natural in appearance, not cold to the touch, though he complains of their feeling cold; sensory power is not impaired in them. He can move them freely in bed, can stand steadily with his eyes shut, but walks with difficulty, the toes, especially those of the right foot, appearing to crumple up under him and drag along the ground. Forcible extension of the toes of the right foot after walking gives rise to a shaking of the whole leg, which stops again of itself in a few minutes. The upper limbs are natural. There is no tenderness in the hypogastrium now, nor along the spine. The urine is natural; there is no disease of the eyes. On electrical examination of his legs (August 16 and 18), it was found—(*a*) That the constant current produced no contraction of the muscles with less than fifty cells; spasmodic movements of the extensors of the toes were then produced whether the current was interrupted or not. (The patient said, however, that such movements sometimes took place spontaneously.) The muscles of the calf would not contract at all. (*b*) A very strong induced current was required to cause contraction of the extensors and peronei, and produced no effect on the muscles of the calf. It was felt very slightly, unless applied to the dry skin with the wire brush.

Treatment—Pot. iod. gr. v. sextis horis, to which was added (August 6), pil. hydrarg. iod. viridis. gr. i. nocte maneque. August 16, pot. iod. gr. x. ter die.

There was also constipation, which had to be treated. He did not change much while under observation, though he walked decidedly better by the time of his discharge.

Case II.

Leopold H., æt. 23, under Dr. Church in John Ward from December 20, 1877, to August 1878. An anæmic, dark-

complexioned man, rather thin, with the remains of a rash about his trunk, and numerous unhealthy scabs on feet and legs; the inguinal glands on both sides are enlarged, and there are no periosteal swellings. Pulse 80, temperature 98.4°. Tongue furred and moist.

History.—In September last he had a chancre; towards the end of October sores appeared on the feet, ankles, and legs; in November a rash on the trunk, and subsequently a sore throat. All these symptoms, except the sores, improved towards the end of November while under treatment (for syphilis) by Mr. Baker. His present illness began ten days ago with numbness in the feet, and pain caused by motion of the legs both in the legs and in the lower part of the spine; pain sufficiently severe to confine him to bed for the last four days. Two days ago he found that he had lost power in the legs and could not stand. Yesterday numbness began in the arms and hands, but these he can at present use. During the last four days he has had impairment of vision. He has also rumbling noises in his head, but can hear well.

Condition on admission (December 20).—The pain, he says, is now chiefly in his knees, and worse at night. The lower limbs are not wasted; he can move them in bed, but painfully and with difficulty; reflex action is absent; sensory power is absent in toes and anterior half of feet. He can use his hands and arms, though a sudden movement of extension hurts him, and the grasp of either hand is feeble; sensory power is here natural. (No electrical examination was as yet made.) The eyes are externally natural; there is no iritis. With the ophthalmoscope the left disc is seen to be somewhat indistinct at edges, the veins full, the arteries small; the right disc to be masked by a misty appearance which obscures its edges and spreads without definable border over the fundus; the vessels are traceable to their origin. To take liq. hydrarg. perchlor. ℥ij., decoct. cinchonæ, ℥i. ter die.

December 21.—Cannot use his arms properly. The nurses say he seems out of his mind sometimes. Urine contains no albumen nor sugar.

December 27.—All his symptoms are more severe, but his mind seems clear. To take pot. iod. gr. x., sp. amm. aromat. ℥i., aquæ ℥i. ter die, and to discontinue the mercury.

Though the pains in the legs began to amend soon after admission, he was very restless at night, and sedatives, sometimes chloral, sometimes opium, were required.

January 4.—Has difficulty in micturition.

From January 6 improvement began, first and chiefly in his eyesight, next in the movements of his arms, the legs remaining much the same.

In the beginning of February Mr. Vernon reported the fundus of the left eye almost natural, except for the remains of a hæmorrhage; the right eye still hazy, but the haziness confined to the vitreus over the disc. His general condition had by this time markedly improved. Since January 18 he had been taking pot. iod. gr. xv. ter die, to which had recently been added pil. hydrarg. iod. virid. gr. i. omni nocte.

Electrical examinations made early in February showed that the muscles of the forearms responded badly, and those of the legs not at all to the induced current; the constant current slowly interrupted produced no action in the leg muscles, except occasionally in the left gastrocnemius (with 28 cells). The muscles of all the limbs were very flabby, though there was no marked wasting. With his hands he could do a good deal, his chief difficulty being in extension of the wrists; the lower limbs he could only move at the thighs. Throughout February he continued to improve as to the use of his hands but not of his legs; the limbs, however, were becoming thin, the upper limbs especially.

On March 2 the fundus of either eye was found to be nearly natural.

On March 30 electrical examination showed—(*a*) under the induced current occasional action in the right gastrocnemius but in no other leg-muscles; (*b*) under the constant current slowly interrupted, action of the anterior and peroneal groups of muscles, with 8 to 14 cells.

He felt confident that the powers of motion and sensation were returning in his legs, though improvement was scarcely perceptible to others than himself.

Treatment since February 25.—Pot. iod. gr. x., liq. hydrarg. perchlor. ℥i., decoct. sarsæ, ℥i., but with intermissions.

During April slow improvement continued: his legs were frequently electrified with the constant current; he began to suffer considerable pain in them, especially after they had been electrified. Both legs and arms were extremely wasted.

In May the specific treatment was discontinued; he was given cod-liver oil and liq. strychniæ m. vijss. ex. hst. acidi nitro-hydrochlorici ter die.

By the end of June his limbs were regaining flesh, and he was able to walk about the ward with the aid of a pair of crutches fixed in a frame on wheels.

In August, shortly before his discharge, his condition was as follows:—His walking powers had much improved recently; he could walk leaning on one person, but the movements of his legs were rather disorderly. He says "he must look at his legs or they get mixed." Sensory power was almost absent in the soles of

the feet and the toes, and very imperfect in the lower part of the legs. There was no reflex action on tickling the soles. His feet were usually cold. All the muscles of the legs answered well to the constant current slowly interrupted, but only the gastrocnemii to the induced current. The upper limbs had regained flesh, but the muscles of the balls of the thumbs were very much wasted; his grasp was feeble, but he could do most things for himself. Sensory power in the finger-tips was imperfect. The muscles of the forearms answer well to the induced current.

I have noted the results of electrical examinations in these cases because they appear to be somewhat abnormal. Thus, when a muscle shows loss of contractility under the induced current (loss of farado-contractility), we expect to find motor paralysis, and ultimately wasting of the muscle, as happens in some cases of infantile paralysis and in irrecoverable lesions of the nerve trunks. The explanation given is, that the terminal part of the nerve is robbed of the influence of its spinal centre, which presides alike over nutrition and over reflex action, either by destruction of the centre itself or of the nerve below it. Whereas, if the lesion lie above this centre, as in an ordinary case of hemiplegia due to cerebral hæmorrhage or embolism, then, although there is motor paralysis, the farado-contractility remains, and there is no more wasting than may be ascribed to disuse. But in Case I. there was almost complete loss of farado-contractility with incomplete motor paralysis and no wasting whatever. Duchenne, however, mentions ("Electrisation Localisée," chap. xiv. art. 3) what is still more remarkable, that he has seen complete recovery of voluntary power in muscles while the farado-contractility still remained extinct. Again, in Case II., when first examined electrically, the muscles of the legs refused to act either under the induced (faradic) or constant current. Subsequently, while the patient was slowly improving, the muscles began to act, first to the constant current slowly interrupted, and just before his discharge to the induced current. But increased contractility under the constant current slowly interrupted, coupled with loss of farado-contractility, so far from being a favourable sign, is usually a precursor of the wasting to which I have referred. In fact, this has been called the degenerative action of muscle.

I suppose we must consider that the action in this case, though evident, was not abnormally increased; albeit it is difficult, in the absence of an exact measure of the strength of currents, to speak of a normal standard.

The two following cases of locomotor ataxy illustrate each a peculiar symptom of the disease: (1) vomiting, (2) effusion into a joint.

Case III.

Sarah B., æt. 35. In Elizabeth Ward under Dr. Church from July 6 to September 14, 1877. A tolerably healthy-looking woman, wife of a coastguardsman; no history of syphilis. T. 99°. P. 104. No contraction of pupils.

History.—Four years ago she had ptosis of the right eyelid and double vision, also a tingling in the feet, lasting three months. Three years ago a numbness and tingling in the knees, gradually extending down to the feet and up the thighs, and not passing off. Within the last year she has had darting pains down the thighs and legs, followed and relieved by vomiting, difficulty in walking, and lately pain in the right hand and forearm. The vomiting during the last six months is said to have occurred every week, lasting for one or two days.

Condition on admission.—She cannot stand with her eyes shut, and looks at her feet while walking. Cutaneous sensibility is much impaired in the feet, and to a less degree in the legs. The muscles of both calves are wasted, but act to the induced current; the current is not felt. She can move the legs forcibly in bed. The movements of the right hand are slightly ataxic. Nothing discovered by examination of the urine nor of the eyes. The sensibility to heat and cold (as tested by sponges applied to the feet) is imperfect.

The general treatment consisted in application of the constant current to the spine (which, however, was frequently discontinued on account of the vomiting), while, as medicine, phosphorus, strychnia, arsenic, and bromide of potassium were tried in succession. No effect could be directly ascribed to any of these remedies, except that the strychnia produced twitchings of the limbs, and seemed to make her generally worse.

July 11.—Much aching pain in left loin. P. 96. T. 98.4°.

July 12.—Pains continue. Vomiting began this morning. Has no control over her legs; cannot walk even while looking at them and supported on either side.

July 13.—Severe pains under left scapula; vomits her food about half an hour after taking it; does not vomit unless she eats or drinks. P. 98, slightly irregular. T. 99.2°. The vomiting stopped between 6 and 7 P.M.; the next morning the pains were better, and she could walk without help. The tongue was clean, and the bowels acted naturally all through this attack.

July 16.—A severe but transient attack of pain last night. No return of vomiting.

July 23.—Shooting pain yesterday in right palm and instep. To-day at 6 A.M. the vomiting returned; the pains just referred

to are better, but there is aching in the back. P. 100. T. 99.6°.

July 24.—Vomiting continues; the vomit grass green. P. 112. T. 99.2°. This night at 6 P.M. it stopped; she had brought up in all about six pints. Next morning, P. 100. T. 98.8°.

In neither of these two attacks was any remedy tried. It will be seen that they were preceded by pain, were accompanied with only slight rise of pulse and temperature, and stopped spontaneously in thirty-six hours. There were no symptoms, other than the vomiting itself, of gastric or intestinal disturbance; but the ataxic condition of the lower limbs was worse during the attack. The vomiting was severe enough to cause considerable exhaustion. About ten days intervened between the attacks.

July 27, 9.30 P.M.—Shooting pains about right scapula, momentary but very severe; relieved by morphia, gr. $\frac{1}{3}$, sub. cute.

July 29.—Able to walk about the ward.

August 3.—A third attack of vomiting, but less severe, and lasting only about twenty-four hours. Morphia was injected subcutaneously, but did not relieve it.

August 9.—A fourth attack after five days' interval only, and lasting about twenty-four hours.

August 16.—A fifth attack after six days' interval, accompanied by much aching down the spine. This latter symptom was relieved by a mustard-plaster down the length of the spine, but the vomiting continued for about twenty-four hours.

August 20.—A sixth attack after three days' interval. The night before she was shivering, and suffering much intermittent pain about the right false ribs; the pains were stopped by morphia, but the vomiting began about two hours afterwards. Three hours after the vomiting began she had pulv. guaranæ ʒss., which was twice repeated during the attack. The attack stopped in twelve hours, and was much less severe than usual.

August 24.—A seventh attack after three days' interval; pulv. guaranæ ʒss. was given at once; the attack passed off in four hours.

The five last-mentioned attacks occurred, it will be seen, at shorter and somewhat irregular intervals, were less severe, and of shorter duration. Although subject to such abortive attacks, she thought that the guarana relieved her.

September 4.—An eighth attack after about ten days' interval. Severe pains preceded it; it was not sensibly affected by the guarana, and subsided of itself in about twenty hours.

Since July 29 she had been unable to walk at all, but after this attack she began to walk again; there was no recurrence of pain and vomiting during the remainder of her stay in the Hos-

pital. During this period of improvement she was taking pot. bromid. gr. xx. ter. die.

These attacks of vomiting were considered by Dr. Church to be of nervous origin.

They may be compared with the "gastric crises" of M. Charcot, "Leçons sur les Maladies du Système Nerveux," vol. ii. p. 33. But there was not, as a rule, much increase of the pulse rate. Although pains preceded them, these did not follow such a definite course as he describes. Moreover, the vomitings, so far from being an early symptom, did not occur till three years after the onset of the disease.

Case IV.

Henry E., æt. 32. In John Ward, under Dr. Church from December 14, 1877, to March 7, 1878. A healthy-looking man; single; a sailor; no history or evidence of syphilis. P. 100. General health said to be good.

History.—Stabbing pains in the left hypochondrium came on suddenly (after working a winch) ten months ago; subsequently pains in the loins and legs. He had occasional incontinence of urine more than five months ago. For five months also he has noticed difficulty of walking and impairment of sensation in the legs. He has had swelling of the left knee-joint for two months, and some numbness in the left hand for three weeks. Has never seen double nor been troubled with priapism.

Condition on admission.—Gait straddling and staggering; cannot stand with eyes shut. Cutaneous sensibility lost in feet and part of legs; impaired in other parts of legs. Sensibility to heat and cold remains unimpaired. The muscles are strong, not wasted, and contract under an induced current, but the current is not felt where the cutaneous sensibility is lost. Urine normal; eyes normal. The left knee-joint is swollen, and contains fluid; there are no signs of inflammation about it. Its circumference round the upper border of the patella is 15 inches, as against 14 for the right knee. The joint is painless, but feels numb; it "snaps and cracks" when he walks. The right ankle is also slightly swollen, and there is some œdema over the right tibia, but this may be in connection with a large scar just above the affected part.

Treatment.—This patient had the constant current passed from the nape of the neck to the feet daily. He had also in succession iodide of potassium, extract of physostigma, arsenic, and syrup of phosphate of iron. On the whole, his condition improved, for when discharged he could walk better and had more sensory

power in his feet and legs. The physostigma, administered for about a week (January 24, gr. $\frac{1}{12}$ bis die, January 29, gr. $\frac{1}{12}$ ter die), disagreed with him. Under its administration he had some squint and incontinence of urine, slight swelling of the right ankle of both legs, and increased swelling of the left knee-joint. Considerable vomiting, with a rise of temperature to 102°. It may be mentioned that three weeks before this he had suffered from vomiting and diarrhœa; but the attack was slight only, and due, in the opinion of Dr. Church, to accidental causes.

The knee-joint remained in much the same state while he was in the Hospital, though subject to occasional variations in size. On one occasion, when it was more than usually swollen (January 31), the left calf was also larger than the right ($14\frac{3}{4}$ inches as against $13\frac{1}{8}$). Referring again to Charcot, vol. ii. p. 42, I find that he describes the characteristics of joint affections in locomotor ataxy as follows:—

"A joint, usually the knee, becomes filled with fluid without appreciable cause, the limb being usually swollen at the same time. There are no premonitory symptoms, except it be crepitus in the joint, no pain nor signs of inflammation. This joint affection usually occurs early in the course of the disease, generally before inco-ordination has appeared. It may get well in a few weeks or months, or may go on to disintegration of the joint."

Most of these characters are exemplified in the present case, but unfortunately neither the onset of the affection nor its termination was observed.

The woman's case offers some contrast to that of the man, due probably to the longer duration of her disease; thus, the muscles of his calves were well nourished, hers wasted, indicating, I suppose, that in her case the process of sclerosis had advanced to the anterior cornua. He could appreciate with his feet the difference of heat and cold, she could not; and whereas the cutaneous sensibility of his feet and legs decidedly improved, hers remained in abeyance.

I regret that in neither case did I look for the symptom said by Westphal to be characteristic of locomotor ataxy—viz., the absence of the sudden contraction of the quadriceps femoris, which is produced in healthy subjects by tapping the tendon below the patella.

Case V.

was considered by Dr. Church to be a case of disseminated sclerosis of the brain and spinal cord, but remarkable as presenting in many ways the appearance of an old case of paralysis agitans, though the history showed the disease to be recent.

Ann F., wife of an innkeeper at Putney. In Elizabeth Ward under Dr. Church from February 16 to March 12, 1878.

Condition on admission.—A thin woman, complexion dark, acne spots about mouth, with a constant, rapid, side-to-side motion of head. Eyes watery; no nystagmus; tongue furred, not tremulous; speech natural. P. 104. T. 98.6°.

The position of the hands is peculiar: the wrists are extended on the forearm, the fingers semiflexed at the carpo-phalangeal joints and straight at the others. She bears manipulation at the wrists, but cries out when the fingers are flexed. There is no tremor of the hands or fingers. She repeats frequently that her hands are well when warm, but they do not appear cold now. The left hand is the worst. The feet are somewhat extended on the legs, the left great toe drawn away from the others and flexed. Cutaneous sensibility is not good in the feet, but there is no real anæsthesia. Under the induced current the muscles contract naturally. Urine acid, 1020; no albumen or sugar. She gave a circumstantial account of the duration and character of her illness, which proved to be quite wrong. The next night she had delusions, though quite quiet. Her motions were found to pass under her, and also her urine occasionally.

Her husband gave the following history:—Rather more than five months ago, having been in good health previously, she was laid up in bed with vomiting. She vomited everything she took. She was sent to Brighton for a week, but was worse after her return. She was also delirious, never violent, but talking (as now) about a child being in the bed. Since the vomiting she had been laid up in bed altogether, and he could not say how long it was since she could walk. There had been some affection of the right foot for more than two months, beginning, he thought, with swelling of the right knee. Contraction of the left hand began two months ago, and of the right subsequently; the motion of the head more than a month ago. The fæces had passed involuntarily throughout her illness. There was no history of syphilis. Her mother had had paralytic attacks; her brother, a soldier, was invalided for paralysis. Her doctor ascribed her illness to intemperance. She was put on liq. strychniæ, m. x.; ex. infus. gentian co., ℥i. ter die; the strychnia being increased in ten days' time to m. xv.; but her state remained the same.

The shaking of the head, almost always present while she was awake, ceased while she slept. It was the same whether the head rested on the pillows or not. It quite prevented an ophthalmoscopic examination. She was quite helpless, and stiff in the back when lifted. She complained very little, except of chilliness in the feet.

CASE VI.,

also somewhat indefinite in its characters, may perhaps be put down as disseminated sclerosis.

Robert M., æt. 42, formerly a steward in the merchant service. In John Ward under Dr. Church from February 13 to April 6, 1878. A swarthy, fairly nourished man, with rather a heavy vacant expression and thick slow nasal utterance.

History.—Two years ago he fell overboard (falling from a height of seventeen feet into the water, but without striking any obstacle in his fall). When picked out, he felt as if he had a cord tied round his throat. Since then his voice has been gradually getting thick. He always (to use his own words) "had a slight nasal drawl, but used not to have to gulp his words." Something seems to block his nose, and occasionally the food seems to stop near the larynx. Six months ago he began to feel weakness in the legs while walking, and shaking at the knees after standing; numbness also and cramps in the muscles. He has an aching, heavy feeling in the perineum. For the last three months cramps have affected the right arm when used as in writing. The left arm is rarely affected. He is always languid and sleepy, and feels a coldness of the skin. He says he is subject to rheumatism, and attributes the affection of his legs to exposure to cold in Russia. There is no history of syphilis. His father had right hemiplegia. His bowels are apt to be confined, but micturition is natural.

Condition on admission.—No tremor of lips or tongue; palate very high and arched; nothing discoverable in nares or pharynx; velum palati not paralysed; nothing found to account for the pain in the perineum; cutaneous sensibility everywhere natural; upper limbs natural in appearance; grasp of hands rather feeble; muscles very irritable when filipped; muscles of legs rather flabby; the legs shake while being examined, apparently from starting of the thigh muscles; when walking, he takes short steps, drags his legs, especially the right, and afterwards feels "all of a shake."

All the muscles contract readily under the induced current; those of the forearms in rather a spasmodic and irregular way. Nothing made out by examination of the eyes; nothing abnormal in urine.

He was put on meat diet, four ounces of wine, and phosphorus gr. $\frac{1}{32}$ ter die, and H.M.S. c̄. M.S. bis die.

March 4.—Some diarrhœa, for which the sulphate of magnesia was stopped. No change in his general symptoms.

March 14.—Liq. strychniæ m. vijss., increased in a fortnight's time to m. xv.; ex hst. acidi nitro-hydrochlorici ter die; pil. rhei. co. gr. x. as required.

He improved a little from this time forward, losing the pain in the perineum and the muscular cramps, and walking on the whole better, but the change was not a marked one. He was discharged on April 6. On August 14 his wife reported that he remained in much the same condition. He was then an out-patient at the Regent's Park Hospital for paralysis, and undergoing a course of electrical treatment.

Case VII.,

the last, is a case of meningitis, apparently induced by alcoholism.

Henry H., æt. 43. In John Ward under Dr. Church from May 22 to June 28, 1877. A gilder by trade, but not concerned with mercury; ill nourished, with muddy complexion; hands cold and tremulous. T. 101.2°. P. 92. Tongue furred. He complains chiefly of headache. Nothing can be made out by physical examination.

His own account of his illness does not appear reliable. His wife states that he has been ill for a fortnight, up to which time he had been drinking hard, as was his wont.

Treatment.—Ol. ricini. ℥ss. statim, hst. a.a. c̄. camph. ter die.

11.20. P.M.—T. 102°. P. 100. Skin warm and moist. Restless and looks excited.

May 23.—Slept well after midnight; asleep now and sweating; there is twitching of the muscles of the right side of his face. T. 99.2°. Urine acid; sp. gr. 1030. No albumen or sugar.

May 24.—Was muttering all the night, but appeared to sleep. At 6.30 this morning he had a rigor. He is now (11 A.M.) semi-delirious, complaining of great pain in his forehead. He takes very little food. His tongue shows a dry, white-brown fur; his face twitches occasionally, and his hands are shaking as before. Pupils sluggish; the left rather larger than the right. T. 102.4°. To take soda bicarb. gr. xv., infus. quassiæ ℥i. ter die.

May 25.—Slept well, though muttering. Appears better in every way this morning. T. 99°.

May 26.—Again has headache; appears deaf with both ears. T. 102°.

8 P.M.—Sweating freely. T. 101°.

The periodical rises of temperature, which had suggested ague, now disappeared; his temperature and pulse became normal; and the more active symptoms disappearing, he relapsed into a drowsy, vacant state, frequently passing his excreta beneath him.

June 7.—Looks thinner and feebler; takes very little food; sleeps very little, but lies in a semi-delirious state, though quiet

and very observant. Has pain in the back when moved; cannot move his legs, and passive motion of them causes him pain. Phosphorus gr. $\frac{1}{32}$ ter die.

June 14.—A bedsore has appeared over the sacrum, commencing as a large, dark-coloured bleb. The tongue and fauces are red.

June 21.—Not much change; the tongue and soft palate are covered with a dry, dirty yellow fur.

June 22.—Sodæ hypophosph. gr. x., aq. menth. pip. ℥i. ter die.

June 28.—Appears to have great pain when his head is turned, or any movement is imparted to his spine. A difficulty of deglutition, noticed about ten days ago, has recurred. T. 100.6°.

In the afternoon he was sweating profusely, and before night he died.

No satisfactory ophthalmoscopic examination was made, as he appeared unable to fix his eyes properly.

Post-mortem.—The body was extremely wasted and the abdomen fallen in. The viscera of the abdomen and chest were quite healthy, excepting that the lungs were œdematous. There was a thick exudation on the upper and lower surface of the cerebellum; the ventricles of the brain were distended with clear fluid. This was thought to be due to the pressure of the exudation on the venæ Galeni. The brain substance was a little hard in texture, but not otherwise diseased. Beneath the dura mater of the spinal cord, especially at its upper part, was a thick puriform fluid, like that on the cerebellum. The grey matter of the cord looked indistinct and disorganised.

SOME

OBSERVATIONS

ON

THE ACTION OF PILO-CARPINE.

BY

W. E. STEAVENSON.

Jaborandi was first introduced into Europe in 1874 as a new diaphoretic and sialogogue. It had long been known and used medicinally in South America. It belongs to the Rutaceæ. The effects of the plant were, I believe, first tried in this Hospital in the autumn of 1874, but the results were not published. At that time the plant was supposed to contain no alkaloid, but in 1875 an alkaloid was extracted by M. Byasson of Paris, and also by A. W. Gerrard of University College Hospital, and named by him *pilo-carpine*. He obtained it in the crystalline forms as the nitrate and hydrochlorate.

In this paper I have recorded some observations made upon three cases of Bright's disease under the care of Dr. Gee, which were treated by subcutaneous injections of one-sixth of a grain of nitrate of pilo-carpine daily. In none of the three cases experimented on was the drug found of the slightest advantage; in no case did the relative quantity of albumen diminish, but actually increased. The first few injections caused profuse perspiration, which became less as the injections were repeated. In two of the cases the injections were accompanied by sickness or nausea. Nausea, increased bronchial secretion, alteration in the power of accommodation of the eye, and blushing in addition to sweating and salivation, have all been noticed before by other observers who have watched the action of this drug.

Case I.

Henry T., aged 12, was admitted into the Hospital on September 3, suffering from acute nephritis after scarlet fever. His urine contained a large amount of blood, and nearly half of it consisted of albumen.

September 5.—The blood had disappeared, and the albumen decreased to about one-tenth.

September 7.—Only a trace of albumen in urine.

September 11.—This morning the urine again contained an abundance of albumen and some blood. His skin had been very dry and harsh since his admission; it was therefore decided to try the action of pilo-carpine. About one-twelfth of a grain of the nitrate of pilo-carpine was injected hypodermically, his temperature being 99° and pulse 80. No alteration in his pulse or temperature took place. About three-quarters of an hour after the injection some moisture appeared upon the abdomen. There was no salivation.

September 12.—Had two minims ($\frac{1}{6}$ gr.) of pilo-carpine injected. Profuse perspiration followed in about a quarter of an hour and passed off in an hour's time. The temperature was reduced about one degree during the perspiration. The quantity of saliva was slightly increased.

September 13.—Skin this morning as dry and harsh as before. One-sixth of a grain of pilo-carpine injected with the same result as yesterday. Urine still contains blood, less albumen.

September 14 and 15.—Albumen about one-sixth. Pilo-carpine injected, followed by perspiration which lasted about an hour.

September 16.—The urine contained more blood; albumen nearly one-third. Pilo-carpine injected; not followed by so much perspiration.

September 17.—Urine loaded with blood. Pilo-carpine discontinued.

Case II.

Lizzie Eugenie D., aged 14, was admitted into the Hospital on 28th August 1878, suffering from chronic nephritis. On admission her urine was found to be nearly solid with albumen after boiling. From admission to 13th September, her urine contained albumen, varying from a half to two-thirds; it was then decided to try the effect of pilo-carpine.

September 14.—One-sixth of a grain of pilo-carpine injected subcutaneously. The skin was then dry. T. 98°. P. 104. Ten minutes afterwards the skin was soft, and she began to perspire. Face became flushed. Five minutes later she was perspiring freely, and complained of dimness of sight. Twenty minutes after injection, perspiring very freely, increased

flow of saliva, sputa increased and less tenacious (she had some bronchitis), hiccough. Half an hour after injection she was still perspiring freely; vision clear; and for some hours her skin remained softer and she perspired gently.

September 15.—No injection. Urine, albumen a half.

September 16.—Her skin has been moister since the first injection. Says she has passed more water. Injection repeated, but she did not perspire so much as on the first day. Albumen a half.

September 17.—Says she passes more water. Pilo-carpine injected; perspiration. About two hours afterwards had profuse flow of saliva.

September 18.—Was not so well. Eyelids puffy this morning. Albumen a half. Pilo-carpine injected.

September 19.—Pilo-carpine injected with the same result as before, but about a quarter of an hour after injection she vomited. Flow of saliva. Urine, albumen three-fourths.

September 20.—No injection.

September 21.—Felt nausea after injection, but was not sick. Urine, albumen a half.

September 22.—No sickness after injection. Perspiration, &c., as before.

September 23.—Perspired before and after injection. No sickness. Urine, albumen three-fourths.

September 24.—Was sick after injection. Went to sleep two hours afterwards, and on waking found her pillow very wet with saliva. Urine contained four-fifths albumen.

The injection of pilo-carpine was then stopped.

Had in all nine injections of pilo-carpine, one-sixth of a grain each time.

Vomited after injections twice, and generally felt nausea.

At first perspiration was much increased, but latterly salivation seemed to take its place.

The albumen in the urine during the treatment varied, but increased from a half to four-fifths.

The bronchial secretion was increased, and became less tenacious.

Pulse and temperatnre were not affected.

Says that she passed more water.

Case III.

Charles A., aged 30, was admitted into the Hospital on 6th September, suffering from chronic nephritis. His urine on admission contained one half-albumen. On the 17th his urine still

contained a half albumen, and it was decided to try the effect of pilo-carpine.

September 18.—One-sixth of a grain of pilo-carpine was injected into the forearm, followed in ten minutes by blushing, salivation, and profuse perspiration. T. 97.6°. P. 80.

September 19.—Injection repeated with the same results.

September 20.—Pilo-carpine injected. Urine contained rather more than a half albumen.

September 21.—Patient had some slight rigors. Temperature rose to 102.2° and his pulse to 110. His tongue became furred and breath fetid, and he said that he passed less water.

September 22.—Pilo-carpine omitted this day. T. 101.6°.

September 23.—Urine nearly solid with albumen. T. 99.8°. Pilo-carpine injected.

September 24.—Felt sick. Passed less water. Felt very ill. The pilo-carpine was therefore discontinued.

THE RELATIVE FREQUENCY WITH WHICH CANCER IS FOUND IN THE DIRECT OFFSPRING OF A CANCEROUS OR NON-CANCEROUS PARENT.

BY

W. HARRISON CRIPPS.

In the second volume of these Reports, at page 129, will be found an exceedingly interesting article from the pen of Mr. Morrant Baker, the title of the article being, "The Inheritance of Cancer, and its relation to Questions concerning the Local or Constitutional Origin of the Disease." In investigation into the cause and pathology of cancer, the consideration as to the hereditary nature of the disease is one of the utmost importance. All recent investigations have tended in the direction of establishing cancer as a local disease, and possibly in connection with local sources of irritation; but every theory as to cancer being the result of accidental local causes is met at the outset by the difficulty of reconciling this view with the hereditary nature of the disease. It is not within the province of this paper to discuss in any way the origin of cancer, but rather to draw attention to the evidence upon which the hereditary nature of the disease is supposed to be established. The hereditary nature of cancer is based upon evidence derived from the following sources:—

1st, That it is a matter of common notoriety that cancer runs in certain families.

2d, Evidence founded upon certain statistical facts.

Now, in dealing with the former statement, such evidence is wholly inadmissible from a scientific point of view without the

positive facts upon which it is based. Theories universally held are not uncommonly evidence of a widespread ignorance. "Universal lies are as common as universal truths."

From time to time isolated instances may occur of an amount of cancer in a particular family in excess of the average to be expected. Such, for instance, as the case narrated by Sir James Paget (vol. xxv. p. 318, Pathological Society's Transactions), in which a lady died of cancer, two of her daughters died of cancer, and eight of her grandchildren; however, the number of her children and grandchildren who did not die of cancer is not mentioned.

The rareness of such an instance is proved by finding that out of nearly 300 cases of cancer at St. Bartholomew's Hospital, nothing in the least approaching this history is to be found.

The evidence derived from statistics will now be examined.

In the article by Mr. Baker already alluded to will be found a table of cases from the practice of Sir James Paget. Mr. Baker makes this statement, that 22.4 per cent. of the cancerous patients were aware of one or more relatives with the same disease. He then gives a table of 103 cases in which one or more relatives were affected. These 103 cases representing only 22.4 of the total number of cases examined, the whole number of cases investigated must have been 460. In these 103 cases amongst the relatives are included aunts, uncles, cousins, first, second, and third, great-aunts, and a great-uncle. But since it is impossible to conceive how a man can inherit cancer from his uncles, aunts, or cousins, the necessity for excluding these is obvious. Further than this, the impossibility of knowing the number of these distant relatives, in order to form a table for comparison between a cancerous and a non-cancerous family, renders them useless for our present purpose.

This objection cannot apply to a man's parents or grandparents; two of the former and four of the latter must be the invariable amount. Now it is not within the range of ordinary observation that an individual, especially of the hospital class, could even with approximate accuracy assign the cause of death in his four grandparents. The cause of death in the parents is, however, commonly known, especially if the deaths were from cancer. On these grounds, therefore, will be considerd the relative frequency with which malignant disease is found in the direct offspring of a cancerous or non-cancerous parent.

Referring to the 460 patients, these must have had 920 parents, unless brothers and sisters belonged to the same family. This was so in four instances; the number of parents will thus be reduced to 916. Amongst these 916 parents cancer occurred

30 times in the mother, 7 times in the father, or a total of 37 times.

This gives one parent in every 24.8 who died from cancer. But a person has two parents, therefore the chance will be only 12.4 that one of them died of the disease.

Thus far it is clear from these statistics that one out of every 12½ cancerous patients whom we question will be found to have lost a parent from the disease.

Two objections to these facts might well be raised :—

1st, That it is assumed that all the parents of the cancerous patients were dead; but this would not be the case, and that those still living might eventually die of cancer, thus swelling the cancer mortality.

2d, That they might have died of an unknown cancer.

Now the first objection must readily be admitted, but taking into consideration that in a vast majority of instances cancer is a disease of advanced middle life, it would be in only a small number of instances that the parents, if living, would eventually die of the disease.

As a proof of this, it will be found that in the whole series of Sir James Paget's cases, only three instances are recorded in which a parent had succumbed to cancer subsequent to an offspring dying of the same disease; this amounts to less than 1 per cent. in the whole number of cases. The objection that the disease might have been an unknown cause of death would apply equally to the Registrar-General's returns, to be presently alluded to.

The figures given in Mr. Baker's table of Sir James Paget's cases will now be compared with those derived from the Register of St. Bartholomew's Hospital. From June 1869 (the first commencement of registration) till October 1878, 280 cases of cancer were under treatment in the female surgical wards. Out of these 280 cases, in 111 of them no family history of any kind is recorded; in the remaining 169 cases, a special record is made as to the family history. In these 169 cases no cancer was known in the parents in 156 instances; in 11 cases either the father or mother had cancer; in 2 cases it was doubtful whether or not one of the parents had the disease, one of these being so doubtful that I have thought fit to exclude it. There will remain, then, 12 cases amongst 336 parents, or 1 case in 28, or a chance of 14 to 1 against a cancerous patient having a cancerous parent.

Now, as Mr. Baker very properly observes in speaking of Sir James Paget's cases, these statistics in themselves do not prove in any way the inheritance of cancer, and this question can only be finally answered by discovering the proportion of cancerous relatives belonging to those not cancerous.

What we have to do is to compare the death-rate from cancer in the parents of cancerous patients with the death-rate from cancer amongst adults generally. Fortunately in the Registrar-General's returns we have a means of making this comparison.

It would not be right in this calculation simply to take the whole number of deaths in the community and find out how many of these deaths were due to cancer, for the parents of cancerous patients must certainly have been adults at the time of their deaths.

The total number of marriages below the age of 20 only amounts to 8 per cent., and the proportion of these who both become parents and die below the age of 20 is so small a percentage that it can be fairly ignored. Thus then we will compare the death-rate from cancer in the parents of cancer patients with the death-rate from the same disease in all persons in the kingdom dying above the age of 20 years.

In the ten years 1861 to 1870 in England and Wales—

1,185,189 men died above the age of 20 years.
1,194,433 women died above the age of 20 years.

24,845 men died of cancer.
56,854 women died of cancer.

The addition of these figures gives 81,699 deaths from cancer out of 2,379,622, or 1 death in every 29.1 from cancer.

By comparing these figures with the figures given in the previous page, the following result is arrived at :—

Amongst the parents of cancerous patients the death-rate from cancer is—

1. According to Sir James Paget, 1 in 24.8.
2. According to St. Bartholomew's Register, 1 in 28.
3. Amongst the whole community over 20 years of age, 1 in 29.

The relative frequency of cancer in these two sets of cases differs so slightly, that this difference may well be looked upon as accidental; in which case, the figures given in the paper bear proof that cancer in the parent in no way increases the liability of the offspring to suffer from the same disease.

CASE

OF

COMPOUND COMMINUTED FRACTURE OF THE PELVIC BONES,

WITH RUPTURE OF THE URETHRA IN ITS MEMBRANOUS PORTION, OCCURRING IN A PATIENT WHO HAD RECOVERED FROM A DEPRESSED FRACTURE OF THE SKULL WITH LOSS OF BRAIN MATTER.

BY

WALTER PYE.

T. G., 18, was first admitted into the Hospital, March 6, 1876, in consequence of having sustained a compound comminuted and depressed fracture of the right side of the frontal bone, caused by a blow from the shaft of a waggon.

He was admitted under Mr. Callender, who removed some fragments of the frontal bone and elevated another depressed portion, with the effect of relieving the symptoms of compression, which before the operation were well marked.

At the time of operation, and for the first two or three days afterwards, there was a considerable escape of brain matter, and for some time there was a good deal of cerebral protrusion, with some necrosis of the edges of the frontal fracture.

The case, however, did well from the first; he rapidly regained his sensibility and mental activity, and with the exception of one or two convulsive attacks a fortnight after his admission, his progress was uninterruptedly favourable until the date of his discharge, August 25.

He was found to be blind of his right eye, March 21; and ophthalmoscopic examination showed that he was already suffering from well-marked white atrophy.

It is perhaps worth noticing, that his mother stated that his disposition changed distinctly for the worse after his accident; and after his discharge he became a great trouble to her—so much so, that she declared she hardly knew him for her son.

The date of his second admission into the Hospital was November 2, 1877; *i.e.*, a year and three months after his first discharge. He was brought to the surgery at 11 P.M., and stated that half an hour before he had pulled a large paving-stone, which was standing up against a wall, over on him—he falling on his back with the chief weight of the stone on his abdomen and right hip; he was unable to stand when the stone was removed.

When he came to the Hospital he was not at all collapsed, and chiefly complained of pain across the lower part of the abdomen, and of pain in, and inability to move, the right leg. There was some grazing of the right anterior superior spine of ilium. No marks of injury whatever could be found in the perineum or in the scrotum or penis, but there was slight hæmorrhage from the urethra. A large instrument passed down the urethra met with an obstruction in the neighbourhood of the triangular ligament, and could not be passed into the bladder. The attempt was not persisted in.

He had passed water an hour before the accident.

He was admitted into Kenton Ward under the care of Mr. Savory.

The following are the notes of his case after admission:—

November 3.—Has not passed water since accident, and feels but little desire to do so.

11 A.M.—The bladder is much distended; expression placid. P. 80. T. normal.

There is now some ecchymosis of the scrotum, perineum, and fulness along the left cord, but there are no signs of urinary extravasation.

1.30 P.M.—After endeavours to pass an instrument in the ward without success, the patient was brought into the theatre for the object of tapping above the pubes. Under gas and ether, however, a No. 7 silver catheter was passed, and normal urine drawn off. The catheter was tied in.

November 5.—On the following morning he removed the catheter, and from that time the symptoms of urinary extravasation began to develop themselves. The œdema, &c., were, however, from the first more marked down the inside of the thighs, especially on the right side, than in the groins or on the abdomen.

The reason for this will be seen in the account of the post-mortem. Free incisions were made from day to day; urine escaped from these and from the urethra; the bladder was never distended.

On the 9th of November, catheterisation was again tried. The instrument was now found to pass out of the urethra just in front of the prostate, and to enter a large cavity in front and to the right of the bladder, which contained some ounces of fetid purulent urine, and was evidently a large urinary abscess. The bladder could not be reached.

November 10.—The patient's condition was now rapidly getting worse. He had a small, fluttering pulse, considerable subsultus, and a dry, brown tongue. At 1.30 P.M. gas and æther were given, and Mr. Savory then passed a grooved staff down the urethra as far as it would go, and cutting on to it, opened the cavity to the right of the bladder, which has been referred to above. In passing the finger into it, the abscess was found to surround a fracture of the descending ramus of the pubes on the right side; the bone was bare of periosteum for a considerable distance. The abscess cavity was freely opened from the perineum and washed out.

For the next two days he went on fairly well, but on the evening of the 12th several urticaria-like patches appeared on the body and limbs, and on the following morning the right wrist and forearm were found to be swollen and painful, while there was also a large semifluctuating swelling behind the right ramus of the jaw. These symptoms were not preceded by anything like a rigor, nor were they accompanied by any notable rise in temperature. The perineal wound was healthy-looking and the urinary extravasation diminished in extent.

From this date till December 21, when he died, chronic pyæmia was established, and he gradually drifted from bad to worse. That he lived so long after pyæma was set up was probably due to the fact that his appetite remained exceedingly good up to the last, and that he was generally able to sleep well without opiates.

The result of the post-mortem examination was as follows:—Body emaciated; large bed-sore at base of sacrum.

Chest: Heart natural; pericardial fluid, three or four ounces. Right lung: pleuritic adhesions at apex and posterior border, with small caseous abscesses about the apex. Left lung: small superficial abscesses at base.

Abdomen: Hypogastric and pelvic peritoneum discoloured; liver large; spleen and intestines natural. Kidneys: both were examples of surgical kidney, the right one being the most advanced; in both the cortex was enlarged and the pelvis dilated; in the right one there were also several small abscesses in the medulla.

Pelvis.—The symphysis pubis was separated to the extent of half an inch; both sacro-iliac synchondroses were also separated, and their cartilages destroyed. On both sides the rami of the pubes were fractured; there was no attempt at repair, and the extremities of the fractured bones were necrosed. Between the front of the pelvis and the bladder was a cavity containing urine and pus, communicating with an opening on the right side of the perineum, with the urethra by two rents in the upper wall of its membranous portion, and with all the points of fracture, so that the bones lay in the middle of a large urinary abscess. There was also a large abscess in the right scrotum, communicating with the intra-pelvic abscess and also with an opening on the inner side of the left thigh. The bladder was catarrhal, but otherwise natural.

Head.—On examination of the original fracture of the frontal bone, there was found considerable loss of substance in the anterior lobe of the brain. Beneath the pia mater was a small amount of scar tissue, which was adherent to and apparently continuous with the brain at the seat of injury. The pia mater was adherent to the dura mater, which was much thickened, and this, in its turn, was adherent to the scar tissue, which filled up the wound.

It may be worth while to enumerate the chief points of interest in the case of the notes of which the foregoing is a brief abstract.

The first point is the completeness of the repair of such a serious injury as a compound depressed fracture of the skull-cap with escape of a considerable quantity of brain matter.

The second is the lesion to the urethra and the symptoms it gave rise to. Rupture of the urethra between the layers of the triangular ligament is apparently very rare, and I have not been able to find an account of a case in which it has happened. In this case, the anterior layer of the triangular ligament and the superficial perineal fascia must have been torn, so that urine could extravasate itself in the direction of the groin and abdominal walls and also down the thigh, while the posterior layer of the triangular ligament remained intact. It is in consequence of this last fact, I imagine, that pelvic peritonitis was not speedily set up, and that the intra-pelvic urinary abscess in its formation was, as it were, forced to tear away the posterior layer of the triangular ligament from its attachment to the back part of the pubes, and thus to cause the bone to lie in the midst of the abscess cavity.

The third point is the occurrence of such a well-marked attack of pyæmia with no preceding rigor or distinct rise of temperature. The patient at the time the pyæmia developed itself was very carefully watched and nursed, and I do not think a rigor, even a slight one, could fail to have been noticed and reported.

COMPRESSION *v.* INFLAMMATION;

INCLUDING

A THEORY OF THE MODE OF ACTION OF PRESSURE AS AN ANTIPHLOGISTIC.

BY

CHARLES B. KEETLEY.

The following paper was written twelve months ago. Since then there have been signs of a reaction against the neglect of pressure. In the presence of this reaction some of my remarks may appear rather too strong. Still, with this preface, I think I may safely leave the essay in its present form.

On the Antiphlogistic Virtues of Pressure.

At all times the prevention and cure of the various complications of injuries must form a subject worthy of the surgeon's first consideration; and being a subject of some complexity, it must sometimes happen that every part of it shall not receive its due share of attention. So, at the present day, we are liable to think that, having come to a decision upon the virtues or vices of some antiseptic treatment, the open treatment, or of poultices, we need do nothing more, but each keep his wounds clean and at rest after his own fashion. In times long gone by, every one talked of inflammation. Nowadays we are bidden to beware of little besides blood-poisoning, as though blood-poisoning were not almost always preceded by inflammation, when it resulted from ordinary (*i.e.*, non-venomous) wounds.

In proof of this, notice how, almost always, when the temperature suddenly rises in the course of an injury, some fresh local inflammation can be discovered. It has seemed to me that even the cases of retention of pus seldom or never cause general fever, —*i.e.*, blood-poisoning—without previously lighting up a local inflammation.

Now let us give our thoughts to inflammation, not as a mere by-product of fermentation, but as a mighty disease, having many causes and demanding direct and not casual consideration; direct attack with every weapon by which it is vulnerable. Has every such weapon been drawn from its sheath? Has not at least one been left by many modern surgeons almost forgotten in its scabbard? Unless I am much mistaken about the antiphlogistic virtues of pressure, and their neglect in surgery, the answer must be "Yes."

I propose, first, to state what appear to me to be the uses of pressure with regard to inflammation; secondly, to consider objections which are commonly urged against it; thirdly, to offer a theory as to its mode of action; fourthly, to describe modes of applying it; fifthly, to add a few arguments in its favour.

Firstly, The uses of pressure with regard to inflammation.

1. It is most effective as a preventive of inflammation, especially in compound fractures of the limbs, injuries of joints, amputations, and such like.

2. It removes acute inflammations and relieves the pain of them; as, *e.g.*, in orchitis, erysipelas, inflamed bursæ, &c.

3. It prevents and removes chronic inflammations and many of their effects, such as effusions and thickenings.

Secondly, Consideration of the objections commonly urged against it.

That pressure is a strong antiphlogistic can scarcely be denied by any one in the face of its acknowledged power over acute orchitis, and its frequent use to hasten the healing of chronic ulcers of the legs and the cure of chronic inflammation of the breasts. Why, then, is its use almost confined to the above cases? The answer generally given is, that it is an agent at once "dangerous and uncertain." The reply may be given in the words of Mr. Sampson Gamgee:—It is "not compression but *constriction* which is dangerous,"—*e.g.*, an elastic stocking compresses, a tight garter constricts. Whoever pretends to experiment with pressure should remember that its application requires skill and experience. But it is none the worse for that. The pressure should be perfectly uniform, and should entirely cover a limb up to and above the diseased part. When pain or other ill consequence results, it is usually not from pressure but from the partial want of it. When

pressure is accused of causing pain, it is the custom to speak of the severity of toothache, of the pain of inflamed bone, and of the pain caused by pinching the skin. However this may be, it is certain that pressure often relieves pain. How spontaneously a patient presses an aching and inflamed gum between the jaw and the palm of his hand. The throbbing pain of a whitlow can often be eased by grasping the affected finger firmly and evenly with the other hand. Then, does moderate pressure sometimes aggravate and sometimes relieve pain? I feel convinced that, at least in some cases, when pressure appears to be making pain worse, it is only acting indirectly, the direct agent being tension. For example, pinch a fold of skin over a bone: pain results. Press the skin much more firmly over the same bone: there is no pain. Very likely this is because in pinching the skin you drag upon certain nerve-fibrils in the skin surrounding the part pinched, which surrounding skin is necessarily stretched. If you take up between your finger and thumb a large fold of skin, say a piece as big as a halfpenny, and pinch it, I think you will notice that the pain is felt, not in the centre of the part compressed, but at or just beyond its margins—*i.e.*, exactly where there must be some tension.

"Throbbing" pain is due to mechanical stretching of inflamed parts, caused by sudden expansion of an artery.

Again, why is inflamed bone so painful? Is there anything to prove that the pressure in the cavities of the bone inflamed is really greater than that in inflamed soft parts? There are reasons quite to the contrary. Indeed, Billroth argues that acute inflammations of compact bone cannot occur at all, because there is not room for the soft parts in the bone to swell. When bone is said to be inflamed and painful, it is usually not the bone itself but the periosteum without or the medulla within. Now it is easy to understand why there should be a great deal of painful nerve-stretching in this case, for each filament when it passes into bone is, as it were, firmly moored by its lateral branches. Hence, when that portion of it situated in the soft parts is lengthened by rapid and angry swelling of the inflamed soft parts, the nerve-filament must be strained like a ship's cable in a hurricane. How do patients describe the pain of severe inflammation? They rarely call it "compressing," but frequently "tensive," "throbbing," and such terms.

Next, to what extent is uniform, moderate compression of inflamed parts dangerous? It is not dangerous at all. It is, to once more quote Mr. Gamgee, "constriction and not compression" which causes mortification. Compression, of course, is pressure from without. Tension of inflamed parts—that is, pressure from within them—often causes both pain and sloughing, and this de-

structive internal tension is just what is counteracted by compression, *i.e.*, support from without. When a limb is swollen by cellulitis, which suffers? Which mortifies? The skin and superficial soft parts from internal tension, or the muscles and deep soft parts from pressure? The skin and superficial soft parts, of course. Yet the inflammatory process must compress the muscles exactly as much as it distends the skin, and the pain is felt also in the external or distended parts. When tendons slough, it is because suppuration and ulceration have destroyed their means of blood supply. It is sometimes thought that the mass of pus has compressed and closed their nutrient arteries. But surely, if that were the case, and pressure of pus had stopped flow of blood, when an abscess knife liberated the pus, that fluid should spurt out with more force than blood from a severed artery. Does it spurt like this? Finally, I state my firm opinion that moderate uniform compression never causes gangrene; and I would add, that I have formed this opinion not so much from reasoning as from clinical observation. And I suspect that those who hold an opposite view confound tension or internal pressure with compression or external pressure, or else that they have mistaken the effects of constriction for those of compression.

Thirdly, Theory of the mode of action of pressure as an antiphlogistic.

Dr. Burdon-Sanderson may fairly be quoted as about the first authority in this country on the nature of the minute processes which constitute what is known as inflammation. He says (in "Holmes' System," vol. v. p. 763), "The agent in all the visible local effects is the living substance with which the blood comes into contact as it flows. Beyond this point we lose the guidance of direct observation, and must for the present content ourselves with stating that the liquor sanguinis, instead of transuding from the smaller arteries in quantity just sufficient to balance the absorption, leaks abundantly from the vessels; and that in many cases this is subsequently associated with squeezing out of the leucocytes, or even of the coloured corpuscles." In other words, the prime element of inflammation is some change in the lining membrane of the capillaries, and this leads secondarily to exudation of serum, which again is followed by emigration of leucocytes and the accumulation of blood corpuscles outside the vessels. Now, I do not suppose that pressure is going to remedy the change in the lining membrane of the capillaries. The vis medicatrix naturæ may be trusted to do that if time be given. But pressure can obviously check its effects, as above given. For just as increased blood-pressure or arterial fluxion in a part will produce exudation by disturbing the balance of pressure inside and outside

the vessels in one way, so increased pressure outside the vessels will lessen exudation by disturbing the balance of pressure in the opposite direction; and in either case there is no reason to believe that the effect is different if the part be inflamed. Again, if pressure limits exudation of fluid, it will probably prevent emigration of leucocytes; for the latter phenomenon appears to be always preceded by the former. And here I shall venture to plunge a little further into theory. It is generally considered that the stasis of the leucocytes is a necessary preliminary to their emigration. May not this stasis be due to the lateral escape of the liquor sanguinis whose duty is to wash the corpuscles along the blood-vessels? It is acknowledged that the stasis does not result from any cause within the corpuscles themselves. If milk be substituted for blood in the vessels, stasis of the milk corpuscles takes place.

Another beneficial effect of pressure is the help it gives the venous circulation by supporting the veins. It is worthy of notice that all cases of mortification reported as the result of pressure are cases of moist gangrene. This should confirm the belief that they were the results not of pressure fairly applied, but of strangulation.

A third way in which pressure cures inflammation is a special one. It occurs when a large artery going to an inflamed part is compressed, a proceeding recommended by Vanzetti. Here exudation and emigration are lessened not by increasing the pressure outside the vessels, but by diminishing the blood-pressure within. Indeed, this furnishes a proof of the truth of my theory of the mode of action of external compression. For pressure on the trunk of an artery can *only* act on a distant part by altering the balance between the intra- and extra-vascular pressure in the part.

Fourthly, Modes of applying it. This and the remaining sections of the paper I am constrained to cut short, but I hope to supplement them at a future time. The starched or plastered bandage from the toes or digits upwards, with a layer of cotton-wool inside for the sake of elasticity, is an effectual and convenient application to the limbs. Strapping is often extremely useful, *e.g.*, in orchitis, mastitis, and ulcers of the legs. Shot bags and trusses with elastic air or water pads to inflamed glands or wounds, or parts on the surface of the neck or trunk. Whenever there is a wound, some antiseptic absorbent, such as oakum, should be placed over the wound. A little zinc ointment rubbed over the skin and edge of the wound will protect them from the irritation of the tar or other antiseptic without in any way interfering with absorption. Zinc ointment rubbed on with the finger presents,

in this respect, a favourable contrast to other kinds of "protectives." An india-rubber elastic finger-stall, if it fit well, not too tightly, will check a commencing whitlow at the finger-end. After amputations, the stump and flaps should be evenly and firmly bandaged, plenty of cotton-wool and oakum being used, and the bandages strengthened by millboard. If the stump be evenly and uniformly bandaged, and plenty of absorbent be placed in contact with the lips of the wound, there will often be no need of the drainage tube, which, in spite of its valuable qualities, is, after all, a foreign body.

The treatment of operation wounds by compression is especially adapted to follow the use of Esmarch's bandage. That contrivance is liable to cause a reactionary congestion which clever bandaging would relieve. Illustrative of the effect of pressure is a fact pointed out by Mr. Callender, that when erysipelas attacks a limb, there is little tendency to swelling and collection of pus at the back of the limb where it rests upon the supporting splint. Even supposing compression has its faults, are the other great antiphlogistics, *e.g.*, blood-letting, free incisions, and mercury, so very innocent? And ice-bags; in the best-regulated hospitals is it so very uncommon for the house-surgeon to find them void of ice, and at the temperature of fever-heat? When they are in this state, they are often found to have providentially slipped off the diseased part, which they probably never fitted.

As a preventive of inflammation, pressure has long found a powerful and persevering advocate in Mr. Sampson Gamgee; while across the Atlantic, Dr. Sayre cures inflamed knee-joints with double elastic bags, or with sponges and bandages. In Germany, Volkmann and Billroth recommend elastic pressure for chronic serous synovitis.

And now Colonel Martin, with his celebrated pamphlet, Mr. Callander and Mr. Hutchinson, Mr. Barwell and others, give to the claims of compression an amount of support such as they have scarcely ever received before.

In the summer of this year (August 1, 1878), while treating a case of hydrops articuli with pressure by a common Esmarch's bandage over cotton-wool at the West London Hospital, it occurred to me that what was chiefly required to give the profession confidence in the safety of pressure was a simple means of accurately measuring and adjusting it. To this end I placed upon the joint, beneath the bandage, a soft flat elastic bag half filled with water, and having a tube attached to it. The height to which the compressive force of the bandage raised the column of water in the tube showed the pressure per square inch on the joint; each foot in height corresponds to a pressure of nearly half a pound

to the square inch, because thirty-two feet of the water barometer = one atmosphere = fifteen pounds. Moreover, without taking the bandage off, its pressure can be regulated by increasing or diminishing the water in the bag.

Particulars of this treatment, which I call "hydraulo-elastic," will be found in cases published in the "Lancet."[1]

[1] November 23, 1878.

WOUNDS OF THE CILIARY REGION:

THEIR RESULTS AND TREATMENT WITH ESERINE.

BY

W. BRUCE CLARKE, M.B.

There is no organ of the body in which a slight wound may cause such disastrous results as in the eye, and there is no part of the eye in which a wound is more dangerous than the ciliary region.

It is dangerous partly from the numerous important structures which are associated together in that situation, and also from the more remote danger of a sympathetic ophthalmia in the other eye.

It may be accompanied by wounds both of the sclerotic and cornea, and likewise of the iris and lens, not to speak of wounds of the ciliary processes, and effusion of blood into the aqueous and vitreous humours, with subsequent choroiditis and detached retina, or suppuration of the globe.

But in the treatment of such injuries, the principal point to combat is a prolapse of the iris, and by its return to the anterior chamber to ensure as far as possible the union of the parts without much effusion of lymph or limitation of iris-movement.

Should such a wound be certainly complicated by a wound of the lens, with the consequent certainty of a traumatic cataract, then it is questionable whether any deviation from the ordinarily recognised modes of treatment is advisable. But should it not be certain that the lens is wounded, eserine affords most useful aid to the surgeon in the adjustment of the parts, for by their non-adjustment a plastic inflammation[1] of the ciliary body is almost certain to occur, which is now generally recognised as the most fertile source of sympathetic ophthalmia.

In order thoroughly to grasp the danger of these wounds, it is necessary to refer to the opinions both of the older and more

[1] *Vide* A Treatise on Disease of the Eye, by J. Soelberg Wells, F.R.C.S.

modern writers on ophthalmic surgery, with reference first to wounds of the ciliary region itself, and, secondly, with regard to its consequences, prolapse of the iris, traumatic cataract, and sympathetic ophthalmia.

The earlier surgeons to the Royal London Ophthalmic Hospital make no mention of such wounds. Saunders does not refer to them. Travers[1] does not even mention a single wound of the eye of any description, though his work was so good as to be translated into several foreign languages.

Wardrop[2] devotes a chapter to "The sympathies of the eyes," and draws attention to the fact that "both eyes are apt to suffer when one is injured or diseased." He also refers to a disease in horses having the appearance of a specific inflammation, which usually affects one eye and then the other. He states that farriers cause the eye first affected to suppurate, as by that means they save the other, and suggests that this practice, by judicious discrimination, might be applied to man.

A like silence is preserved by Mackenzie[3] on the subject in the earlier editions of his work. On the subject, however, of prolapse of the iris, he states that its return is a matter of great difficulty; and Lawrence[4] even goes so far as to state that it is impossible.

Before this, however, the possibility of such an operation had been demonstrated by Larrey, who replaced the iris of his daughter with a gold probe, and she recovered without the slightest affection of the iris.

Though Lawrence[5] refers at considerable length to wounds of the eye, and draws attention to their importance, not one word is said respecting wounds of the ciliary region; and as showing how little he appreciated the dangers of such cases, he says,[6] "The influence of one eye upon the other is not confined to cases of disease." Later on[7] he quotes cases of what he calls sympathetic inflammation of one eye due to an injury of the other, and refers to an operation practised by Barton of Manchester for the presence of foreign bodies in the eye, which operation is merely the carrying out Wardrop's suggestion before referred to. "The treatment adopted by Mr. Barton in order to remove the painful affection of the wounded eye, and to relieve the other from injurious sympathetic influence, consisted in making a free incision of the

[1] A Synopsis of the Diseases of the Eye, by B. Travers, F.R.S., 1824, London.
[2] Essays on the Morbid Anatomy of the Human Eye, by James Wardrop, F.R.S.E., vol. ii. 1818, Edinburgh.
[3] A Practical Treatise on Diseases of the Eye, by William Mackenzie, 1830, Glasgow, 1st ed.
[4] *Vide* Lectures on the Eye, Lancet, vol. x., p. 482, London, 1826.
[5] A Treatise on Diseases of the Eye, by W. Lawrence, F.R.S., London, 1841.
[6] Ibid., p. 159. [7] Ibid., p. 162.

cornea, as in the operation of extraction, cutting off the flap with the scissors and covering the eye with a poultice; within a few days after the foreign substance was in all cases discharged from the eye."[1]

But it was in 1844 that Mackenzie[2] gave the first complete description of sympathetic ophthalmia as such, and thought it worthy of a separate chapter, though it is only fair to add that many of its symptoms had before been described by Beer, Demours, and others.

Once thoroughly made known to ophthalmic surgeons, the best method of arresting its progress was eagerly sought after; and the first right step in this direction is due to Pritchard[3] of Bristol. Twenty cases of blindness from sympathetic ophthalmia were quoted from the Blind Asylum at Bristol, and three cases of sympathetic irritation, coming on precisely as did the previous twenty, in all of which the irritation was arrested by excision of the affected eye.

Writing in the same year, Taylor,[4] on the contrary, recommends removal of the cornea and extraction of the lens.

From this time forward the relation between wounds of the ciliary region and sympathetic ophthalmia has been thoroughly established, and their relationship is referred to by White Cooper[5] and all subsequent authors on the eye.

Further details appear in the French translation of Mackenzie[6] in 1865, and in the works of Lawson,[7] Graefe, and Saemisch,[8] Galezowski, and others.[9]

But enough has been said to show the danger of such wounds, and the various forms of sympathetic ophthalmia which they are capable of giving rise to.

With regard, however, to the treatment of prolapse of the iris, but little progress has been made since the earlier editions of Mackenzie's treatise first appeared.

[1] London Medical Gazette, vol. v. p. 784, "On the Treatment of Certain Injuries of the Eye."

[2] A Practical Treatise on Diseases of the Eye, by W. Mackenzie, Glasgow, 1844.

[3] Association Medical Journal, October 6, 1854.

[4] Sympathetic Affections of the Eyeball. Medical Times and Gazette, 1854, vol. ii. pp. 439 and 465.

[5] Wounds and Injuries of the Eye, by William White Cooper, London, 1859.

[6] Traité pratique des Maladies de l'Œil, Paris, 1865.

[7] Injuries of the Eye, Orbit, and Eyelids. G. Lawson, F.R.C.S., London, 1867.

[8] Handbuch der Gesammten Augenheilkunde, 1874, Leipsic, Band 3, pp. 386, 420, 422, Band 4, p. 353.

[9] Maladies des Yeux, Galezowski, Paris, 1875, pp. 754 to 757, *et ibi cit.;* Traumatic Cyclitis and Sympathetic Ophthalmia, Klin. Monatsblätter für Augenheilkunde, 1871, p. 256; Neuroretinitis following Wounds of Ciliary Region, Archiv für Augen und Ohrenheilkunde, T. ii. abt. 1, p. 261; Sympathische Gesichtstorungen, Mooren; Klinische Beobachtungen, Pagenstecker, Wiesbaden, 1862.

Lawson [1] refers to the treatment by calabar bean, and the contraction of the pupil by a bright light; but, as a rule, the prolapsed iris is cut off, treated by a compress, with a ligature, or by frequent puncturings.

Having, then, traced the history of such modes of treatment as are now generally employed, it remains only to refer to the following table of wounds of the ciliary region before and after the use of eserine in this Hospital, and to the respective results of their treatment. These cases are extracted from the Ward registration books:—

Name.	Nature of Wound.	Condition of Eye on leaving Hospital.	Other Eye.
W. Bracken 7	L. E. wound of ciliary region	L. E. abscission	R. E. unimpaired
W. Dovedale 25	L. E. wound of ciliary region; prolapse of iris; loss of lens and some vitreous	L. E. saved condition?	R. E. nothing stated
W. Green 41	R. E. corneal wound and prolapse of iris	L. E. perception of light (removal refused)	R. E. sympathetic irritation
F. Hall 22	R. E. wound probably of ciliary region	R. E. excision three years later	L. E. sympathetic irritation; V. = $\frac{12}{20}$
J. White 33	L. E. wound of ciliary region	L. E. excision fifteen years after	R. E. V. good
J. Collins 25	R. E. wound of ciliary region	R. E. perception of light	L. E. V. = $\frac{20}{30}$
A. Cambriazi $6\frac{1}{2}$	R. E. wound of ciliary region (attempt to save eye)	R. E. abscission	L. E. sympathetic irritation; V. good
D. Smart 16	R. E. wound of ciliary region and prolapse of iris	R. E. perception of light	L. E. unaffected
W. Syme 40	L. E. wound of ciliary region and prolapsed iris	L. E. perception of light	R. E. unaffected
J. Johnson 63	L. E. wound of ciliary region	L. E. abscission	R. E. unaffected
W. Hart 28	Wound of both ciliary regions and partial prolapse of iris in R. E.; iris unreduced (fracture of sup. maxillary bone)	R. E. V. = $\frac{20}{30}$	L. E. V. = $\frac{20}{30}$
C. Claridge 15	L. E. wound of ciliary region and ant. synechia five years before; iridotomy, iridectomy, followed two months later by sympathetic ophthalmia R. E.	L. E. excision	R. E. V. = $\frac{20}{100}$
J. Stockbridge 55	R. E. wound of ciliary region; prolapsed iris; L. E. sympathetic ophthalmia seven months later	R. E. V. bad	L. E. V. = fingers at six eet
W. Birch 12	L. E. wound of ciliary region and prolapsed iris	Iridectomy; abscission	R. E. V. $\frac{20}{40}$; sympathetic irritation
E. Clark 16	L. E. wound of ciliary region, iridectomy and extraction	L. E. excission two months later	R. E. partial recovery; V. not stated
J. Giles 3	L. E. wound of cornea and prolapsed iris: iris cut off	L. E. no use	R. E. V. not stated
W. Jealous 31	L. E. wound of ciliary region and prolapse of iris; no operation	L. E. useless	R. E. unaffected
P. Kelly 33	R. E. wound of ciliary region and prolapse of iris; iridectomy extraction	R. E?	L. E. unaffected
A. Maclormac 7	R. E. wound of ciliary region and traumatic cataract	Iridectomy and extraction	L. E. unaffected
F. Daw 12	R. E. wound of ciliary region and traumatic cataract	Abscission	L. E. unaffected
B. Parlin 23	L. E. wound of ciliary region	Abscission	R. E. unaffected
A. Parker 14	L. E. wound of ciliary region; prolapse of iris.	Iridectomy and abscission	R. E. unaffected

[1] On the Treatment of Prolapse of the Iris. Roy, London. Ophth. H. Rep. 1864, vol. iv. p. 227; Noveau Dict. de Médicine et Chirurgie, Paris, 1874, tom. xix. p. 415.

Name.	Nature of Wound.	Condition of Eye on leaving Hospital.	Other Eye.
E. Winter 33	R. E. wound of ciliary region	R. E. excision	L. E. unaffected
M. Williams 7	L. E. wound of ciliary region	L. E. nothing stated	R. E. S. ophthalmia; V. = fingers at six feet
J. Fairn 27	L. E. wound of ciliary region	L. E. attempt to save eye with sutures; recovery with good-looking eye and iris acting well	R. E. unaffected
J. Barratt 42	L. E. wound of ciliary region	L. E. abscission and excision	R. E. unaffected
A. Gatewood 4	R. E. wound of ciliary region and prolapsed iris	R. E. V. = perception of light	L. E. unaffected
J. Barton 18 ms	R. E. wound of ciliary region, loss of lens and vitreous	R. E. abscission	L. E. sympathetic irritation stopped after abscission
L. Hammond 19	R. E. wound of ciliary region	R. E. abscission	L. E. good
C. Howard 3	R. E. injury to eye with piece of glass.	R. E. iridectomy outwards; V. not stated; not good	L. E. unaffected
J. Reeves 14	L. E. wound of cornea and ciliary region; prolapsed iris and traumatic cataract, and detached retina	L. E. abscission	R. E. not stated
C. Wiseman 4	Wound of ciliary region and prolapsed iris	Iris cut off	V. not stated
E. Macarthy 9	Wound of ciliary region	Abscission	V. not stated
J. Webster 11	Wound of ciliary region; suppuration of vitreous	Abscission	V. not stated
After use of Eserine.			
F. Perham 30	L. E. wound of ciliary region	V. = $\frac{20}{40}$ L E.	R. E. V. = $\frac{20}{30}$
H. Hubbard 19	L. E. wound of ciliary region and lens	L. E. perception of light	R. E. V. = $\frac{20}{20}$
A. Ford 8	R. E. wound of ciliary region	R. E. V. = $\frac{20}{30}$	L. E. V. = $\frac{20}{20}$
A. Young 18	R. E. wound of ciliary region	R. E. V. = $\frac{20}{200}$	L. E. V. = $\frac{20}{20}$
J. Fentiman 32	R. E. wound of ciliary region	R. E. V. = $\frac{20}{200}$	L. E. V. = $\frac{20}{20}$
S. Head 44	L. E. wound of ciliary region and prolapsed iris	L. E. V. = $\frac{20}{20}$	R. E. V. blind for seven years
H. Child 18	L. E. lacerated wound of cornea and both ciliary regions; escape of lens and vitreous	L. E. abscission and removal of choroid and retina	R. E. V. = $\frac{20}{20}$

It will be seen from the above table that out of 32 wounds of the ciliary region, only one case has recovered with anything like good vision, viz., that case in which both ciliary regions were wounded simultaneously. Another case, viz., that of J. Fairn, recovered with a good-looking eye, but the vision is not stated. In five of these cases the lens was either lost or wounded. Putting these, then, out of the question altogether, as too severe to afford any reasonable hopes of successful treatment, there remain 27 cases, in only two of which any approach to good vision was obtained.

In some of these cases atropine was used, and in some no atropine at all. There is no record of the use of calabar bean extract.

Since eserine has been employed, seven cases of wounds of the ciliary region have been under treatment at this Hospital; of these

seven, one was complicated by traumatic cataract, and in another the lens and greater part of the vitreous were lost before the patient came to the Hospital; so five cases remain to be accounted for, and every one of these has recovered with a vision of $\frac{20}{20}$ and Sn. $1\frac{1}{2}$, in other words, with the refractive and accommodative power unimpaired.

The following abstract of the notes of these cases is appended. The first two were under the observation of my predecessor, Mr. Eve, and to him I am indebted for the notes; the last three cases were under my own observation.

Frederick Perham, aged 30. Admitted under Mr. Vernon, Dec. 12, 1877, with wound of the ciliary region. The wound was inflicted by a piece of glass, and was clean cut. It was from an eighth to a quarter inch long. It was divided almost equally between the sclerotic and cornea. There was hardly any anterior chamber, and the pupil was oval, the iris being in contact with the wound. There was not much hæmorrhage, and no escape of vitreous.

13.—Eye painful. He can see distinctly. Eserine.

14.—Slight pain in eye. Pupil oval. Slight adhesion of iris to edge of wound.

15.—Pupil still oval.

18.—Wound healed; very slight conjunctival injection. Pupil less oval.

23.—Wound soundly healed. Vision not affected. Eserine continued.

Jan. 11.—Eye quiet. Vision $= \frac{20}{40}$.

29.—No choroid or iris in scar. Very slight photophobia. Vision $= \frac{20}{20}$.

A. Ford, aged 8. Admitted under Mr. Power, Dec. 22, 1877, suffering from a punctured wound of the ciliary region, situated about two lines outside the corneal margin. The wound was inflicted by a pair of scissors. Pupil oval; apparently no wound of the lens. Vision good. Eserine. Pad and bandage.

23.—No pain. The pupil has not regained its shape.

24.—Injection of conjunctiva. Pupil contracted to a pin-point. No pain or irritation.

Jan. 3.—Eye quiet; no change.

8.—No injection or irritation. Wound healed. Good anterior chamber. Vision $= \frac{20}{20}$.

Alfred Young, aged 18. Admitted under Mr. Power, May 6, 1878, with a punctured wound of the ciliary region, which was caused by a piece of brass. The piece of brass entered the eye and came out again. The wound was rather more than a quarter of an inch long, and involved more of the cornea than sclerotic. There was prolapse of the iris, and the pupil was very irregular.

About an hour and a half after his admission, a cystoid projection was observable from the wound. It was about the size of a No. 1 shot. This was apparently due to the aqueous humour bulging out the iris.

Without chloroform, the prolapse of the iris was replaced into the anterior chamber. This had to be done several times with a small curette. Eserine was dropped into the eye in abundance.

7.—A very small piece of iris is now stuck to the deep surface of the wound, so that the iris is not quite regular.

Eye quiet. Aqueous abundant. Wound healed.

11.—Eye quiet.—Hardly any lacrymation or photophobia. The slight anterior synechia exists as before. The pupil is slightly oval.

Vision = $\frac{20}{20}$, and Snellen $1\frac{1}{2}$ at 8 inches.

June 4.—Patient quite well. Has not been seen since.

John Fentiman, aged 32. Admitted under Mr. Power, June 8, 1878, with a wound of the ciliary region about a quarter of an inch long. The wound affected the sclerotic and cornea equally. It had been inflicted with a pair of scissors.

There was prolapse of the iris to a slight extent.

The iris was returned with a curette, and eserine inserted. Pad and bandage.

12.—Eye opened for first time. Wound quite healed. Iris not quite regular at margin. T.—1.

17.—The eye is quite quiet, with the exception of a few pink vessels round the seat of puncture. T. n. *Shade.*

21.—There is a slight irregularity in the pupil, but otherwise it would hardly be possible to know there had been a wound.

Vision = $\frac{6}{6}$, and Snellen $1\frac{1}{2}$ at 8 inches.

Ordered to be careful, and to come and show himself. He has never been here since.

Stephen Head, aged 44. Admitted under Mr. Vernon, July 12, 1878, suffering from a lacerated wound of the ciliary region and cornea. The wound was approximately T-shaped, the upper part of the T being situated in the cornea.

Whilst at work, a piece of a steel chisel flew into his left eye. The piece of steel came out again, and was picked up by a fellow-workman.

There was a slight escape of vitreous, and some black masses, bits presumably of choroidal pigment, lay on the edge of the sclerotic part of the wound. There was also a prolapse of the iris.

He says he cannot see his way about, and that he is totally blind with the other eye. The blindness came on after what he was told was a fractured base about six years ago.

The iris was replaced with a curette and eserine put in.

After about ten minutes a second supply of eserine was put in, and the curette again passed into the anterior chamber. This was again repeated after the lapse of a quarter of an hour. A few minutes later the pupil was seen to be quite round and very finely contracted, and a wet pad and bandage were put on.

Three hours later pad changed and more eserine put in.

Pad changed again the same evening.

13.—This morning the pupil is slightly irregular externally, the angle hardly perceptibly so, and there is a slight trace of blood in the anterior chamber. Eserine discontinued.

16.—Eye slightly pink; counts fingers well.

18.—Wound now well healed; some ung. belladonnæ placed over the brow to dilate the pupil. The eye is less pink than it was.

22.—Eye clearer. Reads large print.

24.—Can read Snellen $1\frac{1}{2}$ at 14 inches.

27.—Pupil small. T. n.

30.—Vision—1 D. $= \frac{6}{9}$ and some letters of $\frac{6}{6}$.

Sept. 7.—He has continued to wear a shade up to this time. Vision $= \frac{6}{6}$ easily, and Snellen $1\frac{1}{2}$ at 14 inches.

COMMENCING CATARACT:

ITS SYMPTOMS AND TREATMENT.

BY

BOWATER J. VERNON.

That the diagnosis of commencing cataract is no longer a matter of doubt or uncertainty is one of the many advantages which we possess in the use of the ophthalmoscope. The diagnosis may, however, be made by the employment of a convex glass in the manner known as focal or oblique illumination. This method of examination was long ago in use, but it would appear to have been almost confined to the search after the two or more small images which, under favourable circumstances, can be detected within the area of the pupils—the well-known catoptric test for cataract. The value of this test depends upon the fact that when the lens is no longer transparent, the formation of the images of any illuminating body, such as a candle or lamp, is interfered with. It must be confessed that the experiment is more easily described than put into practice. To those who possess even a moderate acquaintance with the ophthalmoscope, the elaborate history of how a case of cataract may be distinguished from one of glaucoma, or again from a case of amaurosis, must appear almost superfluous; but when these descriptions were given, the nature and seat of glaucoma were very much matters of conjecture, and the appearances which we now associate with amaurosis were absolutely unknown. It is not so very long since a cataract was supposed to be an opaque membrane, or something of that nature, which descended or dropped over the pupil, and so occasioned loss of sight. The seat of glaucoma was at the same time supposed to be within the crystalline itself; and when this latter was subsequently proved to be the seat of cataract, then it became necessary to find another source of that greenish-grey

reflection which is only one of the many morbid appearances to be met with in the disease which we still call glaucoma.

Although Mackenzie had no knowledge of the use of the ophthalmoscope, and although, in consequence, his ideas of the pathology of glaucoma would not quite harmonise with the teachings of later writers, yet his clinical pictures remain masterpieces of their kind, and he who knows them will not fail to recognise either of the diseases above mentioned when he meets with them. It is to be feared, however, that very many members of our profession have forgotten what Mackenzie wrote so long ago, or that they have not been able to master even the elements of ophthalmic surgery as now taught in almost every hospital. It has happened to me to see no less than six cases since the commencement of this present winter session, all of which had been under medical care, and all had irretrievably lost the sight of one or of both eyes from glaucoma, which had run its course unrecognised; and it is no uncommon occurrence, even now for cases of so-called cataract to be sent to hospitals for operation after they have passed successively through all the stages of a very different disease. The one symptom—pain—which would put many men on the alert, is very often absent in many cases of glaucoma; from whatever reason, however, it must, I fear, be admitted that the knowledge of this and of kindred diseases of the eye is not as widely extended as it should be; it must not be supposed that any very special knowledge is required to diagnose either a cataract or a case of commencing glaucoma; any one who can use a simple lens can certainly diagnose the one, and there are one or two peculiar features, to be mentioned hereafter, by which the other can be as certainly recognised, without even the employment of a lens, much less of an ophthalmoscope.

The symptoms of commencing cataract are both subjective and objective; the latter are by far the most reliable; the former varying widely in different individuals, but are nevertheless in many instances very characteristic. It will be convenient to commence with a short description of the—

Subjective symptoms.—As certain forms of cataract are met with in early life, the presence of one or other of them may be suspected when it is clear that some serious defect of vision exists. Little children are frequently brought for examination when their awkwardness or backwardness leads their friends to suspect, at last, that they are unable to do what may fairly be required of them. Young people, too, who have long been ill with some wasting disease, find their sight seriously defective; reading is difficult, if not impossible, and distant objects appear as misty and indistinct as their needlework. A typical example

of this is occasionally met with amongst those who are wasted and exhausted by diabetes; and, lastly, elderly people come and complain that they are constantly obliged to change their glasses, and whereas they formerly found that they could read and write with greater ease by throwing a bright light upon their book or upon their work, it is now no longer the case, and they are compelled to give up their work almost entirely. It has often been laid down that those who have commencing cataracts see much better by twilight than by daylight. This statement is a little misleading, and it should rather be said that while a patient in these circumstances avoids direct sunlight, or indeed any kind of glare, yet he sees best when there is a moderate amount of diffused daylight. Everything to such a patient, however, appears covered with a veil or a thin cloud, or the obstruction to his sight takes the shape of streaks, or cobwebs, or of black spots, which are ever present, and which refuse to be brushed aside. Multiple images of lamps and candles are sometimes complained of, but these are more often the result of irregular opacities of the cornea, or of fine films of capsule, and of false membranes, which remain in the pupil after a cataract has been previously extracted. It is certain that the early stages of cataract produce widely different sensations in different individuals; for some patients will not complain till the change in the appearance of their eye is sufficiently obvious, whilst others are rendered miserable by an amount of opacity which is so small that it may well be overlooked, as it often is on a superficial examination. No doubt the amount and the seat of the opacity are of great consequence, but it is none the less true that some patients can do their work fairly well with an amount of cataract already developed, sufficient, one would suppose, to preclude work of any kind. Obviously a very advanced degree of opacity, provided it is limited to the marginal portion of the lens, would cause much less impediment to vision than a much smaller amount of change within the nucleus or within the cortical layers immediately behind the pupil. So long as the margin only is affected, the rapid failure of all accommodative power is the principal trouble; but no sooner is the region of the pupil invaded than the patient's attention is at once aroused, and he asks for advice, and reports himself as having suddenly lost his sight without any previous warning. It is the nature of cataract to be slow in growth under ordinary circumstances, and where it is asserted that a cataract has suddenly made its appearance, it is probable that this central opacity has rather suddenly made itself felt. Cases of the sudden development of cataract are, however, upon record.[1]

[1] Mackenzie, French edition, vol. ii. p. 310.

It is always a suspicious occurrence if the eyes of persons who have been known to be myopic suddenly fail them. Advanced myopia is very commonly attended with serious alterations in the structure and in the nutrition of the choroid coat; and it must not be forgotten that upon the integrity of the vascular membranes of the eye the nutrition, and therefore the transparency, of the crystalline and vitreous humours depend.

In addition to the rapid onset of presbyopia, in not a few instances eyes with commencing cataracts appear to become myopic. There is often no evidence of previous shortsight, nor any history of any such defect in other members of the family, but their distant vision is decidedly improved by the use of concave glasses at the same time that they require the assistance of glasses of considerable convexity for near vision. When myopia and presbyopia co-exist in the same eye, the surgeon will do well to search for more or less change of structure within the lens. As to the cause of this form of myopia, there is some difference of opinion. According to some authorities, notably Professor Arlt of Vienna, it is due to the nucleus of the lens becoming opaque, so that only those rays of light impinge upon the retina which pass through the equator of the lens. But this cannot be the explanation in every instance. According to Stellwag, hypermetropia is to be met with in commencing cataract in consequence of the nucleus becoming flattened.

It should be borne in mind that nearly all the above-mentioned symptoms may be due to opacities of the cornea, although under such circumstances they are, as a rule, less marked than when they are brought about by degenerative changes of the crystalline lens.

Objective symptoms.—The attitude which elderly people with cataract sometimes assume is very remarkable, and the way in which they walk into a consulting-room will at times give a clue to the nature of the defect from which they are suffering. By shading the eyes with the hand and holding the head downwards, all direct light is avoided and the pupil is somewhat increased in size. By this means vision is in some measure improved, for it may be laid down that, even where a cataract is matured, sufficient sight remains by which a patient can guide himself about. An amaurotic patient, on the other hand, upon whose eyes light makes little or no impression, and whose pupils are generally more or less dilated and fixed, will enter a room or will walk in the street with eyes wide open (amaurotic stare) and head erect. In former days it was natural and right that this difference in demeanour should be insisted upon as a distinctive symptom between the two diseases; but it would be very rash at the present time to found a diagnosis upon its presence or absence in any particular instance. If the light

of a lamp is concentrated upon the front of the eye by means of a convex lens, and if a second lens is employed to magnify the illuminated surface, the diagnosis of cataract is not only made a matter of certainty, but at the same time the exact amount of the change of structure can be defined, and in not a few instances some idea can be formed of its future progress, and this is of great advantage. In many cases it will not be necessary to dilate the pupil, so obvious is the defect, but in all cases of doubt this should be done. It is not to be supposed, however, that the employment of oblique or focal illumination, as it is called, is altogether so simple a matter as it would at first sight appear. On the contrary, some little experience of its use is required to detect the very first appearance of morbid change in the lens; for the healthy eyes of adults, and in some instances of young persons, will present certain indications of imperfect transparency. In fact, it is easy to see that in every eye the capsule of the lens is not absolutely transparent, and that it reflects an appreciable amount of light; in some cases it is possible to see the lines of demarcation between the several segments of the lens, and, in addition, the lens seems to possess the peculiar property known as fluorescence. All these features are present in the lenses of many elderly people, and may give rise to the suspicion of cataract, which is only dispelled when a glance through the mirror of the ophthalmoscope demonstrates that the lens is transparent to light. In searching for opacities of the lens, we are able by this method of examination to detect the slightest inequality in surface of the cornea, to say nothing of small foreign bodies, and the stains and marks which they leave behind them. It is often easy to see that the apparent defect of vision is due to a nebula so thin and uniform as to pass unnoticed by ordinary observation. Some nebulæ may be resolved into clusters of minute point-like opacities (keratitis punctata), a remarkable variety of inflammation, which is very destructive to vision, and which is very indicative of deep-seated mischief within the eye. Very like these small opacities within the layers of the cornea itself are the minute opaque dots which line the aqueous surface of the cornea, and which may be seen profusely scattered over the anterior capsule of the lens (the aquo-capsulitis of older writers). Not to be confounded with either of these are the so-called colloid degenerations of the elastic layers of the cornea of very aged persons, which are associated with similar changes of the several limiting membranes of the choroid. We do not now look upon the existence of an arcus senilis as any special indication of cataract, but there was a time when the arcus of the cornea was thought to accompany a corresponding opacity of the margin

of the lens. When the lens has been dislocated from its usual position, its margin or border can be readily traced by what appears to be a dark curvilinear streak, the result of reflection of light in all probability, but not of structural change; and when the lens happens to be dislocated into the anterior chamber, its margin is indicated by a brilliant illuminated outline. Small and distinct opacities, the minute facets left by old ulcers, and irregular nebulæ upon the surface of the cornea, may give rise to spots and streaks and multiple images, very similar to those of which patients complain who are the subjects of commencing cataract, for they one and all cause annoyance and distress in the same way by obstructing or scattering the light which should pass uninterruptedly to the retina. In not a few instances the defect of vision is due to pigmented opacities upon the capsule of the lens, either with or without adhesions to the margin of the pupil; the pigmentation is due to the colouring matters of the uvea, and is a reliable indication of iritis at some former time; occasionally an almost complete ring of these small dark-brown spots serves to mark the outline of a pupil which was once adherent to the capsule.

The effect of corneal opacities as well as those of the capsule vary remarkably in different persons. Some feel little or no annoyance, and can at times ignore their presence altogether, while to others they cause an amount of distress altogether out of proportion, apparently, to their size or number. It may be said, however, that, as a rule, all obstructions to light which are anterior to the optical centre of the eye, the centre of the lens, are less troublesome than those which occur behind this point. The peculiar and pyramidal opacity which in some rare cases projects from the capsule of the lens through the pupil into the anterior chamber (pyramidal cataract) could not well be overlooked. It is sometimes associated with a small central opacity of the cornea. Both are the result of bygone inflammation, occurring most probably when the anterior chamber had little depth, and the surfaces of the lens and of the cornea were almost in contact with each other.

As a rule, the pupil is moderately active in a case of uncomplicated cataract, allowance having to be made for the rigidity which the irides of aged people sometimes assume. In young subjects the pupil should be active; and in both old and young, even when the presence of cataract is very obvious, the position and the movements of a candle should be readily detected.

The existence of any of the above-mentioned obstacles to sight can be detected in much less time than is required for their enumeration. As already said, the diagnosis of cataract requires

nothing beyond this method of examination by oblique illumination; and if its use were invariably insisted upon before recourse is had to the mirror of the ophthalmoscope, very many, and some rather ludicrous, mistakes would remain uncommitted. The method is within the reach of everybody, and the smallest amount of practice will serve to distinguish the position of a corneal nebula from an opacity more deeply seated upon or within the lens.

When there is no evidence of any opacity sufficient to obstruct vision within the cornea, nor upon the capsule behind the pupils, the search is limited to the substance of the lens itself, and to that portion of the vitreous humour immediately behind it, and in which it rests. In the cataracts of children the opacity is apt to occur under very curious conditions. The variety of cataract known as laminar or zonular is exceedingly liable to be overlooked, and was, in fact, not described till recent years, its principal feature being that the nucleus is transparent, but is surrounded by a zone of partly opaque tissue, the cortical substance, like the nucleus, being perfectly transparent. The vision of those whose eyes are thus affected in some instances is fairly good. The history of these cataracts is not very clear, but what is known about them is remarkable. There is no evidence that they are congenital, but they have a tendency to remain stationary. They have been thought to be co-existent with rickets by Horner, and with convulsions during infancy and teething by Arlt. Quite recently in this country Mr. Hutchinson[1] has drawn attention to the fact that they are very generally associated with imperfect development of the enamel of the teeth, especially of the incisors, canines, and first molars of the permanent set, "to the almost invariable exemption of the præmolars." This defect is due, Mr. Hutchinson thinks, to the influence of mercury exhibited in infancy; the peculiarity of the cataract he believes, with Professor Arlt, is due to convulsions and is brought about mechanically.

The other varieties of cataract which are met with in the eyes of children can be recognised by opaque streaks and lines stretching in no very regular manner across the lens, with grey or milky-looking dots scattered here and there beneath the capsule.

The stellate opacities which are sometimes to be seen quite at the back of the lens are nearly always stationary; they are, however, great impediments to vision, and are very generally associated with deep-seated disease of the eyes. The streaks of opacity which denote the commencement of cataract in patients who are exhausted by diabetes are yellow in colour from fatty degeneration, and very rapidly coalesce into a yellowish-coloured soft cataract.

[1] Trans. Path. Soc., vol. xxvi.

The commencement of senile cataract may take place in the nucleus or in the cortical substance at the equator. The nucleus of the lens in old age is always very firm, and very often has a greenish-yellow tint; when it becomes cloudy, also, it interferes greatly with vision, and yet has very little tendency to undergo further change. It is this form of lenticular opacity which is apt to give rise to suspicion of glaucoma, and which in former days could not readily be distinguished from the ill-defined and deep-seated reflection of a glaucomatous eye.

When the cataract commences at the equator and in the cortical layers of the lens, it spreads by means of opaque bands, which in the main follow the anatomical segments, with smaller striæ interspersed. These may be almost entirely obscured by the iris, and may remain for a long time unnoticed, till some one or two invade the area of the pupil.

The method of oblique illumination is limited to the explanation of the front of the eye alone, or at least to that portion of the vitreous humour immediately behind the lens. The depth of the anterior chamber, the position and appearance of the iris, no less than the images reflected from the capsule, will determine whether or not the lens is present within the eye and whether it is in its proper place. We are able, then, to form some idea of the nature of any opacity which is apparent behind the pupil of a child, for instance. The unusual depth should prevent anybody from confounding the opacity of a detached retina, whether this is caused by a tumour such as glioma or by a blood clot, from that of an opaque lens; and, as will presently be shown, the very ill-defined haziness of the pupil in a glaucomatous eye is almost invariably associated with other external evidences of disease, which should make its recognition a matter of no real difficulty whatever.

The diagnosis of glaucoma.—The greenish-grey appearance of the media behind the pupil is only one of a series of symptoms, and this by no means the most important, which indicate the existence of the disease which we still speak of as glaucoma. Unfortunately, this particular symptom does not occur in any marked degree until the disease has almost run its course, not, indeed, until it has passed beyond the reach of treatment; and he who does not recognise its nature until it has reached this stage will, in the majority of instances, be unable to render his patient any effectual assistance. Fortunately there are other symptoms which will not only tell their own tale, but which, if observed at their very commencement, will enable a surgeon to watch over an eye long before there is any immediate danger; and to do this, no knowledge of the ophthalmoscope, or even how to use the method of oblique illumination, is indispensable.

Glaucoma is a disease which is almost strictly limited to elderly people. If our ideas as to its seat and as to its mode of production, derangement of the circulation of fluids in an eye whose vascular system is sluggish and inert, and whose tissues are rigid and unyielding from old age, are correct, it is easy to understand why this should be; more common, perhaps, amongst women than men, and in persons with dark hair than with light. Nearly all its subjects have the same physical peculiarities. Generally about fifty years of age, they look prematurely old and miserable in appearance, and as if they had lately been in bad circumstances, and they nearly always give the same history. They complain of more or less pain in the eyes, and in the course of the branches of the fifth pair over the forehead and nose; for some time they have noticed coloured rings around candles and street lights; occasionally their sight comes and goes for half an hour or more at a time. They have generally been troubled with constipation, and have suffered from what they term rheumatic pains in various parts of the body; and in nearly every instance they have had some mental trouble, such as anxiety in business matters, or on account of domestic affliction, depressing illness, and the like. The above is a very fair outline of the history which nearly all such patients give, but without it the appearance of the eye should tell its own story. The sclerotic is invariably more vascular than it should be, and this on account of the presence of dark tortuous veins which indicate an engorged state of the choroidal vessels; the cornea is wanting in polish and is not very sensitive to the touch; the anterior chamber is shallow; the iris indistinct in structure, and slate coloured; the pupil sluggish and slightly dilated. In the later stages the media behind the lens are not very clear, and may be greenish-grey in colour. Vision is sometimes reduced to a mere perception of light, and in every instance the eye will feel hard and resistant, in extreme cases being as hard as a stone almost.

Glaucoma of a more acute kind is occasionally met with in stout and well-to-do people of a rheumatic tendency, but the pain is usually so acute in such cases that the patient will not delay to seek relief, and the general indications of acute inflammation are so evident, that by no possibility can such a case require to be distinguished from one of cataract. It is in dealing with the chronic and sub-acute and the non-inflammatory forms of the disease that lamentable mistakes are made. It is, however, easy to understand their occurrence. In many cases the onset of the disease is not attended with pain, and in others it is so small in amount that patients make light of it and do not mention it; the surgeon is thrown off his guard because he does

not recognise any suspicious reflex from the interior of the eyes, and still more because he has not learned to estimate the tension of every eye in which there are any grounds whatever for suspecting deep-seated disease. It cannot be too strongly insisted upon that the diagnosis of glaucoma in most cases does in the main depend upon the state of the tension which the coats of the eye exhibit. Nothing can be easier than the estimation of this tension by pressing lightly with the tips of the two forefingers upon the eyeballs, the lids being closed, and the patient being directed to turn the eye quietly towards the ground. An eye which is hard is always in a state of danger, and when the hardness is associated with one or more of the above-mentioned symptoms, the danger of loss of sight is imminent. One other reason why glaucoma is overlooked is probably due to the fact that the disease may be superadded to other inflammatory diseases of the eye. Thus wounds and ulcers of the cornea in elderly persons, and cases of iritis complicated with adhesions, are very apt to assume a glaucomatous character. Lastly, when an attack of glaucoma has run its course unnoticed, the eye becomes throughout disorganised, and the lens does become actually opaque and cataractous. The condition of the pupil, the tension of the globe, and the tortuous vessels which run through the sclerotic, should prevent anybody from supposing that such a case can be one of ordinary senile cataract; and if it had not occurred to me very lately, it is hardly credible that a surgeon should watch the development of such a cataract from its very commencement till it was ripe enough to send up to town for operation.

With reference to the treatment of glaucoma, nothing more need be said in this place than to impress upon those who have not had much experience of such cases, that, in order to save vision, any operation which is thought necessary should be done as early as possible. In the later stages of the disease an operation may completely relieve pain, but it will have but a small chance of restoring useful sight.

Treatment of commencing cataract.—There is something very depressing to the minds of many in the mere mention of the word cataract, and especially of those whose living is dependent upon their eyesight. It becomes a question, then, whether it is always wise or necessary to inform patients of the exact seat of the trouble to their eyesight. Naturally the first question which arises is, how long will it be before my sight is altogether lost? And this is a question which it is exceedingly difficult, if not altogether impossible, to answer satisfactorily; for while so much depends upon the nature of the cataract, still more depends upon the patient's health, and not a little upon his mental disposition.

As far as the nature of the cataract can decide the question, we know that the laminar cataracts of children are very prone to remain stationary. On the other hand, the irregularity in the arrangement of the opaque striæ in any particular case, especially if they are confused with milky-looking dots scattered in the cortical layers, may be looked upon as a tendency to involve the entire lens. Small limited opacities beneath the capsule, the results of injury, have been known to disappear, or at all events to spread no farther. Again, some senile cataracts are of extremely slow growth, especially those which consist of striæ which follow the natural sectors of the lens, and which sometimes accompany a very amber-coloured nucleus. Opacities situated on the posterior capsule (the stellate polar cataracts) remain for years unchanged.

In all of these cases the question arises whether we possess any means of improving vision until the time has arrived when some kind of operation is necessary. Some such means we have, no doubt, but there is no very well-defined rule for their application. The prolonged use of belladonna by keeping the pupil dilated is in some cases of very great service. It may be persevered with without harm for a very long time, and is always worthy of a trial.

Convex glasses will assist vision for near objects, and in not a few instances concave glasses materially improve distant vision. But how long a patient is to wait before an operation can be prudently or safely performed will ever be a question which must be answered in very different ways, in accordance with the peculiarities of each individual case. Obviously one who has to make his living entirely by the use of his eyesight is in a very different position from another who can afford to wait, and have all his wants supplied for him, till the time arrive when, humanly speaking, he runs very little risk. It was formerly the practice not to interfere until both eyes were almost useless; but although this point admits of differences of opinion, it is very generally at the present time considered expedient to remove a single cataract so soon as it can be safely done; and with our improved methods of operating, it is no longer dangerous or very difficult to remove a lens which, although not completely opaque, is yet sufficiently so to prevent all work and to spoil any kind of enjoyment in life. The practice of maturing cataracts by puncturing the capsule, so as to allow the aqueous to gain access to the central portions, has been carried into effect, with fair results, it is said, but has not met with any very wide support. In those cases in which an iridectomy has been performed at some time previous to the extraction, the cataract appears to have rapidly and completely matured. The final operation is rendered very much easier, and even safer, by

a previous iridectomy having been done, and it is an additional advantage if the cataract can in this way be safely brought to maturity at the same time. That it is so is due in all probability to the fact that the removal of a considerable section of the iris, however skilfully performed, entails the loss of nutrition as well as some mechanical disturbance of the lens itself.

NOTE

ON THE

TREATMENT OF ANGULAR DISEASE OF THE SPINE BY SAYRE'S PLASTER-OF-PARIS JACKET.

BY

ALFRED WILLETT.

The demonstrations which Professor Sayre gave at St. Bartholomew's Hospital and elsewhere in the summer of 1877, promised to effect nothing less than a revolution in the treatment of spinal affections; and in truth I believe that, at the principal hospitals in London, Sayre's plaster-of-paris jacket has superseded the application of Spinal Supports.

Speaking of the department for the treatment of deformities at St. Bartholomew's under my charge, the change was made at once, and in general terms I desire to express unhesitatingly the satisfaction I have experienced in the treatment of both angular and lateral curvature of the spine by suspension and the application of the plaster-of-paris bandage.

In saying that after Professor Sayre's demonstration I adopted his treatment at once, and ceased to order spinal supports, I refer to all new cases coming under my care. There were at that time a considerable number of spinal cases, probably from 30 to 40, wearing one of the three kinds of spinal supports I had been in the habit of ordering. Wishing to compare Sayre's method with my former treatment in spinal affections, I made no change in the treatment of such patients who possessed spinal supports so long as I could consistently avoid it. In the end, however, for many of them I felt compelled to discard their spinal supports for the plaster jacket.

Between the 1st January and the 1st October 1878, I have

treated by Sayre's plan 60 cases of Pott's disease, or angular curvature of the spine. The principal features relating to them I have placed in the table annexed. Where a * is placed against a name, it is intended to show that I had previously treated the patient with a spinal support. In the 60 cases it will be seen there are 10 who had been so treated by me, and to these there should perhaps be added some five or six more, who had obtained spinal supports elsewhere, coming subsequently to St. Bartholomew's for advice, and for whose treatment I considered it advisable to adopt Sayre's plan.

Name.	Sex and Age. M	Sex and Age. F	Duration of Disease.	Cause.	Situation.	Remarks.
1. Richard M.	3		6 mos.	Not known.	Upper dorsal.	Jury-mast; 2 applications; bronchitis caused jacket to be removed.
2. George D.*	3		3 mos.	Not known.	Mid. dorsal.	3 applications; improved; under treatment.
3. Richard C.	3		8 mos.	A fall.	Lower dorsal.	Very acute; paraplegia came on after application; treatment continued; not improving.
4. Henry F.	3		6 mos.	Not known (?S.)	Mid. dorsal.	3 applications; sore on spine once; much improved.
5. Charles C.	3		9 mos.	Measles.	Mid. dorsal.	Paraplegic 6 months; 1 application; sore on spine; under treatment.
6. Fred. M.	4		1½ yr.	Not known (?S.)	Upper dorsal.	Jury-mast; 1 application; paraplegia came on after application.
7. Lewis M.	4		1 year.	Not known.	Lower dorsal.	1 applic.; sore on spine; lost sight of.
8. Frederick J.	4		1¼ yr.	A fall.	Lower dorsal.	4 applications; sore once on spine; much benefited.
9. Arthur S.	4		8 mos.	A fall.	Upper dorsal.	Paraplegic 2 months; jury-mast; 2 applications; recovery.
10. Arthur C.	4		3 mos.	Not known (?S.)	Mid. dorsal.	1 application; under treatment.
11. Emma C.		4	1 year.	Not known.	Lumbar.	1 application.
12. Nina U.		4	6 mos.	A fall.	Upper dorsal.	Jury-mast; 2 applications; steady improvement.
13. William S.	5		3 years	A fall.	Lumbar.	3 applications; quite recovered.
14. William H.*	5		2 years.	Not known.	Lower dorsal.	2 applications; nearly convalescent.
15. William D.*	5		2 years.	A fall.	Mid. dorsal.	3 applications; improving.
16. William H.	5		1 year.	Not known (?S.)	Upper dorsal.	Jury-mast; 2 applications; rapid improvement.
17. Kate C.*		5	2 mos.	Not stated.	Upper dorsal.	Jury-mast; 1 application; paraplegia came on after application; acute bronchitis lost sight of.
18. Eleanor G.		5	2 years.	Erysipelas.	Mid. dorsal.	2 applications; greatly improved.
19. James H.	6		4 years.	Not known.	Lower dorsal.	5 applications; sores twice on spine; decided benefit.
20. William P.*	6		2 years.	Not known (?S.)	Upper dorsal.	Jury-mast; 2 applications; rapid improvement; cured.
21. Alfred G.	6		6 wks.	A fall.	Upper dorsal.	Jury-mast; 2 applications: followed each time, after 2 to 3 weeks, by urgent dyspnœa, requiring removal of case and admission to Hospital; lost sight of.
22. James K.	6		2 years.	Not known.	Lower dorsal.	3 applications; sore on spine once.
23. Edith W.*		6	3½ yrs.	Measles (?S.	Mid. dorsal.	Paraplegic; 4 applications; recovery of use of legs, and marked general improvement; sore on spine once.
24. Kate W.*		6	4 years.	Not known.	Lumbar.	2 applications.
25. Gert. M.*		6	5 years.	Not known (?S.)	Lumbar.	5 applic.; sore on spine once; cured.
26. Emma B.		6	1 year.	Not known (?S.)	Lumbar.	1 application; under treatment; has psoas abscess and old hip-joint disease.
27. Frederick J.	7		2 years.	Not known.	Lower dorsal.	4 applications; cured.
28. Pat. M'G.	7		3 mos.	A fall.	Mid. dorsal.	4 applications; paraplegia followed last application.

Name.	Sex and Age. M	F	Duration of Disease.	Cause.	Situation.	Remarks.
29. Herbert L.	7		3 years.	Run over (? S.)	Lumbar.	2 applic. ; immediate improvement.
30. Ada C.		7	2 years.	A fall.	Mid. dorsal.	2 applications; cured; had scarlatina whilst wearing case.
31. Laura T.*		7	3 years.	Not known (?S.)	Dorso-lumbar.	Psoas abscess; 3 applications; immediate improvement; sore on spine once; abscess still discharging.
32. Joseph W.	8		3 years.	A fall.	Mid. dorsal.	3 applications; at first much benefited, then paraplegia occurred and passed off again whilst under treatment.
33. Alfred H.	8		1½ year.	Not known.	Lumbar.	1 application; lost sight of.
34. John B.*	8		2½ yrs.	Not known (? S.)	Mid. dorsal.	2 applications; cured; family strumous; patient had disease of tarsus.
35. Humphrey D.	8		3 years.	A fall.	Upper dorsal.	Paraplegic; jury-mast; 1 application; recovering use of legs in a month.
36. Eliza D.		8	3 years.	Not known.	Upper dorsal.	Paraplegic; jury-mast; 1 application; passed out of sight.
37. Alice F.		8	2 years.	Not known (? S.)	Lower dorsal.	2 applic. ; immediate improvement.
38. Annie P.		8	2½ yrs.	Not known.	Mid. dorsal.	3 applications; symptoms acute; improved at once; cured.
39. Clara L.		8	5 years.	Not known.	Mid. dorsal.	3 applic. ; immediate improvement.
40. Rosa D.		8	8 mos.	A fall.	Lower dorsal.	1 application; symptoms acute; rapidly improved.
41. Minnie B.		8	4½ yrs.	A fall.	Lower dorsal.	1 application; under treatment.
42. Edward D.	9		2 years.	Not known (? S.)	Mid. dorsal.	2 applic. ; great benefit; convalescent.
43. Caroline C.		9	1 year.	Not known.	Lumbar.	1 application.
44. Ada H.		10	2 years.	Not known.	Lower dorsal.	Psoas abscess; 1 application; under treatment.
45. Hubert D.	13		1 year.	A fall.	Mid. dorsal.	1 application; rapid improvement.
46. Alice W.		13	5 years.	A fall.	Lower dorsal.	1 application; lost sight of.
47. Eliza D.		15	2 years.	Not known (? S.)	Lumbar.	Strumous sores in neck; 2 applications; great benefit.
48. Lavinia H.		17	2 years.	Not known.	Lower dorsal.	3 applications; cured.
49. Annie H.		18	4 mos.	A fall.	Lower dorsal.	3 applications; cured.
50. Laura S.		18	1 year.	A fall (? S.)	Lower dorsal.	Phthisical; 1 applic.; under treatment.
51. Dora R.		21	9 mos.	Not known (? S.)	Lumbar.	Becoming paraplegic; 3 applications; great improvement; under treatment.
52. Annie D.		23	10 mos.	A fall.	Mid. dorsal.	3 applications; improving.
53. Annie B.		24	3½ yrs.	No cause.	Lumbar.	Pregnant; 1 application; considerably improved; passed out of sight.
54. Lavinia W.		25	4 mos.	Not known.	Lumbar.	1 application; lost sight of.
55. M. A. H.		29	3 years.	An injury.	Lower dorsal.	2 applications; became paraplegic; under treatment.
56. William O.	30		4 years.	A fall.	Lower dorsal.	1 application; under treatment.
57. Emma H.		33	10 yrs.	Childbirth.	Lower dorsal.	1 application; decided improvement, although pregnant.
58. Annie S.		36	5 years.	Rheumatic fev.	Lumbar.	2 applications; convalescent.
59. Eliza H.		38	1 year.	Not known (? S.)	Mid. dorsal.	Old-ankle joint dislocation; 1 application; convalescent.
60. Edward B.	43		2 years.	Not known.	Lower dorsal.	3 applic. ; most marked improvement.

I have arranged this table according to the ages of the patients at the time they were submitted to treatment. It will be seen that of the 60; 29 were males and 31 females, a nearly equal division between the sexes. If the table be divided into two sections, one comprising those patients below puberty, *i.e.*, 15 years of age, at the date of the commencement of the disease, and the other, all those above 15, it will be seen that the first

section will comprise the 47 cases standing earliest in the list, whilst the second embraces the last 13 cases. Of the younger class, 27 were males and 20 females, no very great disproportion; but if this section be scrutinised, it appears that, in the earlier ages, boys are the subject of Pott's disesase almost in the proportion of 2 to 1 in comparison with girls, my cases in this respect bearing out Professor Sayre's statement,[1] whilst of the 13 cases above 15 years of age, there are eleven females and only two males. At this period of life Professor Sayre has not stated his experience as to the relative frequency with which the sexes are liable to the disease. The point is of interest, however, mainly from the theory which Professor Sayre upholds—that spinal caries[2] "is almost always, if not always, produced through some injury to the bone or cartilage, and that, in common with carious diseases of other joints, it is essentially of *traumatic* origin." And again he says, "It is generally acknowledged that spinal *caries*, though it may occur at any period of life, is much more likely to occur in childhood;" and "it also occurs more frequently among boys than among girls, because the former are more exposed to accidents." If this be the sole cause of the disproportionate number of boys being affected, one would from similar reasoning expect that amongst adults, spinal caries would be found in still greater disproportion to attack men than women. My experience is, on the contrary, that men are much less frequently the subject of Pott's disease than are women.

I have, as carefully as I could, ascertained the cause of the disease amongst my patients, and the facts will be found in one of the columns of my table. A fall or other injury is stated to have been the cause in twelve males and nine females, or in about one-third of all the cases. A previous illness is stated as the cause in five cases, whilst in the remaining 34 no assignable cause could be given; but it is noteworthy that of these, 14 were strumous subjects, marked with ? S in the table, as were two patients one whose stated cause was an injury, the other after an illness.

I have called those patients "strumous" who were either the subject of some form of this affection elsewhere than in their spines, or who, in addition to having a strumous aspect, had been always sickly, delicate individuals.

Although 21 patients revealed a history of a fall or other injury, in several of them I consider that it had no direct connection with the disease on account of the length of time which had elapsed, in some of the cases so long as a year,

[1] Spinal Disease and Spinal Curvature, Sayre, p. 32.
[2] Op. cit., p. 2.

between the accident and the first symptoms of the disease. In others, on the contrary, the symptoms followed so closely upon the injury that I cannot doubt it gave rise to them. I think it would be well to allow a *traumatic origin* of spinal caries only to such cases where the symptoms supervened within a brief period of the date of injury.

No doubt in a sense one might be justified in saying the cases all own a *traumatic origin*, and this is upon the assumption that some determining cause for the seat of selection, that is to say, for the particular vertebra or vertebral joint at which the diseased process commences, must exist; but I hold it is an abuse of the word, and in this I am confident Professor Sayre would concur, to force the term *traumatic* to include any one of the minor nursery accidents which befall every child twenty times a day, and which are never so much as even noticed by the child itself, but which no doubt may be, very probably are, the exciting and determining cause of local diseases in the case of strumous children. It is interesting to note that of the 13 adults, only four gave as the cause an injury to the back, whilst six were wholly unable to offer any explanation of the cause of the disease. I need scarcely say I am invariably careful to ascertain the reputed cause, and to test the accuracy of the statement.

I have divided the dorsal spine into three regions—upper, mid, and lower. Of the 60 cases, 10 involved some of the first four dorsal vertebræ, and were all treated with the "jury-mast;" in 18 of the cases the disease had attacked the centre of the dorsal region, whilst in 20 it was the lower dorsal vertebræ that were affected; in the remaining 12 cases the lumbar vertebræ were implicated. In looking through the column in the table in which the seat of the disease is stated, it appears there is no case after the age of eight years in which the disease is reported to be situated in the upper dorsal region, and in the two cases at this age the disease is stated to have existed for three years. Similarly also the lower dorsal and lumbar regions are found to own the greater number of the patients in the table after the age of eight.

It will be noticed that no case of disease of the cervical vertebræ is to be found in the table. The explanation of this is, that I have preferred to treat this class of disease otherwise than by suspension and the fitting on of a jury-mast.

I have but little to communicate regarding the mode of suspension and the mere application of plaster-of-paris bandages beyond saying that I have not deviated in any essential point in a single one of the above cases from Professor Sayre's directions. I believe the successful application of his method depends upon a close adhesion to his precepts. I have only one drawback to notice in this part of

the treatment, and that is the liability of adults to faint, and even occasionally to vomit. This is unquestionably a serious difficulty. It involves the immediate lowering of the patient at the imminent risk of spoiling the jacket; and although by prompt action danger may be obviated, yet it has seemed to me that the fainting might in an unsound subject have a fatal issue. The succeeding article in these Reports conveys a pointed commentary on this question of syncope and vomiting under suspension.

It is not a little singular that Professor Sayre in his work already alluded to does not mention these incidental yet unpleasant features in the process, yet I am not beyond the mark in saying that one in every four adults faints during the application of the plaster jacket; especially is this the case with women.

I have recently made trial of the horizontal posture, not after Dr. Walker's plan, but by suspending the patient in the prone position, and I intend to give this method a more extended trial. In the few instances in which I have adopted it, there has been no disposition to syncope or any kind of trouble. To encase a patient on this plan requires some modification of the suspending arrangements.

At St. Bartholomew's Hospital there is a transverse bar about eight feet from the floor stretched across the room from wall to wall. This enables us to dispense with the tripod, and we have several pulleys and crossbars fitted to this bar. The preliminary procedure, so far as regards vest, pads, &c., is unaltered. My plan is to have a stout piece of leather with armholes, on which the patient's sternum rests, attached to one crossbar and pulley, and a jack towel attached nearly at its middle to a second crossbar and pulley; one loop of the towel is carried round the hips, the other round the knees. The patient being laid face downwards on a table, the pulleys are set in motion, and he is raised about twelve inches from the table, or until the elbows rest lightly upon it, when he is ready for the plaster bandages to be applied.

Children may scream from fear at the first suspension, if they have not seen another patient encased, but seldom afterwards; indeed, they commonly seem very contented under the process, and I have never seen any unfavourable symptom induced in patients under fifteen by the suspension.

With regard to the effect produced on respiration, there has been no instance of any immediate impairment of this function from the case being too tight, but in the case of two patients, Nos. 17 and 21 in the table, both of whom were paralysed from disease in the upper dorsal spine, and were wearing the jury-mast arrangement; an attack of acute bronchitis, after several weeks in Case 17, and at the end of one week in Case 21, produced

such urgent dyspnœa, that it was necessary to remove the plaster jackets at once and to admit the patients into the Hospital. In Case 21 this occurred twice, the child very nearly dying on each occasion.

The next incident I have to notice is the liability to chafing of the skin over the spinous processes of the projecting vertebræ. This occurred very frequently amongst the younger patients in the earlier cases I put up, but I was not alone in this misfortune, for it happened to the two patients for whom plaster cases were put on by Professor Sayre and by his son; sores being found within a few weeks, necessitating the temporary removal of the cases. It is, I am confident, almost inevitable for this chafing to follow whenever the angular deformity is well marked, unless special means are taken to prevent it. The worst of it is, moreover, that the little patient but seldom makes any complaint, and often the offensive odour of decomposing discharge and the staining of the jacket are the first warnings of the skin having suffered.

My first plan of dealing with this complication was to saw through the cases for two or three inches over the projection, and to bend the edges outwards. This answers quite well, and should be done whenever any doubts arise as to the skin being intact. I have, however, found it simpler to introduce two small pads, about the dimensions of a finger, to be placed under the jersey, on either side of the angular projection, preparatory to the plaster bandages being applied.

Professor Sayre depicts, in his work already alluded to, the improvement that is manifest in the outline of the spinous processes of the diseased vertebræ whilst the patient is under suspension. I have not been able to satisfy myself that any change that is produced in the outline of the spine is due entirely to the pulling apart of the diseased vertebræ; indeed, I should say very little change was effected in the relation of these parts; but what has seemed to me of importance was to preserve tracings taken at intervals of three or six months, and to watch in this way the progress of a patient, and to compare a tracing of the outline of his spine taken at the time he came under treatment with that when he is cured. In none has there been any straightening. In only one or two have the tracings shown no change. In the majority an increase, generally slight, but still a perceptible increase, in the curvature has been apparent.

I am disposed to think the time in which a cure can be effected is longer than that stated by Professor Sayre. He gives from four to six months as the time required, but then I must admit that most of the out-patients I have to treat are placed in the

worst possible conditions for repair; yet, putting these on one side, and regarding the cases of those only who are well cared for, I must own that several of them have been under treatment for nearly twelve months, and as yet cannot get on without their cases.

Thus far my experience tends to prove that adults make the quickest recoveries; they improve most rapidly and in a most marked manner. Cases 47, 48, 49, 51, 59, and 60 may be particularly alluded to.

Case 47 was a florid-complexioned, stoutly-made girl; the symptoms were only moderately severe; the disease had existed two years; the twelfth dorsal was the most projecting of about three or four prominent vertebræ. On 6th March the first case was applied. On the 10th May this note was taken:—"Nearly lost all pain, only feels any at the end of the day and on first laying down in bed at night; never rests in the day; walks four miles every day to and from work, and is engaged eleven hours daily at fancy trimming; case getting a little worn at edges, and her skin itches." On 19th June second case applied; the skin of back was quite sound, but she complained of her back feeling weak, and her pain returned during the few days the case was loose. On 14th August a third case was adjusted, the back being quite sound. On 23d October I considered her cured.

Case 48, a short, thick-set girl, suffering acutely for four months, recovered in about the same time, and after three cases had been applied.

Cases 49, 51, 59, and 60 are still under treatment, but have improved decidedly since their cases were applied; indeed, Case 60 is virtually convalescent. He was a large-framed man, but worn down by long-continued suffering. His disease had existed two years, and for one year he had been confined to his bed by spinal paraplegia. On 27th March a plaster case was adjusted; he could walk totteringly, but all movement caused him great pain. He fainted during the process, and was taken down on a stretcher specially constructed for the purpose, and after ten minutes he was re-suspended by his arms only and the jacket completed satisfactorily. On 7th June a note states:—"Case in good condition; has gained flesh; still some pain in side; greatly improved in walking powers." On July 26 case was cut up, and on following week, being in good order, was again secured with two plaster bandages. On October 16 a new case was adjusted. The man appeared in perfect health, but said he felt pain in his side when the case was off. He had returned to work.

Perhaps the most eloquent testimony in favour of Sayre's method is the eagerness with which children, who have once ex-

perienced the ease which the plaster jacket has afforded them, have craved to have it left on when I have thought it necessary to remove it; and the constant remark of many a mother is, "He hopes you will not take his case off," or, "He hopes you will give him a new case; he has scarcely moved since it was taken off, and before that he was running about all day." One little girl about eight years old actually burst into tears when she was told she would not have a new case put on until a sore in her back had healed. It is accumulated facts like these which prove the immense superiority of Sayre's plan over the older methods, and this in spite of those troubles and drawbacks which I have mentioned.

Spinal motor paralysis I have repeatedly seen clear off, a marked improvement following so quickly upon the encasing process, that I cannot doubt the large share it has had in promoting the return of function by relieving pressure upon the cord. I have known a patient treated with the jury-mast walk into the room within a month of the application, having been totally unable to move his legs previously. It is but fair to add, on the other hand, that I have seen complete motor paralysis attack a patient wearing a case, and that within twenty-four hours of the application, although premonitory symptoms in this boy, 28 in the table, existed at the time.

I hope in a subsequent volume to record my experience of the treatment of lateral curvature on Sayre's principle, but at present my cases are too few; the duration of the treatment of severe cases is, moreover, necessarily so prolonged; that I hold my judgment in suspense as to whether it is possible to straighten out completely, so as to remove all deformity, a well-marked case of lateral curvature.

FATAL VOMITING,

FOLLOWING THE APPLICATION OF THE PLASTER-OF-PARIS BANDAGE IN A CASE OF SPINAL CURVATURE.

BY

ALFRED WILLETT.

Edward P., aged 17 years, a thin, delicate-looking lad, face much pock-marked, came under my care as an orthopœdic out-patient at St. Bartholomew's Hospital on 17th May 1878, complaining of his back. It was obvious that his spine was very bent, yet he walked and moved without difficulty and without assuming any constrained attitude.

On stripping him, a uniform posterior curve, *cyphosis*, of the whole dorsal and lumbar regions of the vertebral column was seen to exist; there was no irregularity of the spinous processes anywhere, neither was there any symptom, such as tenderness on pressure, indicative of local disease; the bony structures of the thorax gave evidence in a bent sternum and flattened ribs of rachitis in childhood. He was emaciated, narrow chested, and with a retracted abdomen. He complained of increasing weakness and constant pains over his back, and of tightness and cramp-like pains in the abdomen. There was no indication of visceral disease.

His mother told me he had been weakly since having the smallpox two years ago; she had only noticed his back growing out for eighteen months, and that it had followed a severe hurt to his back.

His height was 5 feet 3⅝ inches. I suspended him with the head collar only; he straightened out very considerably, not only to the eye, but as tested by a tracing with a thin strip of lead placed along the spinous processes. On lowering him until his heels just rested upon the ground, I found his height to be 5 feet 5⅛ inches, an increase of 1½ inches to the previous measurement, taken before suspension.

I decided, upon these data, to apply a plaster-of-paris jacket, which was done on May 24, one week after my examination of him, following Professor Sayre's directions for the treatment of lateral curvature strictly, the case being strengthened with strips of tin. Nothing unusual occurred during the process until just before its completion, when the patient said he felt sick and retched once, but no vomit escaped from his mouth. He was then laid down in an adjoining room on a soft mattress whilst the case dried. Shortly after he became faint, his mother calling me to him, saying he felt as if he were dying. I removed the "dinner-pad" and gave him some water; he quickly came round, and in about an hour, when the case had dried sufficiently, I allowed him to get up and dress, and he then walked away with his mother.

I never saw him again, but on May 31 his mother came to tell me he had died the previous day in the London Hospital, where he had been removed in consequence of constant sickness, which had commenced soon after his return home.

The following report, which I give verbatim, was obtained in response to my application from the house-surgeon, whose courtesy I desire to acknowledge here.

Simple and great dilatation of stomach—Death by collapse.

Previous history.—Spinal disease, treated by Sayre's splint in St. Bartholomew's. In a day or two after lividity, difficulty of breathing, &c. Father removed splint, giving relief to above symptoms; vomiting of nearly everything taken began, and continued at intervals till shortly before admission, when it became incessant, the vomit resembled stinking water.

Admitted May 27; died forty-eight hours after. Constant vomiting of frothy and very offensive-smelling substance.

On P.M. stomach was found enormously dilated in all directions, occupying more than half the abdomen; walls strikingly thin; mucous membrane pigmented in parts, and mucus firmly adherent to it, studded with grey follicular spots. The membrane also had a milky appearance, as though it had undergone some fibroid changes. Pyloric orifice, normal; intestine, intense venous congestion

throughout. No cause of obstruction. Mesentric glands contained calcareous matter. Peritoneum normal.

No abnormal mass under liver near solar plexus.

Liver, spleen, pancreas, suprarenal bodies normal.

Kidneys, venously congested.

Lungs normal, except that at both bases little patches of recent gangrene were present.

Heart, L. ventricle firmly contracted.

Brain and membranes normal, merely venously congested.

Patient under Dr. Down in Harrison Ward.

Remarks.—That the train of symptoms, ending in the death of the patient, was directly referable to the application of the plaster case during suspension there can be no doubt, but I feel equally certain that, viewed with the light thrown on the case by the P.M. examination, there is no blame attributable to Sayre's method of treatment either in principle or to its adoption in this particular instance. I think no one can lay to my charge that I ought to have suspected the condition of the stomach.

The dyspnœa noted as having occurred was, I feel sure, caused by flatulent distension of the stomach and intestines, and I account for the pulmonary gangrene on the presumption that some of the vomit was sucked into the lung, very possibly at the time of the effort to vomit, which happened whilst the case was being put on. The dilatation of the stomach was evidently of long standing, and its cause is to be found in the structural changes in its coats.

When I learnt of the death and the symptoms which had so rapidly set in after the application of the plaster-of-paris bandage, my impression was that some peritoneal adhesion had given way, allowing an escape of fæcal matter into the peritoneal cavity. I conceive it is by no means an impossibility for this accident to happen.

I have not heard of death having followed in any other instance. Professor Sayre, however, stated, in very characteristic terms, the risk that was run if care and vigilance were not strictly enforced in every particular relating to the suspension of a patient; and although I do not think this unfortunate case points a moral, yet I felt bound to place it on record, believing that in a person of delicate constitution one should be on guard against the occurrence of this or some equally grave complication.

PROCEEDINGS

OF

THE ABERNETHIAN SOCIETY

FOR WINTER SESSION 1877–78.

October 11, 1877.

Mr. Langton delivered the introductory address.

October 18.

Mr. Butlin read a paper on 'How to Distinguish an Innocent from a Malignant Tumour.'

(*Abstract of Paper.*)

Paper written partly to correct certain errors which exist amongst students respecting malignant tumours, and to point out the chief signs by which malignant tumours may be recognised.

The errors are, a belief in the freedom of infancy and childhood from malignant tumours; a strong belief in the early and constant occurrence of the cancerous cachexy, and an equally strong belief that a malignant tumour can only be distinguished by the microscope. The truth respecting these three things is, that children are very liable to malignant sarcomatous tumours; that the cancerous cachexy is not common in external cancers, and is exceedingly rare as an early effect of an external tumour; and that in by far the greatest number of cases the general characters of a tumour determine its malignancy quite as certainly as the microscopical characters.

The main features by which tumours are distinguished are—1. their characters before removal; 2. their characters after removal; 3. their microscopical characters.

1. *Before removal*, the age of the patient, the seat of the tumour, the rate at which it has grown, and the manner of its progress, are the points to be kept in mind. Taken apart, they are not of so much value, but combine them and they are most important. Thus, given a tumour of the breast, of six months' duration, in a woman of forty-five, the chances are it is malignant. Or a tumour of the eyeball in a child of a year old; or a quickly growing tumour connected with bone in a boy of ten; or an ulcerated tumour of the lower lip in a man of seventy; the probabilities are strongly in favour of malignancy in each of these cases.

Malignant tumours may occur at any age, but are more common after forty. They may grow from any part of the body, but the lower lip, penis, and testes in men, the breast, uterus, vulva, and ovaries in women, the tongue, arms, rectum, and bladder in both sexes, are seats of election. In young people it is more frequently such parts as the eye, the testis, and the bones that are the seats of malignant tumours. In considering the rate of growth, the growth of innocent tumours in similar structures must as far as possible be taken for comparison. The manner of progress of a malignant growth is most characteristic. It incorporates surrounding tissues in its growth; it ulcerates by growing into and through the skin; it will grow from soft parts into bone or the reverse; it will sometimes affect the neighbouring glands, sometimes break out in many places successively or simultaneously, and sometimes affect internal organs.

2. *After removal*, the important points are the presence or absence of a capsule; the nature of the tumour on section; its relation to surrounding tissues; whether it be simple or mixed. Very few malignant tumours are encapsuled unless they are still enclosed in the capsule of the organ in which they originate. Some of the sarcomata have thin, easily-torn, incomplete capsules. The implication of muscle on one side, of skin on another, by a tumour growing in a gland; the affection of bone by a tumour commencing in the soft parts, or *vice versâ*, are strong presumptive evidence in favour of malignancy. The appearance on section taken alone is not so important, but taken with the other points becomes highly so. Mixed growths are not always malignant, but there are certain forms of mixed growth which are very commonly so. For instance, soft tumours of the testis containing cartilage; very large, irregular, ossifying or calcifying tumours of bone.

3. *The microscopical characters* by which malignant and innocent tumours are to be distinguished are by no means so easy to decipher as might be imagined. There are not any cells

which can be recognised apart as 'cancer-cells.' The examination of the fresh juice of a tumour is generally useless, often misleading. If you undertake the microscopical examination of a tumour, you must cut and examine sections properly prepared and mounted; and you cannot give any reliable opinion as to its nature until you have been made thoroughly acquainted with its history, its position, its characters before and after removal; and, speaking generally, it may be said that whether the structure be that of sarcoma or of carcinoma, the more rich in cells a tumour, and the less developed its structure, the more malignant it is. And again, large size of cells, irregularity of shape, inequality of size and number of nuclei, and presence of brood cells are all indications of malignancy.

October 25.

Dr. Harris showed a specimen of intra-pericardial aneurysm of the aorta.

Dr. Wharry read a paper on 'The Treatment of Bronchitis and Croup.'

November 1.

Mr. Darbishire read the notes of a case of pneumonia; the main points of interest in which were the long period of hyperæmia of the lung and high temperature, followed by sudden and quick defervescence.

Mr. Pye exhibited a specimen of enlarged prostate with a villous growth springing from the neck of the bladder.

Mr. Bruce-Clarke then read a paper on 'The Rationale of Bone-Setting.'

It is impossible to remain in ignorance of the fact that no inconsiderable number of surgical cases eventually find their way into the hands of the bone-setter.

Wearied out by numberless inconveniences, and perhaps in addition by no small share of pain, the patient is advised by some friend to consult a bone-setter. He is told he has a bone out; the bone is replaced with a crack, and the trouble perhaps of years is brought to a sudden termination. Such is no exaggerated picture, and one which not a few quondam sufferers will frequently depict.

More commonly a man falls down and sprains his ankle, possibly severely; he summons his medical attendant, and is subjected to some well-recognised form of treatment. All active pain ceases, and he fondly imagines he is well; he endeavours to walk, but pain precludes any such attempt being carried into

execution. He again seeks the counsel of his medical adviser, who assures him, and with perfect justice, that no bone is out of place; he must give it time. But time goes on, and yet little if any improvement takes place; possibly in a month or two he consults a bone-setter, and walks out of the bone-setter's house perfectly cured.

If a minute examination be made in any such cases, whether it be a hip, an elbow, or any other joint that is affected, it is in the majority of cases usually the rule, that the part affected has undergone at some time or other a greater or less degree of inflammation.

There are ample opportunities, both in the surgery of this Hospital and elsewhere, for the study of such cases as these; and let me here say, that it is only to such cases as have come under my own individual notice, and usually under my own care, that I propose to refer to-night.

It is only by thoroughly grasping the pathology of these cases that it is possible to understand the treatment of the bone-setter and the benefits which it confers.

It is, as may easily be imagined, very rarely that opportunities are afforded for the dissection of these cases; for though inconvenient and painful, they are not dangerous to life.

Twice during the past year has it been my good fortune to secure such specimens for dissection, and I propose briefly to describe them.

The first was a finger.

A nurse in this Hospital poisoned her index finger, and it suppurated. When the finger again resumed its natural appearance, flexion was almost an impossibility, except with the greatest pain. Regularly every day for about three weeks I employed rapid and forcible flexion; several very audible cracks were heard at first, and the power of flexion slightly improved.

As, however, no further improvement took place, and she was anxious to part with her finger, which was very much in the way, the finger was shown to Mr. Langton, who approved of amputation.

Amputation was performed through the first phalanx by Mr. Weiss.

On examination, the joints were quite natural and healthy, but between the tendons and their sheaths were numerous bands of adhesions, so that their motion was exceedingly limited. I may here add, that before amputation was performed, the general impression was that the tendon had sloughed, and hence the inability to flex the finger.

The second case was that of a man who several years ago fell down a coal-pit; he bruised his arm severely, and had never been able to use it. He came up from Wales determined, if nothing, further could be done for him, to part with an arm which was at once painful and cumbrous. After a consultation on the subject, his arm was amputated at the junction of the lower and middle third.

Wishing to see what the condition of the joints and their surroundings would be both after and before any movement had been employed, I determined to flex and extend some joints until they were free, and to leave others untouched.

Accordingly I proceeded to operate on the little and ring fingers, with the result of producing in both cases a compound dislocation backwards of the last phalanx.

To the significance of this fact I shall refer later on.

I then operated on the middle finger, only very gently; several cracks took place, as in the previous cases, only without any such untoward dislocations.

When subsequently the limb was dissected, I failed to satisfy myself that, in the case of the middle finger, which had been successfully operated upon, any band-like adhesions could be seen torn across.

But on dissecting out the other joints, I was quite satisfied that the obstacles to free movement were the connective tissue round the joints, and to a less extent the skin itself. When the connective tissue was freed here and there with the knife, the joint worked easily.

In all cases the joints were perfectly healthy; there were no bands of adhesion inside the joint.

In this case there was probably a lesion of the nerves in the axilla, as the muscles did not react to electricity when the nerves were stimulated, at least such was the general opinion.

To put it briefly, then, it appears as though the obstacles to movement in such cases are bands of organised inflammatory effusion, formed precisely in a similar way to those of the pleura during an inflammatory attack. By the tension on the neighbouring parts they give rise to pain, which their rupture relieves. It is their rupture which gives rise to the cracking sound. I can only compare this noise either to the faint crack of a whip or to the sound of tearing which is produced by the butcher when he forcibly tears the skin off a sheep in place of dissecting it.

To effect this process of rupturing adhesions, the bone-setter employs the distal extremity of the limb as a lever, and firmly grasping the affected joint with the other hand, works the part

rapidly and vigorously, each movement being executed in the direction which causes the greatest pain, as pain alone can afford us a means for distinguishing the position of the adhesions with which we have to deal. In many cases, one such operation is sufficient, but if not, after several days have elapsed, during which local tonics, such as salt and water, liniments, &c., are employed, the same operation is repeated, and so on until a complete cure is the result.

If the pain be very great, anæsthetics may be employed, which have the additional advantage of relaxing the muscles, and thus obviating no small difficulties for the operation.

For a fuller description of the *modus operandi* of the bone-setter, I must refer you to a little book called 'On Bone-Setting,' by Wharton P. Hood, to which I must express my deep indebtedness.

I will now pass on to consider the cases which I have actually treated by this method in the surgery of this Hospital. The first case was that of a woman, Sarah Cozens, who fell down and sustained a Colles fracture of the right radius. Her arm was put up with the usual side splints, and when I came on to dress, she was handed on to me as a legacy by my predecessor. The fracture united, but she was utterly unable to move her fingers and wrist, and her elbow and shoulder were slightly stiff. Possibly her troubles were due, partly at any rate, to my ignorance as a new dresser, so that the splints were not removed as soon as they should have been; but I have no note of the exact time they were kept on.

Rest and liniments appeared to yield no good result in this case, when the book on bone-setting fell into my hands, and I determined to give the system a trial. I commenced with the distal joint of the little finger, thinking that I could not do much harm to so small a joint, even if I did no good.

After firmly fixing the second phalanx of the little finger with the left hand, the right was employed in forcible and rapid flexion and extension. Considerable pain resulted from this operation, but the characteristic crack was audible. The remaining joints of the little finger were then operated upon in a similar fashion.

The following week no trace of inflammation was visible, and the movements of the finger were free. The patient was only too happy to submit the rest of her hand to a similar course of proceeding.

The rest of the fingers and the thumb were liberated, and in the ensuing week the wrist. A week later, the shoulder and elbow required a few movements only, and the patient was

able to use her arm as perfectly as she had done before her accident.

Such a result was exceedingly encouraging, and I determined to lose no time in seeking for fresh cases. I had not long to wait. It would, however, be useless to give the details seriatim of a large number of cases. A few more will suffice to illustrate the bone-setter's treatment.

A woman presented herself from Hertford, who had fallen down and had injured her right shoulder. She was told at the time by a doctor who attended her that no bone was broken or dislocated. She had recovered the complete use of her arm, except that she could not put it behind her to lace her stays.

On making an examination of the shoulder, nothing abnormal presented itself. But considerable pain was felt in the anterior part of the joint when she attempted to place her arm well behind her back.

It is worth while to remember this symptom of pain, as it is a very constant one, and often affords the only clue to the nature of the case. It is very often on the inner side of the joint, and is, so far as I know, invariably situated on that side of the joint, which is opposite to the direction in which motion is limited. That is to say, if there is limitation of motion posteriorly, the painful spot will be anterior, and so on.

But to resume this case. I informed the patient I could set her right by a momentory though painful operation, to which she consented. Seizing the shoulder with one hand, the arm employed as a lever was rapidly moved behind the back, almost before she expected it, and thus muscular contraction was avoided.

The joint gave a crack, and the patient a scream, but a perfect cure was the result; and she immediately placed her hand behind her as well as ever she could. If she had any farther trouble with the arm she was to return again. From that day to this she has never returned, so that we may consider her case as cured then and there.

The above case is typical of a great many which may be set right at once. But it is not so with all; they need breaking down over and over again, though they eventually yield to the operator's efforts.

This feature was well shown in two affections of the shoulder, one consequent upon dislocation, the other following a severe bruise.

A painter fell off a ladder, dislocated his shoulder, which was reduced, and two months later I saw him. At that time there was little if any movement at the shoulder joint, though some compensatory movement of the scapula had been set up.

It was immediately clear that without the use of anæsthetic, treatment would be by no means easy. After a preliminary bathing with salt and water, and the application of lin. saponis, he was placed under the influence of gas and of æther, and movement was commenced in all directions, which resulted in an audible tearing down presumably of adhesions. This treatment, along with the bathing, was continued for several weeks, the limb being extended, rotated, and flexed once a week. During the intervals he was ordered to use the arm as much as possible. At the end of a month movement was almost completely restored, and a month later he had full use of his arm. I ought to have stated that when he came to me first, he had partial paralysis of his extensor muscles in the affected arm. It seemed doubtful whether this should be ascribed to lead poisoning or to the local lesion. However, be that as it may, he recovered the use of his arm completely.

In shoulder cases it may be as well to remark, that there is considerable difficulty in fixing the scapula, and hence the adhesions cannot be dealt with as easily as those of the elbow, &c.

The other case in which stiffness of the shoulder followed bruising, I had the man under my care from the very first.

The first time I saw him the arm lay powerless by his side. He stated that whilst drunk on the previous night his companions had told him that he endeavoured to jump over a hedge, when he caught his foot and fell violently to the ground. He was picked up and taken home, and noticed the next morning that his shoulder was bruised, and his arm powerless.

As long as local tenderness on pressure existed, no active treatment was pursued. In about a week, without any treatment but lot. plumbi, he began to regain the use of his fingers, but after three weeks to a month had elapsed, and all tenderness had ceased, it appeared on careful examination that stiffness at the shoulder joint existed. He was treated like the last case by motion under anæsthetics.

He improved greatly under treatment, but was very careless in coming, and when he did come was often half-drunk, so that he was lost sight of before a complete cure was effected. I have no doubt, however, that further manipulation would have entirely restored the use of his arm.

These cases are fair representatives of a much larger number, which I have had under my care, and in no single case has considerable improvement failed to take place; in most, perfect restoration of movement has ensued.

Such cases for the most part, if left to themselves, get well in

time if then they are only slight, whilst the worst cases often go to swell the list of hysterical joints and obscure local paralyses.

But it may be well to ask ourselves, if there is no danger in thus moving about a joint, is it not liable to set up an attack of synovitis?

In answer to such a question I could only say that I have never met with a case in which such an untoward result has occurred, or in which there has been any consequent local disturbance.

This treatment would, however, be dangerous undoubtedly in an inflamed joint, and, indeed, during the course of any acute attack; but when all the acuter stages have passed off, when the joint is cool, and the synovial membrane not thickened, I see no reason to apprehend any bad result.

It seems, however, as though a limb which had long been disused became weaker and less able to bear violence. Not only are adhesions formed, but the skin becomes contracted over the joint, and is very easily torn. That such is the case the following instances will well show.

It is related of Guérin, a French surgeon, that whilst endeavouring by means of pulleys to reduce an old dislocation of the humerus, the forearm was torn off at the elbow. The *modus operandi* alone can hardly account for the accident.

Within the last year, an old dislocation of the humerus was being reduced in the theatre of this hospital, when the axilla was laid open by the presure of the heel, and the axillary artery laid bare, but no more than ordinary violence was employed; yet ordinary dislocations are easily reduced without the slightest trouble.

In the case of the arm which I referred to before, in which, after it had been amputated, I produced a compound dislocation of two fingers, without any unnatural violence, the solution of this occurrence is to be sought in the condition of the skin.

One more example will suffice. Whilst going round the Bethlehem Hospital a few weeks ago, I saw a patient with his hand tied up, and was informed that one of the attendants had taken hold of his hand, which had been paralysed and contracted for years. No roughness was used, but the skin all across the flexor surfaces of his fingers had been split quite across. In such cases it is needless to remark that no prudent surgeon would attempt to use any violent motion. Gentle motion coupled with galvanism, local tonics, and other improvers of nutrition are in such cases indicated. It would seem not altogether improbable, that if the skin is so brittle the deeper tissues may be so as well, and hence less violence is

required in the operation; but be that as it may, it is well to be on our guard in all cases of long-standing injury where tissue-change is likely to have taken place.

This short notice of bone-setting can hardly be concluded without allusion to cricks of the neck, and other imaginary and real diseases of the vertebral column, which come so often under the hands of the bone-setter.

If the injury be but slight, there is often more alarm on the part of the patient than real harm inflicted, and the effect of pain at the hands of the bone-setter is quite marvellous.

But if such injuries afford the bone-setter some of his most brilliant successes, they also include his most disastrous failures, ending not unfrequently in the death of the patient. Indeed, many of the more experienced are only too happy to leave alone any disease of the spine, well knowing how liable such cases are to end in death.

From this brief notice, it is, I hope, clear, that joints under certain conditions will bear rougher handling, and with advantage too, than they are usually subjected to. The main difficulty in this as in all other modes of treatment being to determine exactly when it may be employed with safety, and when it is altogether contra-indicated. It must be, however, obvious that it is practical acquaintance, and it alone, which can supply the necessary diagnostic skill.

Mr. Marshall showed some embryological specimens, illustrating the development of the cranial nerves.

November 8.

Mr. Eve showed a specimen of abscess which occurred in an old hæmatocele, a few days before death, in a man who died of senile gangrene.

Mr. Lyons read a paper on 'The Treatment of Fractures of the Jaw.' *Vide* St. Bartholomew's Hospital Reports, vol. xiv. p. 105.

November 15.

Mr. Eve showed a patient who had recovered from a severe compound fracture of the leg with a useful limb. The skin was torn around the circumference of the limb except about one inch, and the muscles were much lacerated.

Dr. Abercrombie showed a specimen of ruptured aneurysm of the basilar artery.

Dr. Harris read a paper entitled 'The Ophthalmoscope in Medicine.'

Mr. Schofield read the notes of a case of hæmorrhage from the posterior palatine artery after staphyloraphy.

November 22.

Dr. West showed a specimen of abnormal circle of Willis; and the ovary of a child three weeks old, in which there were several small cysts.

Dr. Champneys read a paper on 'Extroversion of the Bladder.' *Vide*, 'St. Bartholomew's Hospital Reports,' vol. xiii. p. 81.

Mr. Kidd showed some interesting microscopic specimens of skin and kidney.

November 29.

Mr. Macready showed a specimen of necrosis of the tibia.

Mr. Röeckel read a paper on 'Bubo.'

(*Abstract of Paper.*)

The author began by stating that the question of inflamed inguinal glands was a very simple one.

The commoner causes, such as the accumulation of smegma preputii, herpes of the glands, &c., were often overlooked. Other causes, especially in children, were prurigo, worms, or any affection about the anus. As a matter of fact, in simple gonorrhœa it was extremely rare; when it did occur, it was often due to soft sores, which existed in addition to the gonorrhœa.

If a soft sore existed, a bubo was inevitable; we might reduce its violence, but could not arrest its progress. When the bubo burst, it became for all practical purposes a soft sore. Its characters were so well marked, that it was quite pathognomonic of soft sores, and it sometimes came on when all trace of the primary lesion had vanished. The only way to account for the connection between chancre and bubo was to regard the bubo as the means of getting rid of the chancre-poison from the blood.

The glands of true syphilis as a rule never suppurated, and besides, the glands in other parts of the body as well as the groin were affected simultaneously. They were not usually found, because not usually looked for. When the inguinal glands suppurated in syphilis, it was not due to the syphilis, but to some local or personal peculiarity superadded to the syphilis.

As to the treatment of buboes, that of Furneaux Jordan's was the best, viz., painting round the affected gland with a strong solution of nitrate of silver. When the buboes opened, they

should be treated like soft sores with iodoform. The plan also of Auspitz of Vienna might be tried, viz., making an incision early into the centre of the gland, and letting out what he calls the virulent pus, the essence of the poison. If this is done it is said the affection does not go further.

December 6.

Mr. Pye showed a patient in which the functions of the median nerve were restored after complete division. The ends of the nerve were stitched together.

Mr. Eve showed his modification of the ordinary 'back splint:' it consisted in an interruption in the middle of the splint, with the two surfaces adapted so as to slide the one over the other. The modification was designed to apply direct extension to the foot in cases of oblique fractures of the tibia and Pott's fracture.

Dr. Brunton read a paper 'On Reflex Action as a Cause of Disease, and Method of Cure.'

December 13.

The Secretary read notes and showed photographs of cases of elephantiasis sent by Mr. A. J. Corrie.

Dr. Stowers read a paper entitled, 'Observations on the Study of Skin Diseases,' and commenced by giving a brief sketch of the anatomical structure and physiology of the skin, the various functions it performs, and the relationship it bears to some of the other organs of the body, especially pointing out the vast influence exercised upon the skin by the system generally, as as well as the powerful reaction produced upon the body by the skin whether healthy or diseased.

After enumerating the three special uses of the skin in the animal economy, the author described some of the early evidences that exist of the special recognition of skin diseases by the Jewish, Egyptian, Arabian, Greek, and Roman legislators, and physicians from the romotest antiquity.

Contrasting the present means of investigating disease with those of past ages.

For two reasons, dermatology should be especially interesting to the practitioner and student—1*st*, Because of the difficulties which attend their diagnosis. 2*d*, The obstinacy with which many of them resist the action of remedies, the coexistence of two or more forms of skin affections being one chief cause of the former.

Concerning classification, the writer enumerated the three groups, viz., 1. Artificial; 2. Natural; 3. Regional, or local; and advocated the use of those founded upon the original nosological tables of Willan and Bateman.

Accepting the view that many skin lesions are due to malnutrition alone, the writer pointed out how improper diet, if long continued, would, especially in young children, lead to the development of cutaneous disease alone, or associated with certain diatheses, the strumous being the most common; and recommended the adoption of a diet-scale such as is used at the special skin hospitals.

Concerning syphilitic skin affections, Dr. Stowers enumerated the relative periods at which they appear after inoculation, and their favourite sites as pointed out by Devergie, and urged attention to the following points in their diagnosis as contrasted with simple non-syphilitic eruptions.

The diagnosis of syphilitic affections may be generally arrived at—

1. From the history of the case. A chancre followed by induration of lymphatic glands, &c.

2. From the symptoms accompanying the eruption,—tint of skin, pain in head and joints, alopecia, ulceration of throat, iritis, nodes, gummata, &c.

3. From the several forms the eruption takes at one time on the body, *e.g.*, condylomatous, roseolous, lichenous.

4. From the general coppery tint of the eruption and intervening skin.

5. As a rule, there is absence of itching in syphilitic eruptions.

6. Syphilitic eruptions tend to assume a more or less circular form.

7. When the eruptions of syphilis ulcerate, the ulcers are generally round, with perpendicular edges and unhealthy bases.

Characters such as these, however, must be taken together, as one alone is insufficient to establish a correct diagnosis.

Too much importance in a diagnostic point of view must not be placed upon the improvement often coincident with the exhibition of anti-syphilitic remedies, as the benefit in simple affections resulting from the alterative effect of mercurials is often very marked.

In the treatment of skin affections, temperament, and constitutional conditions, age, sex, and even occupation, must be considered.

The author laid much stress upon rest as a remedial agent, and recommended the use of splints to ensure it in such cases as acute general eczema of the extremities. The application of an

elastic bandage in some forms of eczema with œdema is frequently very useful.

Dr. Stowers, after enumerating general indications for simple, medicated, and vapour baths, urged that too much care could not be bestowed upon the careful preparation of local remedies, especially ungents, and the thoroughness of their application, and concluded with the advice originally given by Dr. Latham, 'That the treatment of disease is, in fact, part of their pathology. What they need, and what they can bear, the kind and strength of the remedy, and the changes which follow its application are among the surest tests of their nature.'

January 10.

Mr. Pye showed a kidney in an advanced condition of hydronephrosis, and which also showed the cicatrix of a rupture; for this injury the patient had been treated in the Hospital some months previously.

Mr. Eve read the notes of two cases of bruised kidney.

Mr. Eve read 'Cases, with Remarks, illustrating the Various Forms of Fracture of the Skull.'

He observed that it had been suggested that certain evenings should have a distinctly clinical character; with that object he had prepared the following cases, which had fallen under his own observation while house surgeon.

He illustrated the necessity of examining the bone with a probe, by referring to a case in which a compound linear fracture was thus unexpectedly discovered. This patient, who had rather severe concussion, did not pass any urine until thirty hours after the accident, then only 2 oz.; he had noticed this in other cases of concussion. This diminished activity of function was, he thought, an indication of the actual injury done to the cerebro-spinal nerve centres in concussion, and required time for its repair.

The mode of origin of fractures of the base of the skull, from falls on the vertex, was illustrated by a case in which distinct fractures were found at the vertex and base; the latter, which extended from either side of the foramen magnum, being due to the sudden transmission of the weight of the body to the occipital condyles, and not as was formerly supposed to *contre-coup*.

A case of compound fracture of the right parietal bone with depression was related. A considerable amount of bone was removed, and the brain was found to be deeply lacerated. This patient had complete motor paralysis of the left arm, and almost

complete paralysis of the left leg. He quickly regained power in the leg, but the arm remained much longer paralysed, and he never entirely regained the former strength of his hand and wrist.

It was pointed out that the portion of the surface of the brain injured, viz., the superior or postero-parietal lobule, and the upper ends of the ascending parietal and ascending frontal convolutions, as far as could be judged, and the extent of the paralysis, corresponded strikingly with Dr. Ferrier's experiments.

This patient, some time after his recovery, one evening suddenly fell down in a fit; on his return to consciousness, in about a half to three-quarters of an hour, he could not move his left arm or leg. Next morning, however, he was perfectly recovered, and insisted on getting up and going out of the hospital. There was no evidence to show that the fit was epileptiform: the temperature was 101°.

A case presenting all the symptoms of fracture of the anterior and middle fossæ of the base of the skull was narrated.

It was interesting from the fact that both optic nerves were involved in the injury, and the leison in each case could be diagnosed with some probability from the ophthalmoscopic appearances.

A week after the injury he could count fingers held up before the right eye, but had only a perception of light with the left.

Ophthalmoscopic appearances:—

Right eye—choked disc, with numerous retinal hæmorrhages.

Left eye—slight fulness of the veins.

A month later the left eye presented all the appearances of white atrophy, and was quite blind. The retina of the right eye became detached, apparently from hæmorrhage behind it; vision gradually diminished, and was at the end of three months finally lost.

The author thought that the left optic nerve was probably almost destroyed by pressure, while the appearance in the right was probably due to venous obstruction.

In another case of fracture through the anterior fossa, the vision of the left eye was completely and at once destroyed. No change could, however, be detected in the disc until three weeks after the accident, when it was observed to be paler than the other. It subsequently became white and atrophied.

Finally, two cases of severe blows on the occiput from falling backwards were related. Both patients had hæmorrhage from one ear, rather free at first, but ceasing in a few hours, and not followed by the discharge of watery fluid. The author sug-

gested that the hæmorrhage might have been caused by a fracture passing through the mastoid cells and lacerating the membrana tympani, but not involving the labyrinth, cochlea, or meatus auditorius internus, thus accounting for the absence of watery discharge.

One patient had complete loss of memory, with only partial return. He was imbecile for a week, and extremely perverse.

The other had an attack of convulsions shortly after the accident; also long continued but partial loss of memory, and was at first extremely irritable and perverse, with mental confusion for a few days.

The mental symptoms, it was suggested, might have been produced by severe bruising, followed by inflammatory reaction, of the anterior portion of the frontal lobe. M. Gama[1] has shown that bruising of the brain occurs from *contre-coup*.

These patients, from their perverseness and the slight power of restraining any inclination which they showed, resembled the monkeys from which Dr. Ferrier removed the anterior portion of the frontal lobe, which then lost all inhibitory power over their inclinations, and the faculty of learning by experience, viz., memory.

January 17.

Mr. Lockwood showed a specimen of obliteration of the arch of the aorta at the level of the *ductus arteriosus*.

The specimen briefly described below was obtained from the body of John Loomey, æt. 20, who fell down dead in the street, and was brought to St. Bartholomew's Hospital. There was no previous history. A post-mortem examination was made twenty-six hours after death. When the chest was opened, the pericardium was found full of blood, which had entered by a rent in the outer coat of the ascending aorta, leading into a cavity forming part of a dissecting aneurysm of the ascending aorta, innominate, right subclavian and carotid arteries. It had been caused by the escape of blood through a small rent in the coat of the ascending aorta. The aorta was highly athromatous and dilated, it had only two semi-lunar valves and gave off four branches, the extra one being probably the left vertebral. At the situation of the occluded ductus arteriosus there was a complete obliteration, marked externally by a slight constriction. It was of normal size above and below, giving off dilated intercostal arteries. It is to be regretted that the collateral circulation could not be more carefully dissected, but it was observed

[1] Holme's System, vol. ii. p. 304.

that the internal mammaries and upper intercostals were greatly dilated. I am indebted to the kindness of Dr. Legg for the above particulars.

In the cases of this abnormality described, the greater number died from the rupture of dissecting aneurysms. The cause of the abnormality can probably be explained by supposing a continuation of that process of development by which the dorsal aorta is obliterated between the third and fourth arches; occurring here also between the fourth and fifth arches.

Dr. West read a paper on 'Rheumatic Fever and its Complications,' illustrated by cases. The discussion was adjourned till the next meeting.

Dr. Griffith showed some microscopic specimens of the suprarenal capsules, semi-lunar ganglia, and skin of a patient who had suffered with Addison's disease.

January 24.

Dr. West showed a specimen of aortic disease with valvular aneurysm and rupture of one cusp.

The discussion of Dr. West's paper was continued.

January 31.

Mr. Hames read a paper entitled 'Experiences of my First Twelve Months' Private Practice.'

February 7.

Dr. Benton showed a calculus from the gall bladder.

Mr. Eve showed a specimen of ulcer of the duodenum.

Mr. Darbishire read a paper on 'The Clinical Aspects of Albuminuria.'

Dr. West showed microscopic specimens of croupous pneumonia and emphysema.

February 6.

A special general meeting was held, at which Mr. Griffith was elected honorary secretary, vice Mr. Bruce-Clarke resigned.

February 14.

Mr. Cripps showed a finger which had been torn off, carrying with it the whole of the flexor tendon.

Mr. Edwards read a paper on 'Fistula in Ano.'

Abstract of Paper.

After alluding to the important place fistula takes amongst rectal diseases, and having enumerated its different forms, the author passed on to the ætiology of the disease, saying that:— Fistula may originate in one of two chief ways—

(*a.*) Either from abscess due to ulceration and perforation of the bowels; or,

(*b.*) From inflammatory suppuration of cellular tissue arising independently of this.

Mr. Edwards then pointed out that an abscess may form in one of the four following situations:—

1. In the subcutaneous tissue outside the anus, this being the most frequent site of such a swelling.
2. In the submucous tissue.
3. Between the bowel and levator ani muscle.
4. In the ischio rectal fossa.

Amongst other causes giving rise to the disease were mentioned ascarides in children, inflamed hæmorrhoids and fissures, for the confirmation of which cases were cited. Carious bone in the neighbourhood was pointed out as giving rise to a sinus which simulated fistula.

The treatment of abscess was then touched upon, the author insisting on the freely laying open of the abscess as soon as detected.

A convenient way of opening these abscesses is as follows:— The finger of the left hand being well greased is inserted into the bowel and pressure made outwards in the direction of the abscess, at the same time that the thumb of the same hand is applied to the skin below the abscess outside. The swelling is now well grasped between the finger and thumb, and the rectum being guarded by the finger in it, a knife can be passed into the abscess without any fear of missing it or of injuring the gut.

The question of operating in phthisical subjects was then discussed. It was here observed, That if on examination of the part one finds a slightly raised orifice with sprouting granulations, and leading from this to the bowel a hard track, one may be pretty sure that the case will do well after operation. If, on the other hand, one finds a gaping and undermined opening, with the tissues around, soft, flabby, and congested, one may almost confidently expect to find the patient phthisical.

With regard to the propriety of operating in phthisical subjects,

the author said, that unless the disease of the lungs is far advanced, the operation in some cases seems to do good, and this by removing a constant drain or source of irritation.

The paper then passed on to treatment of Fistula, which consists in laying open all diseases, either by the knife, elastic ligature, or ligature and tourniquet, or by the first combined with either of the other two.

A few of the more important points alluded to were these:—

The advisability of keeping the bowels open for two or three days, previously to the operation.

The use of a steel director instead of an ordinary silver one, and in some cases, to facilitate the manœuvres of the operator, the forceable dilatation of the anus. What is termed the back-cut is no longer practised at St. Mark's Hospital, except quite at the external orifice; this, together with the removal of over-hanging edges of skin, was recommended. The necessity of laying open the sinus, which is often found running up in the submucous tissue above the internal opening, was strongly urged, though the author pointed out that this was contrary to the teaching of Syme and Brodie. The different methods, as em ployed by Messrs. Gowland and Allingham, for dividing fistulæ high up the bowel, or where there is a fear of hæmorrhage, were then described.

The healing of fistulæ spontaneously, and the combination of fistula with stricture, were points which were shortly touched upon.

As far as the *after treatment* was concerned, Mr. Edwards pointed out the harm often arising from an over-dressing of the wound He recommended dry cotton wool as a dressing, laid all along the wound or wounds, in preference to lint, as being warm, light, and porous, and not so hard or irritating a substance as lint. The means of arresting after-hæmorrhage into the bowel was then discussed, and amongst other after-complications mentioned was incontinence of flatus and of motion. This, the author said, happens temporarily after operations in which the sphincter has been divided, lasting, perhaps, until the wound is healed. Permanent incontinence may follow the division of both sphincters, especially in weak and debilitated people. Also one is apt to get it following the division of a fistula where the external orifice is situated far forwards in the perineum, especially in women, being due in them (it is said) to division of both sphincter ani and vaginæ muscles.

One would always be on the *qui vive* for this when operating on a patient who had previously undergone division of the sphincter; in fact, in such cases it would be as well to acquaint

the patient previous to the operation with the possible and untoward event which might ensue.

Mr. Griffith showed some microscopic specimens of cirrhosis of the liver and heart, and stated that the heart and liver which he showed were both from the same patient. The heart had undoubtedly undergone some fibroid change, hence it was spoken of as cirrhosis.

February 21.

Mr. Schofield showed a man suffering from iodide of potassium rash.

Mr. Doran read a paper on 'The Successive Stages of the Operation of Ovariotomy.'

(*Abstract of Paper.*)

The object of this contribution was to explain the importance of the numerous little precautions which the accumulated experience of half a century has shown to be necessary to insure success in ovariotomy, as far as it lies within the power of the operator and his assistants. An ordinary operation of this kind was described, and each step was dwelt upon briefly or at length according as its necessity was well-known, or, on the other hand, obscure at first sight and newly recognised.

Two assistants are necessary, and the first should stand on the left of the patient, facing the operator. He should sponge all bleeding surfaces, help to ligature or apply the clamp to the pedicle, and assist in securing divided vessels. He must be ready to sponge or clear away, instantaneously, any fluid or semifluid material escaping from the cyst by its accidental rupture or by leakage from around the trochar. He must be very vigilant with regard to the number of sponges temporarily left in the abdominal cavity, and be certain that they are all removed. A junior assistant must stand on the right of the operator; he can report if there be a free flow of fluid through the tube the moment the trochar is plunged into the cyst. He must hold up the tumour whilst the other surgeons are attending to the pedicle; otherwise a growth of this sort (especially when heavy, with a thin broad pedicle) may slip over the side of the abdomen and tear itself partly away from the pedicle. During the closing of the abdominal wound, he must hold its edges well together in order to keep their peritoneal surfaces in close contact.

Divided vessels in the omentum, parietal peritoneum, or any other part within the abdominal cavity should be secured by silk ligatures, the ends of which may be cut short with perfect safety; this practice is adopted and approved of by most operators, including even those who object to a similar treatment of the pedicle of the tumour. This introduces the most disputed question in the whole history of ovariotomy.

Incomplete intra-peritoneal ligature of the pedicle, the ends of the threads being left hanging out of the abdominal wound, has been justly rejected by all. The cautery, which had fallen into disrepute, has been employed with good results during the last two or three years by Dr. Keith. The clamp remains the most popular agent for the safety of the pedicle, partly from the great successes of Mr. Spencer Wells, who still distinctly avows his preference for that instrument, and also because it is easily applied, and involves less time and trouble to an inexperienced operator than the more complicated process of ligature.

Complete intra-peritoneal ligature is adopted, even by its opponents, when the pedicle is too short for the application of the clamp. It is exclusively used by many successful operators at the present date. The author of this paper referred to a contribution of his own, on the history of this practice, in the thirteenth volume of the 'Hospital Reports,' where the effects of ligature were shown to be different to what might be expected from theoretical reasoning, and far less dangerous. The transfixion of a vein constitutes one real peril, and must always be guarded against. Another actual danger, recently pointed out by Mr. Knowsley Thornton, consists in the outer extremity of the stump of the pedicle slipping under the ligature. Fatal hæmorrhage is then almost certain to ensue as the large ovarian vessels lie along this part of the pedicle. This accident is most liable to occur when the pedicle is very broad, and secured by a chain of three or more interlocking ligatures, so that the strain on the outer loop is great, and the broad ligament rendered tense, when the uterus falls back into its place after the operation. Hence when the border of the broad ligament, external to the stump, is found to be drawn tight after ligature, another thread should be applied by transfixion round the proximal side of the outer border of the pedicle.

The abdominal wound should be closed by passing a threaded needle from the peritoneal aspect on one side outwards through the integument. The other extremity of the thread should be passed through another needle and drawn from within outwards through the opposite side of the wound. By this method, applied all along the wound, the peritoneal surfaces are kept

well in contact, a point of great importance. A set of eight or ten threads passed through a needle at each end, should, in all cases, be ready at hand.

When there is great probability of effusion of serum into the peritoneal cavity after operation, or much chance of considerable capillary oozing, a drainage tube may be passed into the pelvis, and any fetid fluid that rises in it, can be removed by a gutta-percha tube fitted to a glass syringe, and can be replaced by a few drachms of weak antiseptic solutions. This practice has been very successfully adopted by Kœbeilé, Keith, and Bantock.

The antiseptic system promises to diminish greatly the mortality after the operation. The author of the paper described an autopsy on a case that had been subjected to operation combined with Lister's precautions, but had died of acute pleurisy (to which disease she had been subject) due, it was suspected, to the great chilling of the body caused by the prolonged action of the steam spray-producer on the exposed abdominal cavity during operation. There was not a trace of peritonitis.

Mr. Eve showed microscopic specimens of chronically inflamed peritoneum from a pig.

February 28.

Mr. Schofield showed a congenital malformation of the leg in which the tibia was wanting, and the fibula had a rounded head like the radius, which articulated with the external condyle of the femur; the astragalus, os calcis, and scaphoid were represented by a single bone; the internal cuneiform and the first metatarsal bone were wanting.

Mr. Schofield also showed a child which had a pedunculated fibro-cellular tumour hanging from the perineum, which presented a strange resemblance to the penis and scrotum.

Mr. Lockwood showed a dissected specimen of Pott's fracture.

Mr. Kidd read a paper on 'Recent Observations on Inflammation.' The object of the paper was to discuss those points in the subject which were still matters of dispute.

Dr. Sanderson gave the following definition of inflammation: 'Inflammation is the succession of changes which occur in a living tissue when it is injured, provided that the injury is not of such a degree as to destroy at once its structure and vitality.' The subject of pyogenesis was then reviewed, and the arguments for and against pyogenesis from a proliferation of connective tissue corpuscles, stated with especial reference to the experiments of Cohnheim and Stricker on the cornea. Attention was

also particularly drawn to Eberth's experiments on the cornea of various animals, which were described at some length. Eberth showed that in the case of a central keratitis produced by caustics, pyogenesis depends on the immigration of leucocytes into the cornea from the conjunctival vessels at the periphery, or was due to their passage from the conjunctival sac into the margin of the slough. The proliferation of the corneal corpuscles described by Stricker and others was a later stage in the process, and had for its purpose the regeneration or repair of the injured tissue. An irritation may, however, produce a proliferation of the corneal corpuscles without any suppuration, but this process could not be regarded as inflammatory. Swetsky's experiments on inflammation of cartilage were then briefly referred to, and shown to agree in principle with Eberth's experiments on the cornea. In conclusion, the author expressed a hope that the facts brought forward justified the conclusion, that inflammation and proliferation were distinct processes, the former being essentially destructive in its tendency, the latter being a process of repair.

Mr. Eve showed some microscopic specimens of inflamed cornea of frog and rabbit, of inflamed cartilage and inflammation in epithelium.

March 7.

Dr. Darbishire showed sphygmographic tracings.

Dr. West showed a specimen of cardiac aneurysm at the 'unprotected spot,' with congenital adhesion of the two cusps of the central valve.

Mr Eve showed a specimen of united impacted extra-capsular fracture of the neck of the femur taken from a women, æt. 64.

Also a micropthalmic eye, and glioma and sarcoma of the eyeballs, with microscopic specimens.

Dr. Matthews Duncan read a paper on 'The Prediction of the Day of Confinement.'

(*Abstract of Paper.*)

He pointed out at length the wrong method that had been followed, down till recent times, in the pursuit of knowledge on this subject. It was attempted to base the settlement of this question of the natural duration of pregnancy on theories of its dependence on lunar influences or on menstrual periodicity or

on other fanciful bases. All such methods were bad in a philosophical point of view, and yielded insecure results.

In consequence of the errors that might arise as to the commencement of pregnancy, and the uncertainty of this limit, no results, however attained as yet, were absolutely reliable. The only good proceeding was to ascertain facts, collocate them, and read the evidence.

When this was done, the result was that pregnancy lasted not more than 275 days on an average. The duration of pregnancy as counted by days was not a normal, or standard, or natural duration, but an average.

The average duration of pregnancy was not that used in the important practice of the prediction of the day of confinement. It was another, namely, the average interval between last menses and parturition. That average was about 278 days.

The prediction of a day in accordance with the average was of little value in a refinement down to days. The variations from the average day were so numerous for a fortnight before and after it, as to make the average not more than a statement of the likeliest day of confinement, variations on either side from it being less and less numerous as it was distanced; yet the variations within a fortnight on either side of the average were abundant and necessitated a prediction of a month in which confinement might take place, with an increasing likelihood as from either limit the average day was approached. Dr. Matthews Duncan pointed out numerous practical inferences following from these considerations.

March 14.

General Meeting for the election of officers. The following were elected:—Presidents, Dr. West, Dr. Darbishire; Vice-Presidents, Mr. Bruce Clarke, Mr. Eve; Secretaries, Mr. Griffith, Mr. Heath.

EXAMINATIONS, 1875-76.

Lawrence Scholarship and Gold Medal—
R. H. A. Schofield.

Brackenbury Medical Scholarship—
R. H. A. Schofield.

Brackenbury Surgical Scholarship—
W. Pye.

Senior Scholarship in Anatomy, Physiology, and Chemistry—
G. Coates.

Open Scholarship in Science—
C. P. Lukis.

Preliminary Scientific Exhibition—
A. C. Dismore.

Jeaffreson Exhibition—
T. Kirsopp.

Kirkes Gold Medal—
A. G. Williams.

Bentley Prize—
T. J. Verrall.

Hichens Prize—
F. H. Craddock.

Wix Prize—
F. H. Craddock.

PRACTICAL ANATOMY.

Senior.

Foster Prize—G. Coates.
2. W. Graham.
3. C. Lockwood.
4. C. J. Bamber. / M. Prickett.
6. G. P. Sylvester
7. E. C. Bousfield.
8. Allen Dingley.
9. G. W. P. Dennys.

Junior.

Treasurer's Prize—C. C. Shepherd.
2. A. J. Wharry.
3. H. C. Nance.
4. W. Outhwaite.
5. G. H. Barling.
6. C. F. Cuthbert.
7. A. Franklin.
8. A. A. Bowlby. / G. L. Pardington. / K. Townsend.

EXAMINATIONS, 1876-77.

Lawrence Scholarship and Gold Medal—

(No Candidate.)

Brackenbury Medical Scholarship—

W. L. Heath, } Equal.
P. A. Steedman, }

Brackenbury Surgical Scholarship—

G. O. Mead.

Senior Scholarship in Anatomy, Physiology, and Chemistry—

R. Gill.

Open Scholarship in Science—

A. M. Marshall, } Equal.
S. Nall, }

Preliminary Scientific Exhibition—

E. Clarke.

Jeaffreson Exhibition—

W. J. Collins.

Kirkes Gold Medal—

W. L. Heath.

Bentley Prize—

W. S. A. Griffith.

Hichens Prize—

W. Wickham.

Wix Prize—

(Not awarded.)

PRACTICAL ANATOMY.

Senior.	Junior.
Foster Prize—A. A. Bowlby.	*Treasurer's Prize*—J. Barratt.
2. G. E. Fooks.	2. J. E. Risk.
2. C. C. Shepherd.	2. W. T. Wyatt.
4. H. C. Nance.	4. J. Harper.
5. H. T. Preston.	4. R. Jones.
6. A. J. Wharry.	4. S. Westcott.
7. M. Pearless.	7. E. Clarke.
8. W. T. Freeman.	8. C. S. Spackman.

EXAMINATIONS, 1877-78.

Lawrence Scholarship and Gold Medal—
M. PRICKETT.

Brackenbury Medical Scholarship—
S. S. BURN.

Brackenbury Surgical Scholarship—
A. DINGLEY.

Senior Scholarship in Anatomy, Physiology, and Chemistry—
D. A. KING.

Open Scholarship in Science—
W. A. HOYLE.
W. OVEREND.

Preliminary Scientific Exhibition—
P. S. ABRAHAM.

Jeaffreson Exhibition—
G. F. HERRINGHAM.

Kirkes Gold Medal—
C. A. D. CLARKE.

Bentley Prize—
T. W. H. GARSTANG.

Hichens Prize—
H. SMITH.

Wix Prize—
A. C. BULLER.

Prox. accessit.—D. A. KING.

PRACTICAL ANATOMY.

SENIOR.

Foster Prize—W. T. WYATT.
2. D. D. DAY.
3. S. WESTCOTT.
4. W. J. COLLINS.
5. C. SANDARS. E. RICE.
7. E. CLARKE. J. HARPER.
9. R. JONES. J. E. RISK.
11. G. T. HOCKEN.

JUNIOR.

Treasurer's Prize—C. L. H. TRIPP.
2. J. W. FIELD.
3. A. C. ROPER.
4. J. E. SQUARE.
5. B. RICE.
6. F. J. SHORT.
7. C. J. MURIAL. T. MUDGE.
9. W. A. HOYLE.

ST. BARTHOLOMEW'S HOSPITAL & COLLEGE.

THE MEDICAL AND SURGICAL STAFF.

Consulting Physicians—Sir G. Burrows, Bart., D.C.L., F.R.S., Dr. Farre, Dr. Black, Dr. Martin, Dr. Harris.

Consulting Surgeon—Sir J. Paget, Bart., D.C.L., LL.D., F.R.S.

Physicians—Dr. Andrew, Dr. Southey, Dr. Church, Dr. Gee.

Surgeons—Mr. Holden, Mr. Savory, F.R.S., Mr. Callender, F.R.S., Mr. Thomas Smith.

Assistant-Physicians — Dr. Duckworth, Dr. Hensley, Dr Brunton, F.R.S., Dr. Wickham Legg.

Assistant-Surgeons—Mr. Willett, Mr. Langton, Mr. Morrant Baker, Mr. Marsh.

Physician-Accoucheur—Dr. J. Matthews Duncan.

Assistant-Physician-Accoucheur—Dr. Godson.

Ophthalmic Surgeons—Mr. Power, Mr. Vernon.

Dental Surgeon—Mr. Coleman.

Administrator of Chloroform—Mr. Mills.

Casualty Physicians—Dr. Bridges, Dr. Champneys, Dr. V. D. Harris.

Medical Registrar—Dr. Champneys.

Surgical Registrars—Mr. Butlin, Mr. Macready.

LECTURES.

Medicine—Dr. Andrew, Dr. Gee.

Clinical Medicine—Dr. Andrew, Dr. Southey, Dr. Church, Dr. Gee.

Surgery—Mr. Savory, F.R.S., Mr. Callender, F.R.S.

Clinical Surgery—Mr. Holden, Mr. Savory, F.R.S., Mr. Callender, F.R.S., Mr. Thomas Smith.

Descriptive and Surgical Anatomy—Mr. Thomas Smith, Mr. Langton.

General Anatomy and Physiology—Mr. Morrant Baker.

Histology—Dr. Klein, F.R.S.

Chemistry and Practical Chemistry—Dr. Russell, F.R.S.

Materia Medica—Dr. Brunton, F.R.S.

Forensic Medicine and Hygiene—Dr. Southey.

Midwifery and the Diseases of Women and Children—Dr. Matthews Duncan.

Botany—Rev. George Henslow.

Pathological Anatomy—Dr. Wickham Legg.

Comparative Anatomy—Dr. Moore.

Ophthalmic Medicine and Surgery—Mr. Power.

Dental Anatomy and Surgery—Mr. Coleman.

Mental Diseases—Dr. Claye Shaw.

DEMONSTRATIONS.

Morbid Anatomy—Dr. Wickham Legg.

Diseases of the Skin—Mr. Morrant Baker.

Orthopædic Surgery—Mr. Willett.

Diseases of the Ear—Mr. Langton.

Diseases of the Eye—Mr. Vernon.

Practical Surgery—Mr. Marsh.

Practical Anatomy and Operative Surgery—Mr. Cumberbatch, Mr. Walsham.

Assistant Demonstrators—Mr. Shuter, Mr. Röeckel.

Mechanical and Natural Philosophy—Mr. Graham.

Practical Physiology—Dr. V. D. Harris.

Assistant Demonstrator—Mr. D'Arcy Power.

Medical Tutor—Dr. Norman Moore.

COLLEGIATE ESTABLISHMENT.

Warden—Dr. Norman Moore.

Students can reside within the Hospital walls, subject to the College regulations.

Ten Scholarships, varying in value from £20 to £100, are awarded annually.

Further information respecting Scholarships, Pupils' Appointments, and other details, may be obtained from Dr. Norman Moore, and at the Museum or Library.

STATISTICAL TABLES

OF THE

Patients under Treatment

IN THE WARDS OF

ST. BARTHOLOMEW'S HOSPITAL

DURING 1877.

BY

THE MEDICAL REGISTRAR,

FRANCIS H. CHAMPNEYS, M.B. (Oxon.)—M.R.C.P.;

AND

THE SURGICAL REGISTRARS,

HENRY T. BUTLIN, F.R.C.S.,

AND

J. MACREADY, F.R.C.S.

LONDON:

HARRISON AND SONS, ST. MARTIN'S LANE,

Printers in Ordinary to Her Majesty.

1878.

PREFACE.

No changes have been made in either the Medical or Surgical Tables.

CONTENTS.

SURGICAL REPORT—

ST. BARTHOLOMEW'S HOSPITAL.

1877.

Number of Beds in Medical Wards (including 14 for Diseases of Women)	230
„ „ „ * Surgical „ {including 6 for Diseases of Women and 26 for Ophthalmic Cases}	405
„ „ „ Unassigned	18
	653

GENERAL STATEMENT OF THE PATIENTS UNDER TREATMENT DURING THE YEAR.

Patients remaining January 1st, 1877 :			
Medical	174	 428	
Surgical	254		
Admitted during the year :			 5225
Medical	2116	 4797	
Surgical	2681		
Discharged Cured and Relieved :			
Medical	1587	 3936	
Surgical	2349		
Discharged Unrelieved :			
Medical	186	 323	
Surgical	137		
Died :			 5225
Medical	361	 521	
Surgical	160		
Remaining January 1st, 1877 :			
Medical	156	 445	
Surgical	289		

Patients brought in Dead	24
Number of Post-mortem Examinations	404 = 72 per cent.

* The number of Surgical Beds varied during the year.

OCCUPATIONS OF MALE PATIENTS.

Acrobat	..	..	1	Chemists	..	..	6	Fish curers	..	..	1
Apprentices	..	..	3	Cigar makers	..	..	11	Fishing-rod maker	..	1
Artist	..	..	1	Clerks	..	..	79	Fishmongers	..	..	5
Architect	..	..	1	Clickers	..	..	2	Flower makers	..	2
Asphalte worker	..	1	Clockmakers	..	..	2	Foundrymen	..	..	3
Australian bushman	..	1	Clothworkers	..	..	2	Frame makers	..	..	4
Bacon drier	..	..	1	Coachmaker	..	..	1	French polishers	..	8
Bakers	..	..	17	Coachmen	..	..	18	Fruiterers	..	..	2
Bag-pipe player	..	1	Coalheavers	..	..	5	Furriers	..	..	3
Bag maker	..	..	1	Coal porters	..	..	2	Gardeners	..	..	14
Bargemen	..	..	3	Coastguard	..	..	1	Gamekeeper	..	..	1
Barmen	..	..	12	Combmaker	..	..	1	Gasfitters	..	..	17
Basketmakers	..	..	2	Commercial travellers	.	19	Gas-stokers	..	..	2
Beadle	..	..	..	1	Commission agents	..	4	Gas engineer	..	..	1
Billposters	..	..	1	Commissionaires	..	18	Gentleman	..	..	1
Billiard markers	..	2	Compositors	..	..	37	General dealers	..	9
Blacksmiths	..	..	37	Confectioners	..	..	6	Gilders	..	..	..	3
Blue-pill maker	..	1	Constables	..	..	4	Gingerbeer makers	..	2
Boiler makers	..	..	3	Cooks	..	..	..	9	Glassblowers	..	..	6
Bonnet-shape maker	..	1	Coopers	..	..	8	Glass-shade maker	..	1
Bookbinders	..	..	7	Copyist	..	..	1	Glover	..	..	..	1
Book mounter	..	..	1	Corn dealer	..	..	1	Goldbeaters	..	..	2
Booksellers	..	..	2	Costermongers	..	..	2	Gold and silver lace maker	..	..	1
Bootmakers	..	..	21	Cowherds	..	..	2	Grainer	..	..	1
Boot rivetter	..	..	1	Crossing sweeper	..	1	Grocers	..	..	12
Box carrier	..	..	1	Currier	..	..	1	Grooms	..	..	10
Box makers	..	..	5	Custom-house officer	..	1	Gunsmiths	..	..	2
Braid designers	..	2	Cutlers	..	..	..	2	Guttapercha printer	..	1
Brass finishers	..	10	Dairyman	..	..	1	Hairdressers	..	..	13
Brassfounder	..	..	1	Decorator	..	..	1	Hairdyer	..	..	1
Brass maker	..	..	1	Dentist	..	..	..	1	Harnessmakers	..	2
Brass polisher	..	..	1	Diamond cutter	..	1	Harmonium maker	..	1
Brewers	..	..	5	Diamond polisher	..	1	Hatters	..	..	..	2
Bricklayers	..	..	62	Dispensers	..	..	10	Hawkers	..	..	29
Brickmakers	..	..	3	Distillers	..	..	2	Horsehair carders	..	2
Builders	..	..	9	Dock labourer	..	1	Hotel keepers	..	..	2
Butchers	..	..	31	Drapers	..	..	5	Housekeepers	..	..	2
Butlers	..	..	..	7	Draymen	..	..	5	House surgeon	..	1
Button makers	..	2	Drover	..	..	..	1	Ink maker	..	..	1
Cabinetmakers	..	50	Dyers	..	..	..	2	Instrument maker	..	1
Cabmen	..	..	38	Engine drivers	..	9	Insurance agent	..	1
Calico bleacher	..	1	Engineers	..	..	29	Iron moulders	..	..	3
Calico cutter	..	..	1	Engine fitters	..	..	2	Ivory carver	..	..	1
Cane maker	..	..	1	Engravers	..	..	4	Ivory polisher	..	..	1
Captain	..	..	1	Errand boys	..	..	10	Ivory turners	..	..	6
Carmen	..	..	101	Excavators	..	..	4	Japanners	..	..	2
Carpenters	..	..	69	Factory hands	..	..	3	Jewellers	..	..	4
Carriers	..	..	2	Fancy-box maker	..	1	Jewel-case makers	..	2
Carters	..	..	..	2	Farmers	..	..	3	Jobmasters	..	..	2
Carvers	..	..	..	6	Farm bailiffs	..	..	2	Joiners	..	..	..	3
Cattle dealers	..	..	4	Farriers	..	..	4	Kitchen boys	..	..	1
Cellarmen	..	..	6	Fibre drawer	..	..	1	Labourers	..	..	426
Chaff-cutter	..	..	1	Figure makers	..	..	2	Lapidary	..	..	2
Chairmakers	..	..	6	Firemen	..	..	4	Lamp makers	..	..	1
Cheesemongers	..	3	Fire-hose makers	..	1					

OCCUPATIONS OF MALE PATIENTS (*continued*).

Law writers	2	Pilots	2	Soap maker	1
Lawyers	1	Pipe makers	2	Soldiers	8
Lead workers	5	Plasterers	2	Stationers	9
Leather dresser	1	Platelayers	8	Stereotyper	1
Leather finishers	2	Plumbers	5	Stevedores	7
Leather workers	3	Policemen	5	Stick makers	5
Leather-case makers	6	Polisher	1	Stockbroker	1
Lightermen	11	Porters	100	Stokers	2
Lithographers	5	Post-office sorters	2	Street musicians	2
Locksmiths	2	Postmen	4	Students of medicine	6
Lodging-house keeper	1	Potmen	16	Surgeon	1
Looking-glass makers	2	Poulterers	2	Sweeps	5
Machine maker	1	Press maker	1	Summoning officer	1
Machine rulers	3	Printers	54	Tailors	30
Mail-cart driver	1	Priests	4	Tallow chandlers	2
Marqueterie inlayer	1	Print cutter	1	Tea mixers	2
Masons	30	Prisoner	1	Telegraph clerk	1
Merchant	1	Publicans	5	Tinfoil workers	4
Messengers	3	Pugilist	1	Tinmen	5
Metal polisher	1	Quarryman	1	Tobacconists	5
Millers	4	Rag sorter	1	Tobacco-pipe maker	1
Milkmen	5	Railway guard	1	Toy makers	2
Moulding makers	16	Railway pointsmen	2	Tramway conductor	1
Mount cutter	1	Railway porters	9	Trimming maker	1
Muffin maker	1	Relieving officer	1	Turners	10
Musicians	8	Reader	1	Turf bookmaker	1
Musical-instrument makers	5	Rivetters	2	Typefounders	6
		Roller maker	1	Umbrella makers	3
Naval Officer	1	Rope maker	1	Umbrella-stick maker	1
Navvies	5	Rug maker	1	Undertakers	2
Night watchmen	4	Sail makers	5	Upholsterers	7
Oakum picker	1	Sailors	30	Van boys	17
Omnibus drivers	2	Sawyers	13	Volunteer	1
Organ grinder	1	Scalemaker	1	Violinists	2
Ostlers	26	Scavengers	3	Waiters	7
Oil refiner	1	Schoolboys	364	Warehousemen	23
Packers	11	Schoolmasters	2	Warders	2
Packing-case makers	4	Sculptor	1	Watch makers	4
Pages	4	Servants	9	Watchmen	4
Painters	47	Sewing-machine maker	1	Waterproofer	1
Paperhangers	6	Sewerman	1	Whalebone cutter	1
Paper colourers	4	Ship stewards	6	Wheelwrights	3
Paper maker	1	Shoeblacks	4	Whipmakers	2
Paper glazer	1	Shoemakers	45	Whitesmiths	3
Paupers	4	Shoe finisher	1	Wine coopers	4
Pawnbroker	1	Shop boy	1	Wine merchants	4
Pensioners	4	Shopmen	7	Wireworker	1
Perfumers	2	Silk spinner	1	Wood carvers	3
Photographer	1	Silk weaver	1	Wood choppers	7
Pianoforte maker	1	Silk winder	1	Wood cutter	1
Piano-key maker	1	Silversmiths	2	Woollen merchant	1
Piano tuners	2	Smiths	5	Zinc workers	3
Picture dealer	1				

OCCUPATIONS OF FEMALE PATIENTS.

Artificial-flower makers	7	Frame maker	1	Paper glazer	1
Artist	1	French polisher	1	Paperhanger	1
Bag makers	5	Furriers	4	Paupers	2
Ballet girl	1	Fur sewer	1	Percussion-cap maker	1
Barmaids	15	General dealers	5	Playing-card cleaner	1
Basket makers	3	Goldbeater's-skin maker	1	Printer's reviser	1
Bonnet maker	1	Haberdasher	1	Rag sorter	1
Bookfolders	18	Hairworker	1	Sail makers	2
Bookbinder	1	Harlots	4	Schoolmistresses	5
Bookkeeper	1	Hat maker	1	School girls	188
Boot fitter	1	Hawkers	7	Scrubber	1
Boot closer	6	Hop pickers	2	Servants	355
Bottle seller	1	Hosier	1	Shirt makers	3
Box makers	13	Housekeepers	18	Shoebinders	2
Brace maker	1	Housewives	656	Shoemaker	1
Cabinet maker	1	Ironers	10	Shopwomen	5
Chair caner	3	Japanners	2	Silk weavers	4
Chandler	1	Jewel-case maker	1	Silk winders	2
Charwomen	49	Lace maker	1	Stationers	2
Clothworker	1	Label maker	1	Straw-hat maker	1
Cigar maker	1	Laundresses	90	Straw plaiter	1
Coal dealer	1	Leather cutters	2	Staymakers	2
Cooks	44	Machinists	35	Tailoresses	18
Doll maker	1	Mantle maker	1	Tie makers	4
Distiller	1	Mangler	1	Tooth-brush drawers	2
Draper	1	Match makers	2	Trimming makers	5
Dressmakers	33	Matron	1	Umbrella maker	1
Dust sifter	1	Milliners	14	Upholstress	1
Dyers	3	Midwife	1	Vocalist	1
Envelope folders	3	Monthly nurses	6	Waistcoat maker	1
Factory hands	7	Musicians	2	Waiteress	1
Fancy-box maker	1	Needlewomen	63	Wax-taper maker	1
Feather cleaners	3	Nurses (private)	34	Weaver	1
Feather sorter	1	,, (hospital)	38	Wire maker	1
Firewood makers	1	,, (lunatic asylum)	1	White-lead carriers	5
Fishmonger	1	Nursery governesses	2	Wood choppers	2
Fishwife	1	Oyster sellers	1	Wool cleaners	2
Flower makers	8	Packers	3	Worsted winder	1
Flower seller	1	Paper colourer	1		

MEDICAL REPORT.

TABLE I,

Showing the Total Number of Cases of each Disease under Treatment during the Year 1877, *with the Results.*

(The numbers after the names of the Diseases refer to the Appendix at the end of the Table.)

DISEASES.	Total number of cases under treatment.		Discharged cured and relieved.		Unrelieved.		Died.		Remaining in at the end of the year 1877.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
GENERAL DISEASES, A.										
Small pox(1)	5	1	..	..	3	1	1	..	1	..
Chicken pox	2	..	2	..	..	..	..	..	..	..
Measles (2)	9	8	7	6	..	..	2	2	..	..
Sequelæ of Measles	..	1	..	1	..	..	..	..	..	..
Scarlet Fever (3)	31	27	26	16	..	..	3	4	2	7
Sequelæ of Scarlet Fever (4) ..	20	5	13	4	1	..	1	1	5	..
Typhus (5)	4	1	3	..	..	..	1	..	..	1
Enteric Fever (6)	50	27	33	20	..	..	10	3	7	4
Sequelæ of Enteric Fever (7) ..	2	2	2	1	..	..	..	..	..	1
Simple Continued Fever (8) ..	1	1	1	1	..	..	..	..	..	..
Febricula	15	6	14	6	..	..	..	..	1	..
Ague (9)—										
Tertian	4	2	4	2	..	..	..	..	..	..
Quotidian	2	..	2	..	..	..	..	..	..	..
Irregular	..	1	..	1	..	..	..	..	..	..
Diphtheria (10)	1	1	1	..	..	..	..	1	..	..
Hooping-cough (11)	2	3	2	3	..	..	..	..	..	..
Mumps	2	1	2	1	..	..	..	..	..	..
Erysipelas (12)—										
Cellulo-cutaneous (of face) ..	4	15	4	14	..	..	..	..	..	1
„ „ (of leg) ..	1	3	1	2	..	..	..	..	..	1
Pyæmia (13)	2	4	..	..	..	..	2	4	..	..
GENERAL DISEASES, B.										
Rheumatism—										
Acute (14)	86	100	76	87	1	1	1	1	8	11
Subacute (15)	14	12	13	11	..	..	..	..	1	1
Gonorrhœal	1	..	..	..	..	..	..	..	1	..
Muscular	1	..	1	..	..	..	..	..	..	..
Lumbago	..	1	..	..	..	1	..	..	..	..
Chronic	11	15	10	15	..	..	..	..	1	..
Gout—										
Acute (16)	6	3	5	3	1	..	..	..	..	..
Chronic (17)	7	2	6	2	1	..	..	..	..	..

DISEASES.	Total number of cases under treatment.		Discharged cured and relieved.		Unrelieved.		Died.		Remaining in at the end of the year 1877.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
GENERAL DISEASES, B (*continued*).										
Chronic Osteo-arthritis [18]	1	8	1	8	..	..	..	..	..	..
Cancer—										
of Lymphatic Glands [19]	1	..	..	..	..	..	**1**	..	..	..
of Mediastinum [20]	1	..	..	..	..	..	**1**	..	..	..
of Abdomen [21]	2	6	..	..	1	1	**1**	**5**	..	..
of Stomach [22]	6	1	1	1	2	..	**3**	..	..	..
of Liver [23]	4	..	..	..	1	..	**3**	..	..	..
of Intestines [24]	1	3	..	..	..	..	**1**	**3**	..	..
of Rectum	1	..	..	..	1	..	..	..	..	..
of Kidney [25]	..	2	..	..	..	..	..	**2**	..	..
of Ovary	..	2	..	..	..	2	..	..	..	..
of Uterus [26]	..	12	..	3	..	7	..	**2**	..	..
of Bone [27]	1	1	..	..	..	..	**1**	**1**	..	..
Epithelioma—										
of Cervix Uteri	..	11	..	9	..	2	..	..	..	..
Scrofula	..	1	..	1	..	..	..	..	..	..
Local Scrofulous Affections—										
Tubercular Meningitis [28]	4	4	..	..	..	..	**4**	**4**	..	..
Phthisis Pulmonalis [29]	57	46	23	22	12	10	**20**	**14**	1	..
Acute Miliary Tuberculosis [30]	3	3	..	..	..	..	..	**2**	3	1
Tubercular Peritonitis [31]	2	3	..	1	..	1	**2**	**1**	..	..
Tuberculosis of Kidneys [32]	1	1	..	..	..	..	**1**	**1**	..	..
Rickets [33]	3	6	2	2	..	3	**1**	**1**	..	..
Diabetes [34]	13	7	2	2	..	2	**10**	**3**	1	..
Purpura—										
Simple	2	2	2	2	..	..	..	..	..	..
Hæmorrhagic [35]	2	1	1	1	..	..	**1**	..	..	..
*Anæmia	..	7	..	6	..	..	..	..	..	1
Chlorosis	..	5	..	5	..	..	..	..	..	..
*General Dropsy	..	4	..	3	..	1	..	..	..	..
LOCAL DISEASES.										
DISEASES OF THE NERVOUS SYSTEM.										
Diseases of the Brain and its Membranes.										
Encephalitis	1	..	1	..	..	..	..	..	..	..
Meningitis (Simplex) [36]	4	..	..	..	1	..	**3**	..	..	..
Softening [37]	3	..	..	..	2	..	**1**	..	..	..
Abscess of the Brain [38]	1	..	..	..	..	..	**1**	..	..	..

DISEASES.	Total number of cases under treatment.		Discharged cured and relieved.		Unrelieved.		Died.		Remaining in at the end of the year 1877.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
DISEASES OF THE NERVOUS SYSTEM (*continued*).										
Apoplexy—										
Sanguineous [39]	11	3	1	1	..	..	**10**	**2**	..	..
Chronic Hydrocephalus [40] ..	2	2	..	..	1	..	**1**	**2**	..	..
Tumour [41]	3	3	..	..	..	1	**3**	**2**	..	..
Cerebral Affection [42]	2	..	1	..	..	..	**1**	..	..	..
DISEASES OF THE SPINAL CORD AND ITS MEMBRANES.										
Inflammation—										
Myelitis [43]	3	..	..	..	1	..	**2**	..	..	..
DISEASES OF THE NERVES.										
*Paralysis—										
Hemiplegia [44]	24	18	18	8	4	4	..	**2**	2	4
Paraplegia [45]	8	6	5	5	2	1	..	..	1	..
Locomotor Ataxy [46]	9	2	7	2	1	..	..	..	1	..
Infantile paralysis	1	1	1	1	..	..	..	..	..	..
Local Paralysis—										
Facial Paralysis	1	1	..	1	1	..	..	..	..	..
Other Paralyses [47]	12	4	7	2	5	2	..	..	..	..
FUNCTIONAL DISEASES OF THE NERVOUS SYSTEM.										
Tetanus	1	..	1	..	..	..	..	..	..	..
*Infantile Convulsions	1	5	1	3	..	1	..	**1**	..	..
Epilepsy [48]	23	7	20	6	1	1	**2**	..	..	..
Epileptic Vertigo	2	1	2	..	..	1	..	..	..	..
Epileptic Hemiplegia	1	1	1	..	..	1	..	..	..	..
Laryngismus stridulus	1	..	1	..	..	..	..	..	..	..
Spasm of Muscles [49]	1	..	..	..	1	..	..	..	..	..
Chorea [50]	13	30	12	24	..	4	..	..	1	2
Hysteria [51]	1	20	1	18	..	1	..	..	..	1
Hysterical Paralysis	..	1	..	..	..	1	..	..	..	..
Neuralgia—										
Diffused	1	6	1	5	..	1	..	..	..	..
Cephalalgia	3	..	3	..	..	..	..	..	..	..
Sciatica	4	7	4	6	..	1	..	..	..	..
Pleurodynia	3	5	3	5	..	..	..	..	..	..
Hypochondriasis	3	..	2	..	1	..	..	..	..	..

DISEASES.	Total number of cases under treatment.		Discharged cured and relieved.		Unrelieved.		Died.		Remaining in at the end of the year 1877.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
DISEASES OF THE NERVOUS SYSTEM (*continued*).										
Obscure Nerve disorder (52) ..	5	2	2	1	2	1	..	..	1	..
DISORDERS OF THE INTELLECT.										
Mania	6	3	..	..	6	3	..	..	..	..
Melancholia	2	2	1	..	1	1	..	..	..	1
Dementia (53)	2	3	..	..	2	3	..	..	..	..
Idiotcy	2	1	..	..	2	1	..	..	..	..
DISEASES OF THE CIRCULATORY SYSTEM.										
DISEASES OF THE HEART AND ITS MEMBRANES.										
Diseases of the Pericardium.										
Pericarditis (54)	9	1	4	1	..	..	5	..	..	..
Diseases of the Endocardium.										
Endocarditis	..	1	..	1	..	..	..	..	..	..
Valve Disease (55)—										
1. Aortic	28	6	19	5	..	..	8	1	1	..
2. Mitral	35	43	22	30	2	1	10	11	1	1
3. Pulmonary	..	..	..	..	..	..	..	..	..	..
4. Tricuspid	..	1	..	..	..	..	..	1	..	..
5. Complicated	10	8	4	2	1	..	4	6	1	..
6. Congenital	..	1	..	1	..	..	..	..	..	..
Diseases of the Muscular Structure of the Heart.										
Dilatation (56)	1	3	..	3	..	..	1	..	..	..
Fatty degeneration	1	..	..	..	..	..	1	..	..	..
Fibroid degeneration (57)	..	1	..	..	..	..	..	1	..	..
Aneurism (58)	1	..	..	..	..	..	1	..	..	..
*Angina Pectoris (59)	1	1	..	1	1	..	..	..	..	..
*Syncope	..	1	..	1	..	..	..	..	..	..
DISEASES OF THE BLOOD VESSELS.										
Diseases of the Arteries.										
Atheroma	1	..	1	..	..	..	..	..	..	..
Aneurism—										
of Aorta (60)	15	1	7	..	3	1	4	..	1	..

DISEASES.	Total number of cases under treatment.		Discharged cured and relieved.		Unrelieved.		Died.		Remaining in at the end of the year 1877.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
DISEASES OF THE BLOOD VESSELS (*continued*).										
Aneurism (*continued*).										
of Abdominal Arteries ..	2	..	1	..	..	..	..	..	1	..
Epigastric Pulsation	1	..	..	..	1	..	..	..	..	..
Diseases of the Veins.										
Phlegmasia Dolens (61)	..	1	..	1	..	..	..	..	..	..
Obstruction (62)	..	4	..	2	..	..	..	1	..	1
DISEASES OF DUCTLESS GLANDS.										
DISEASES OF THE THYROID GLAND.										
Exophthalmic Bronchocele.. ..	..	2	..	1	..	1	..	..	..	..
DISEASES OF THE SUPRA-RENAL CAPSULES.										
Addison's Disease (63)	2	..	1	..	..	..	1	..	..	..
DISEASES OF THE RESPIRATORY SYSTEM.										
DISEASES OF THE RESPIRATORY SYSTEM NOT SIMPLY LOCAL.										
Croup (64)	5	8	1	3	..	..	4	5	..	..
DISEASES OF THE LARYNX.										
Laryngeal Catarrh	5	..	4	..	1	..	..	..	..	..
Laryngitis—										
Acute (65)	4	3	4	2	..	..	..	1	..	..
Chronic (66)	3	1	2	1	..	..	1	..	..	..

DISEASES.	Total number of cases under treatment.		Discharged cured and relieved.		Unrelieved.		Died.		Remaining in at the end of the year 1877.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
DISEASES OF THE RESPIRATORY SYSTEM (*continued*).										
DISEASES OF THE TRACHEA AND BRONCHI.										
Bronchial Catarrh	4	5	4	5	..	..	..	..	..	..
Bronchitis—										
Acute (67)	7	9	5	8	..	..	1	..	1	1
Chronic (68)	38	32	26	23	4	..	8	6	..	3
Asthma	1	1	1	1	..	..	..	..	..	..
DISEASES OF THE LUNG.										
Pneumonia (69)	48	21	33	12	..	..	14	6	1	3
Lobular	5	2	3	1	..	..	2	1	..	..
Pleuro-Pneumonia (70)	26	8	22	3	1	..	2	3	1	2
Abscess (71)	1	..	1	..	..	..	..	..	..	..
Gangrene (72)	3	..	2	..	..	..	1	..	..	..
Congestion	1	1	1	1	..	..	..	..	..	..
*Hæmoptysis	12	3	12	3	..	..	..	..	..	..
Cirrhosis (73)	5	2	2	1	1	..	2	1	..	..
Emphysema (74)	5	1	4	1	..	..	..	..	1	..
Disease of the Lungs	..	1	..	..	..	..	..	1	..	..
DISEASES OF THE PLEURA.										
Pleurisy (75)	34	10	29	9	..	..	4	..	1	1
Chronic Pleurisy (76)	3	..	2	..	1	..	..	..	..	..
Empyema (77)	12	5	9	2	..	..	2	3	1	..
DISEASES OF THE MEDIASTINUM.										
Tumour	3	5	..	3	3	2	..	..	..	..
DISEASES OF THE DIGESTIVE SYSTEM.										
DISEASES OF THE STOMACH.										
Gastritis	..	2	..	2	..	..	..	..	..	..
Chronic Ulcer	4	10	2	10	..	..	1	..	1	..
*Hæmatemesis	4	3	3	2	..	..	..	..	1	1
*Stricture	1	..	1	..	..	..	..	..	..	..
Dyspepsia	4	8	4	8	..	..	..	..	..	..

DISEASES.	Total number of cases under treatment.		Discharged cured and relieved.		Unrelieved.		Died.		Remaining in at the end of the year 1877.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
DISEASES OF THE DIGESTIVE SYSTEM (*continued*).										
Gastrodynia	2	1	2	1	..	..	..	..	..	..
*Vomiting	..	6	..	5	..	1	..	..	..	..
DISEASES OF THE INTESTINES.										
Enteritis (78)	3	1	2	1	..	..	1	..	..	..
Typhlitis (79)	3	2	2	..	..	..	1	2	..	..
Dysentery (80)	8	1	8	..	..	..	..	1	..	..
Ulceration (81)	1	1	..	1	..	..	1	..	..	1
Abscess in the Subperitoneal Tissue	2	..	2	..	..	..	..	..	..	..
Melæna	..	1	..	1	..	..	..	..	..	..
*Tympanites	..	1	..	1	..	..	..	..	..	..
*Obstruction (82)	3	..	1	..	..	..	2	..	..	..
Parasitic Disease—										
Tænia solium	1	..	1	..	..	..	..	..	..	..
Diarrhœa	2	7	2	5	..	1	..	1	..	..
Colic	3	1	3	1	..	..	..	..	..	..
Constipation (83)	4	13	4	13	..	..	..	..	..	..
Diarrhœa and Vomiting	1	..	1	..	..	..	..	..	..	..
DISEASES OF THE LIVER.										
Abscess	1	..	1	..	..	..	..	..	..	..
Cirrhosis (84)	20	11	5	5	2	2	10	3	3	1
Lardaceous Liver (85)	2	..	..	..	..	..	2	..	..	..
Parasitic Disease—										
Echinococcus hominis (86)	3	1	3	..	..	..	..	1	..	..
Jaundice (87)	15	12	11	10	2	1	2	..	..	1
Enlargement (88)	2	2	2	1	..	..	..	1	..	..
DISEASES OF THE HEPATIC DUCTS AND GALL BLADDER.										
Gall Stones (89)	7	3	6	3	1	..	..	..	..	..
DISEASES OF THE SPLEEN.										
Leucocythæmia	1	1	..	1	1	..	..	..	..	..
DISEASES OF THE PERITONEUM.										
Peritonitis (90)	6	4	4	3	..	..	1	..	1	1
*Ascites	..	5	..	4	..	1	..	..	..	..
Tumours (91)	2	6	2	..	..	4	..	1	..	1

DISEASES.	Total number of cases under treatment.		Discharged cured and relieved.		Unrelieved.		Died.		Remaining in at the end of the year 1877.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
DISEASES OF THE URINARY SYSTEM.										
DISEASES OF THE KIDNEY.										
Bright's Disease—										
1. Acute (92)	21	14	18	11	..	..	..	1	3	2
2. Chronic (93)	46	30	22	14	..	..	20	12	4	4
Pyelitis (94)	1	..	..	..	..	..	1	..	..	..
Calculus	3	1	1	1	1	..	..	..	1	..
*Hæmaturia renalis	3	1	3	1	..	..	..	..	..	..
*Suppression of Urine	..	1	..	1	..	..	..	..	..	..
*Diuresis (95)	2	1	1	1	1	..	..	..	..	..
DISEASES OF THE BLADDER.										
Cystitis	2	..	..	..	..	..	2	..	..	..
DISEASES OF THE GENERATIVE SYSTEM.										
DISEASES OF THE FEMALE ORGANS OF GENERATION IN THE UNIMPREGNATED STATE.										
DISEASES OF THE OVARY.										
Inflammation	..	6	..	4	..	1	..	..	..	1
Complex Cystic Tumour	..	1	..	..	..	..	..	..	..	1
DISEASES OF THE BROAD LIGAMENT.										
Inflammation—										
Pelvic Peritonitis..	..	6	..	3	..	..	..	..	..	3
Pelvic Cellulitis	..	12	..	9	..	1	..	..	..	2
Abscess (96)	..	4	..	2	..	..	..	1	..	1
Periuterine or Pelvic Hæmatocele (97)	..	22	..	20	..	..	..	2	..	..
DISEASES OF THE UTERUS, INCLUDING THE CERVIX.										
Inflammation (Chronic)	..	3	..	3	..	..	..	..	..	..
Granular Inflammation	..	3	..	3	..	..	..	..	..	..
Congestion	..	2	..	2	..	..	..	..	..	..
Stricture of the Orifice (98).. ..	..	3	..	3	..	..	..	..	..	..
Hypertrophy	..	1	..	..	..	..	..	..	..	1
Elongation of the Cervix ..	..	1	..	..	..	1	..	..	..	..

DISEASES.	Total number of cases under treatment.		Discharged cured and relieved.		Unrelieved.		Died.		Remaining in at the end of the year 1877.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
DISEASES OF THE FEMALE ORGANS OF GENERATION, &c. (*continued*).										
Non-Malignant Tumour—										
A. Fibrous Tumour (99)	..	18	..	4	..	13	..	..	..	1
B. Polypus (100)	..	11	..	10	..	..	..	1	..	..
DISPLACEMENTS AND DISTORTIONS.										
A. Anteversion	..	1	..	1	..	..	..	..	..	..
B. Retroversion (101)	..	8	..	7	..	1	..	..	..	..
C. Anteflexion	..	8	..	8	..	..	..	..	..	..
D. Retroflexion	..	6	..	4	..	2	..	..	..	..
E. Inversion (102)	..	1	..	1	..	..	..	..	..	..
F. Prolapsus	..	4	..	4	..	..	..	..	..	
Procidentia	..	1	..	1	..	..	..	..	..	..
DISEASES OF THE VAGINA.										
Catarrh (Leucorrhœa)	..	1	..	1	..	..	..	..	..	..
Inflammation	..	4	..	4	..	..	..	..	..	..
Vaginismus	..	1	..	1	..	..	..	..	..	..
Malformations—										
Impervious vagina (103)	..	1	..	..	..	1	..	..	..	..
DISEASES OF THE VULVA.										
Imperforate Hymen	..	1	..	1	..	..	..	..	..	..
Vascular Tumour of the Meatus Urinarius	..	2	..	2	..	..	..	..	..	..
Verrucæ	..	1	..	1	..	..	..	..	..	..
FUNCTIONAL DISEASES OF THE FEMALE ORGANS OF GENERATION.										
Amenorrhœa	..	1	..	1	..	..	..	..	..	..
Dysmenorrhœa	..	2	..	2	..	..	..	..	..	..
Menorrhagia (104)	..	2	..	2	..	..	..	..	..	..
*Hæmorrhage	..	3	..	3	..	..	..	..	..	..
AFFECTIONS CONNECTED WITH PREGNANCY.										
DISORDERS OF THE DIGESTIVE SYSTEM.										
Nausea and Vomiting	..	1	..	1	..	..	..	..	..	..
DISORDERS OF THE GENERATIVE SYSTEM.										
Hæmorrhage	..	4	..	3	..	..	..	1	..	..
Abortion (105)	..	3	..	3	..	..	..	..	..	..
Extrauterine Gestation	..	1	..	..	..	..	..	..	..	1

DISEASES.	Total number of cases under treatment.		Discharged cured and relieved.		Unrelieved.		Died.		Remaining in at the end of the year 1877.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
AFFECTIONS CONNECTED WITH PREGNANCY (*continued*).										
AFFECTIONS CONNECTED WITH PARTURITION.										
Retention of Part of the Ovum ..	..	7	..	7	..	..	..	..	..	..
AFFECTIONS CONSEQUENT ON PARTURITION.										
Subinvolution	..	13	..	12	..	1	..	..	..	..
DISEASES OF THE MUSCLES.										
Progressive Muscular Atrophy ..	2	2	1	1	1	..	..	..	1	..
DISEASES OF THE CUTANEOUS SYSTEM.										
Erythema—										
E. Læve	..	2	..	1	..	..	..	..	..	1
E. Nodosum	..	4	..	4	..	..	..	..	..	..
Urticaria	1	..	1	..	..	..	..	..	..	..
Psoriasis	2	3	2	3	..	..	..	..	..	..
Pemphigus	1	..	..	..	..	..	..	..	1	..
Eczema—										
E. Simplex	3	3	3	3	..	..	..	..	..	..
E. Rubrum	..	1	..	1	..	..	..	..	..	..
E. Exfoliativum	1	..	..	..	1	..	..	..	..	..
E. Chronicum	4	5	3	5	..	..	..	..	1	..
Impetigo	2	1	2	1	..	..	..	..	..	..
Xeroderma	..	1	..	..	..	1	..	..	..	..
PARASITIC DISEASE OF THE SKIN.										
Tinea Tonsurans	1	..	1	..	..	..	..	..	..	..
Scabies	..	2	..	2	..	..	..	..	..	..

DISEASES.	Total number of cases under treatment.		Discharged cured and relieved.		Unrelieved.		Died.		Remaining in at the end of the year 1877.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
CONDITIONS NOT NECESSARILY ASSOCIATED WITH GENERAL OR LOCAL DISEASES.										
Debility (106)	13	44	12	43	..	..	1	..	..	1
Pain	6	..	6	..	..	..	..	..	..	..
Malingering	2	..	2	..	..	..	..	..	..	..
Unknown (107)	7	9	..	..	..	..	1	..	6	9
Nil	1	2	1	2	..	..	..	..	..	..
POISONS.										
METALS AND THEIR SALTS.										
Mercury (108)	..	2	..	2	..	..	..	..	..	..
Lead (109)—										
Lead Colic	7	6	6	6	..	..	..	..	1	..
Lead Palsy	2	2	2	1	..	1	..	..	..	..
CAUSTIC ALKALIES.										
Ammonia (110)	1	..	1	..	..	..	..	..	..	..
METALLOIDS.										
Phosphorus (111)	1	1	1	1	..	..	..	..	..	..
ACIDS.										
Sulphuric Acid (112)	1	1	1	..	..	..	..	1	..	..
Nitric Acid (113)	..	1	..	1	..	..	..	..	..	..
Hydrochloric Acid (114)	1	..	1	..	..	..	..	..	..	..
Oxalic Acid (115)	..	1	..	1	..	..	..	..	..	..
Carbolic Acid (116)	1	..	1	..	..	..	..	..	..	..
VEGETABLE POISONS.										
Opium (117)	1	1	1	..	..	..	..	1	..	..
Alcohol (118)—										
Intoxication	18	2	16	2	..	..	2	..	..	..
Delirium tremens	21	4	21	3	..	..	..	..	..	1
Mania à potu	1	..	1	..	..	..	..	..	..	..
Belladonna (119)	..	1	..	1	..	..	..	..	..	..

ABSTRACT OF TABLE I.

DISEASES.	Total number of cases under treatment during the year.		Number of cases discharged cured and relieved.		Discharged unrelieved.		Died.		Remaining in the hospital at the end of the year 1877.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
General Diseases, A	157	109	117	78	4	1	**20**	**15**	16	15
Do. Do. B	230	269	143	184	20	31	**51**	**40**	16	14
Local Diseases—										
Diseases of the Nervous System	160	134	96	88	34	29	**24**	**9**	6	8
„ Circulatory System	105	73	58	48	8	2	**34**	**21**	5	2
„ Absorbent System	..	..	..	..	..	..	..	..	..	..
„ Ductless Glands	2	2	1	1	..	1	**1**	..	..	..
„ Respiratory System	225	118	167	79	11	2	**41**	**27**	6	10
„ Digestive System..	105	103	72	78	6	10	**21**	**10**	6	5
„ Urinary System	78	48	45	29	2	..	**23**	**13**	8	6
„ Female Organs of Generation ..	..	170	..	133	..	21	..	**5**	..	11
„ Muscular System	2	2	1	1	1	..	..	..	..	1
„ Cellular Tissue	..	..	..	..	..	..	..	..	..	..
„ Cutaneous System	15	22	12	20	1	1	..	..	2	1
Conditions not necessarily associated with General or Local Diseases	29	55	21	45	..	..	**2**	..	6	10
Poisons	55	22	52	18	..	1	**2**	**2**	1	1
	1164	1127	785	802	87	99	**219**	**142**	72	84
	2290		1587		186		**361**		156	
			1773							
			2290							

APPENDIX TO TABLE I.

NOTE.—*The references to "Reports" allude to St. Bartholomew's Hospital Reports*, 1877.

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1. *Small-pox.*—Four cases were removed to Small-pox Hospitals. The fatal case was that of a man aged 21, who was admitted in a hæmorrhagic condition, obscuring the specific nature of the disease. There was hæmorrhage from every surface of the body; marks of Syphilis, and good vaccination marks were found. The cutaneous affection was very indefinite, almost every sort of rash—papule, vesicle, pustule, ecchymosis, &c.—co-existing. The highest temperature reached was 103°. Post mortem—hæmorrhages under the skin and conjunctivæ were noted, but none under the Pleura or Pericardium; some under the Endocardium. In the left Lung was an infarct; the Spleen was large and firm, like an amyloid Spleen, but not stained by iodine. No ecchymoses in the Stomach; the Liver fatty; Kidneys hæmorrhagic, clots in the Ureters.

2. *Measles.*—Among the complications were the following:—Left Pleurisy; Hooping Cough followed by Catarrhal Pneumonia in one; Catarrhal Pneumonia in one; Strumous Ophthalmia in one. One case was thought to be German Measles; the boy, æt. 5, had a sore throat, but no coryza or lacrymation; another was said to have Measles for the second time.

One of the fatal cases was complicated with Bronchitis.

3. *Scarlet Fever.*—One woman, æt. 30, was said to have the disease for the second time. One patient had left Pneumonia; one caught it in the Hospital; one had sloughing of the tissues of the cheek. One boy, æt. 3, possessed six fingers on each hand, and six toes on each foot—four and twenty in number; the four inner toes and the five inner fingers being webbed.

In one of the fatal cases there was Emphysema of both Lungs, with swelling of Peyer's patches and the mesenteric glands; the patient was a boy aged 2. In another fatal case—a boy aged 3—the glands of the neck sloughed.

One case of doubtful Scarlet Fever was complicated with perforating ulcer of the sclerotic. A rash on the skin presented in some parts the appearance of Impetigo, in other parts that of Pemphigus. Some of these ulcers were very large—one an inch in diameter, and one on a finger laid bare the flexor tendon. The child was one of ten children, all in ill-health; one of them was said to be in the same condition as the child in the Hospital, who presented all the signs of privation. Three ulcers formed on the sclerotic, perforating it, one on the cornea. The irritation threatening to extend to the right eye, the left was removed. Reports, p. 279.

4. *Sequelæ of Scarlet Fever.*—In one case of Scarlatinal Nephritis, a boy aged 5, there was Pleurisy of the right side, and also convulsions. One case included

under this head was that of a boy aged 4, in whom there was complete deafness coming on after acute illness (presumably Scarlet Fever), with loss of speech, but the general health was good. No relief was obtained. One fatal case of Scarlatinal Nephritis, in a boy aged 6, was complicated by Phthisis and an abscess in the thigh.

5. *Typhus* in one case was caught in the Hospital. The patient, a man aged 21, recovered.

6. *Enteric Fever.*—A nurse in the Fever Wards caught it in the Hospital. One patient, a woman aged 24, had right Hemiplegia and Periostitis of both Tibiæ; the abscesses were opened early. Two cases came from Compton Buildings, Goswell Road. One man, who came from Coburg Street, Clerkenwell, stated that two of his sisters were ill of the same complaint in the house. A girl living in Coldbath Square, Clerkenwell, had a brother ill of the same complaint in the house. Two brothers, aged 10 and 12, were in the Hospital together, coming from Citizen Road, Holloway.

No less than seven cases in the same family occurred at 4, Tyssen Street, Bethnal Green Road. Of these, five were admitted into the Hospital, their ages ranging from 16 to 6. Two died and three recovered. One of the deaths was sudden, and no adequate reason for its suddenness could be found.

Three fatal cases had Peritonitis, one with perforation. One patient who died was a private nurse, and had been nursing a case of Typhoid; another, a nurse in the Hospital, had ulcerations of the vagina.

The cases were thus distributed with regard to time:—In January, 1877, there were admitted 7 cases—of these, 6 recovered and 1 died; in February, there were admitted 2 cases, which recovered; in March there were admitted 2 cases, which recovered; in April, 1 case was admitted, which died; in May, 2 cases, which recovered; in June, 2 cases, which recovered; in July, 2 cases, 1 recovered, 1 died; in August, 4 cases, 3 recovered, 1 died; in September, 6 cases, which recovered; in October, 20 cases, 6 died, 14 recovered; in November, 11 cases, 10 recovered, 1 died.

In October the disease was not only most prevalent, therefore, but most fatal in proportion to the number of cases attacked.

7. *Sequelæ of Enteric Fever.*—One was a case of acute Bronchitis, one of stiffness of the limbs.

8. *Simple Continued Fever.*—The nature of one case was very doubtful; the fever had lasted one month on admission, and resulted in consolidation of the lower lobe of the right Lung. The patient, a boy aged 13, recovered.

9. *Ague.*—One patient had worked at Plaistow Marshes and in the Commercial Docks; two had been at Sittingbourne in Kent; two had lived at Dartford; one had been harvesting at Sheppey Island; one had been harvesting in Essex, where a good many had Ague; one had been in Constantinople.

One began as a tertian, and then became double tertian. One began as tertian, and became quotidian—it was described by the patient as "dead ague;" there were no shiverings.

10. *Diphtheria.*—One case was caught in the Hospital. In one fatal case Tracheotomy had been performed.

11. *Hooping Cough.*—Two brothers, aged 3 and 6, had Measles and Catarrhal Pneumonia intercurrently.

12. *Erysipelas.*—Two cases were Hospital nurses. Of other cases, one followed coryza; one was accompanied by Delirium tremens.

13. *Pyæmia.*—One fatal case was that of a man aged 41, alluded to in the Report of last year (Statistical Tables, p. 14), who died three days after re-admission. It was found, as was expected, that the inferior vena cava was obstructed; there was also a calculus in each kidney. One case resulted from retention of part of the ovum after abortion. In another similar case right Hemiplegia came on, and was followed by Gangrene of the left leg, the Heart apparently natural. Post mortem, an abscess was found in the right Kidney, but no infarcts. In another case, miscarriage and Pyæmia followed paracentesis of an ovarian tumour. In another, Pyæmia resulted from vesicular mole. Post mortem, left Pleurisy was found, with effusion of nearly clear fluid; abscesses in both Lungs. A little lymph on the surface of the right Lung; no effusion. In the Uterus a mass as large as a cricket-ball attached to the cervical zone—fibrinous, yellowish-red, coarsely granular. The patient was aged 43.

14. *Acute Rheumatism.*—The number of first attacks was 89, ages from 10 to 52. Of these the Heart was affected in 35, ages from 10 to 52. Of these 3 were post partum; 11 had Pericarditis, and of these 3 were complicated with Endocarditis, 3 with Pneumonia. One was recorded as a case of Myo- and Endocarditis with Hæmoptysis, and 1 had Chorea.

The number of second attacks was 41, ages from 10 to 63. Of these the Heart was affected in 20, ages from 10 to 32. Of these 4 had Pericarditis: 1 complicated with double Pleuropneumonia; 1 recorded as a case of Peri-, Myo- and Endocarditis; 1 with double Pneumonia and right Pleurisy; 1 with left Pleuropneumonia. One of the second attacks had Albuminuria.

The number of third attacks was 19, ages from 15 to 46. Of these the Heart was affected in 13, ages from 15 to 46; and of these 5 had Pericarditis, 4 having also Endocarditis, the list in complications in one case (a boy of 16 who recovered) including Peri- and Endocarditis, double Pneumonia, and right Pleurisy. One case had acute Nephritis, 1 had Jaundice, and 1 Ophthalmia.

The number of fourth attacks was 5, ages from 19 to 39. Of these the Heart was affected in 2: 1 having Pericarditis with left Pleurisy, another case attacked for the fourth time had left Pneumonia.

One case was attacked for the fifth time, age 25; and had the aortic and mitral valves affected. Two cases were attacked for the sixth time, ages 26 and 27; and 1 had acute Bronchitis. Two were attacked for the seventh time, ages 31 and 40; in both of which the Heart was affected. One man, aged 42, asserted that this was his twentieth attack.

In both the fatal cases the Heart was affected, one having Pericarditis.

15. *Subacute Rheumatism.*—In 5 cases the Heart was affected.

16. *Acute Gout.*—One had Albuminuria.

17. *Chronic Gout.*—Two had Albuminuria.

18. *Chronic Osteo-arthritis.*—In one woman, aged 68, accompanied by cerebral softening.

19. *Cancer of Lymphatic Glands.*—Affecting also the left Lung.

20. *Cancer of Mediastinum*, affecting the mediastinal glands, the left Lung, Liver, Dura Mater, left Clavicle, Sternum (penetrating it), and the Ribs. The patient was a baker, aged 35. There was double Pleurisy; the dorsal Vertibræ

were affected; the glands pressed on the left Auricle and left Pulmonary Artery. There were hœmorrhagic infarcts in the right Lung, a huge cavity in the left Lung, which was solid. There were no deposits below the Diaphragm.

21. *Cancer of Abdomen.*—These cases involved the Abdominal contents generally. In one fatal case the right ovary was involved, the left presenting the usual cystic appearance.

22. *Cancer of Stomach.*—In one case involving the Œsophagus and Liver, in others no secondary deposits.

23. *Cancer of Liver.*—In one fatal case the disease affected the papilla duodenalis. There was Jaundice; the largest mass in the Liver was the size of an orange; in the Pancreas were irregular cavities containing creamy fluid.

In one case recorded in the Reports, p. 160, the disease seemed to be primary. The illness began four months before death with Jaundice, which came on gradually; the belly began to swell a month later. There was never vomiting, Hæmatemesis, or Melæna, nor any pain. Death took place from exhaustion, in spite of a good appetite.

P.M.—The Liver weighed 9½ pounds. Capsule rough, covered with small spots—yellowish, white, and opaque—in size from a pin's point to a pea; also larger prominences, from the size of a pea to that of an apple, larger in the right lobe. On section all bold dark-green pulpy matter, in a thick, almost cartilaginous capsule, out of which the pulp can be washed; the cysts have no opening. The microscopical examination will be found at length at p. 163 of the Reports. On the whole the case seemed to be one of melanotic cancer of an unusual variety.

24. *Cancer of Intestines.*—In three out of the four fatal cases the sigmoid flexure was involved. In one there was Peritonitis, an abscess in the left Iliac fossa, communicating with the Intestine. In another the Intestine was gangrenous, the Intestine was perforated, and there was Peritonitis; there was also Pyelitis of the right Kidney. In another, which began clinically as a round hard mass between the Uterus and Bladder, fæces were eventually passed through the Bladder, and the post mortem examination showed the sigmoid flexure, Bladder, Uterus, both Ovaries, Liver, and right Kidney to be involved. There was also double Phthisis, the Bronchial glands being involved, and purulent Peritonitis. The temperature curve was remarkable. On October 23rd it was 100°; on 24th, 100°; 25th, 101·5°; 26th, 99°; 27th, 97·4; 28th, 96° *m* and 60·0° *ev.* (this was tested with two thermometers); 29th, 97·2; 30th, 98·4; 31st, 97°, when death occurred.

25. *Cancer of Kidney.*—In one the left, in the other the right Kidney was affected. One case occurred in a girl aged 8, the other in a woman aged 58.

26. *Cancer of Uterus.*—In one fatal case of a woman aged 48, the Peritoneum, both Ovaries, Spleen, Liver, Pancreas, Mesenteric and lumbar glands, and right Pleura were affected. There was also a large ulcer of the Rectum, and a cancerous obstruction had dilated the right Ureter and Pelvis of the right Kidney.

27. *Cancer of Bone.*—In one fatal case, a man aged 25, the Ribs and Sternum were affected; in another, a woman aged 32, the lumbar vertebræ were the part affected. The following are short notes of the post mortem examination:—A small growth from the bodies of the lower cervical vertebræ, very soft, whitish-red. A tumour, the size of two fists, growing from the upper lumbar vertebræ, tumours in both Kidneys, three small calculi in the pelvis of the right Kidney, several Polypi in the Bladder; a growth affected one of the left ribs. Death resulted from pressure on the spinal cord, cystilis, and Pyelitis calculosa.

28. *Tubercular Meningitis.*—In one fatal case the following organs were also affected:—The right Pleura, both Lungs, especially at the apices; in the right apex was a caseous mass as large as a pea, and near it was a small cavity. The Bronchial glands were caseous, and on the Liver and Spleen were a few tubercles.

In another case the right Pleura was tuberculous, and a few tubercles were found on the surface of the Liver.

Another case occurred in a boy of 14, after amputation of the thigh. The right Pleura, both Lungs, Liver, both Kidneys were affected.

A girl of 15 was admitted with an abdominal tumour, which discharged from the navel. She left the Hospital, but returned 11 months later with Hemiplegia and Hemianasthasia, coma and Dysphagia. After death the abscess discharging at the navel was found to be situated among the Intestines. Tubercles were found at the right apex, beneath an old cicatrix, in the intestinal adhesions, and round the Rectum. There were abscesses in the Pelvis opening into the Rectum, round the left Ovary, and Uterus.

29. *Phthisis Pulmonalis.*—Of the cases which were discharged the right side was affected in 24; the left in 22; both sides in 15. One case followed Diabetes; in one intercurrent Pneumonia followed; in one there was tubercular disease of the Rectum; in one Fistula in Ano.

Of the fatal cases, the right side was affected in 3, the left in 6, both sides in 18. In 2 cases there was albuminuria; in 1 there was left Pneumothorax, ulcerated Intestines, and contracted Kidneys; in 1 there was Psoas abscess; in 1 an amyloid Liver; in 1 Cirrhosis of the Liver; in 1 double Pleurisy; in 1 (a man aged 54) two bony plates were found in the Dura Mater; in a woman aged 23 there were amyloid Spleen, Liver, and Kidneys, an abscess behind the Uterus; in another there was amyloid disease of the small Intestines, Stomach, Liver, Kidneys, supra-renal bodies, and warty growths in the Bladder. In one girl, aged 15, a tumour the size of a pea was found at the floor of the fourth ventricle, softened in the middle, Pyopneumothorax on the left side, the upper left lobe broken down into an irregular cavity, and all around caseous masses. Peyer's patches were ulcerated.

30. *Acute Miliary Tuberculosis.*—In a girl aged 5, who died, cheesy masses were found on the vault of the Brain (one in connection with the Pacchionian bodies) in the fissure near the corpus callosum, in the left of the corpora quadrigemina and left side of the cerebellum, mostly the size of a pea. The bronchial glands were also affected; there was a cavity in the left apex the size of a large walnut, another in the right apex the size of a nut. The Spleen was affected; in the Intestine nearly every one of Peyer's patches was ulcerated, but no ulcers were found in the Colon. The portal glands were cheesy, the Liver was tuberculous, the right supra-renal body presented an appearance much like Addison's disease. There was a Psoas abscess springing from the lumbar vertebræ.

31. *Tubercular Peritonitis.*—In one case, a girl aged 11, who was discharged, there were signs of tubercle in the left Lung. In one fatal case there was double Pleurisy.

32. *Tuberculosis of Kidneys.*—In one fatal case the Bladder was affected, in one there was spinal curvature.

33. *Rickets.*—In one fatal case, a child aged 12 months, there were ecchymoses on both Pleuræ and the Pericardium; the Lungs were collapsed in parts. The Spleen weighed 8¼ ounces; tissue pale, firm, translucent, not amyloid. The Liver weighed 19 ounces, and gave amyloid reaction.

34. *Diabetes.*—In one case which was discharged, there was aphasia; in one the teeth became carious and the sight dim.

In 5 fatal cases, all in males, there was Phthisis. In one of these cataract formed in both eyes. In one case left Pneumonia; in another Rheumatic Fever.

35. *Hæmorrhagic Purpura.*—The following are short notes of one rapidly fatal case, which appeared to be due to blood-poisoning. The patient was a boy aged 11. Ecchymoses on all the limbs; raised pale red patches with everted edges over the limbs—some suppurated, others burst—of all sizes up to a walnut. A tough, whitish-brown membrane on the mouth, pharynx, and even below the vocal chords. Ecchymoses on both Pleuræ, Pericardium on all the valves except the pulmonary. Lobular Pneumonia at the right base, Hæmorrhages on both Lungs; Spleen and Intestines natural; Liver amyloid; Ecchymoses on both Kidneys.

In one case which recovered, the bleeding followed the extraction of a tooth. In another the extraction of a tooth was followed by purple spots on the legs, arms, and shoulders, and the roof of the mouth was swollen. A brother passes blood with fæces and urine.

36. *Meningitis Simplex.*—In one fatal case the Meningitis was basal—round the optic commissure and sylvian fissure; no tubercle. A small scar was found on the scalp, above the right ear. The superficial veins congested. In another fatal case the left convexity was covered with coagulated lymph, the Pia Mater everywhere infiltrated; no tubercle. Pleuro-pneumonia of the right Lung. No injury was found to the skull. In another fatal case the disease had included the spinal cord, pus was found on the spinal cord, in the dorsal region, and on the Cerebellum. The grey matter of the cord was confused.

37. *Softening.*—In the fatal case the disease had attacked the left corpus striatum.

38. *Abscess in the Brain.*—In the Cerebellum.

39. *Apoplexy.*—One patient, a woman aged 62, was found in a carriage at Ludgate Hill Station. She was brought into the Hospital able to stand; talked incoherently, but could answer questions. She became comatose, with Aphasia and right Hemiplegia, which improved.

Of fatal cases the following are short notes:—In two cases the Hæmorrhage took place into the left Optic Thalamus. In one of them an old Hæmorrhage was found in the left corpus striatum, and right Optic Thalamus; there was atheroma of the Arteries, Hypertrophy of the left ventricle, and granular Kidneys. In two cases the Hæmorrhage occurred into the Pons Varolii, in one case after Bright's disease. In one case, a woman, aged 72, the Hæmorrhage occurred from an Aneurism of the right posterior communicating artery.

In two cases recorded in the *Medical Times and Gazette* for December 8, 1877, the Hæmorrhage took place into the Pons Varolii; in both the pupils were contracted. In one of these cases the blood disorganised the right crus cerebri, and extended into the fourth ventricle. In the other, the Hæmorrhage took place from rupture of an Aneurism of the Basilar artery, about the size of half a pea. In this case, besides other things, the Pericardium was universally adherent.

40. *Chronic Hydrocephalus.*—In two fatal cases intra-ventricular. In one intra- and extra-ventricular; general softening.

41. *Tumour of Brain.*—In one case in the Corpora striata; in another growing from the Sella turcica and basilar bone (Sarcoma). In another a tumour the size of a walnut was easily shelled out from the cortex of the right Hemisphere near the summit; on the opposite side were two smaller tumours, and another in the velum interpositum, also in the lower part of the Pons Varolii and upper part of the Medulla oblongata. They presented the appearance of Gliomata.

42. *Cerebral Affection.*—A man, aged 22, died comatose. No autopsy was held.

43. *Myelitis.*—In one case, not fatal; the disease appeared to be ascending.

One fatal case was noteworthy. A boy, aged 11, had been in the Hospital with Pleurisy, and was discharged relieved. In a short time he returned paraplegic, and died with symptoms of acute Myelitis, among others "Decubitus acutus."

44. *Hemiplegia.*—Of the not-fatal cases the right side was affected in 15, the left in 16. Of those in which the right side was affected, speech was affected in 9; of those in which the left was affected, 4. In 4 cases there was a Heart murmur: in 2 aortic, in 1 double mitral, with aortic diastolic. In 2 cases Hemiplegia followed injury to the head; in 1 a fall on the right brow. In 2 cases the affection was partial; in 3 cases it followed a fit. In 2 cases Syphilis was probable: in 1 one of these the right rectus oculi externus muscle was paralysed. In 1 case it followed cerebral Hæmorrhage; in 2 cases there was Albuminuria; in 1 case the Hemiplegia was intermitting; in 1 Imbecility supervened.

In one of the fatal cases Hemiplegia followed a fit, and was due to Embolism; in the other Hæmorrhage occurred in the right lateral ventricle, there was Hypertrophy of the right ventricle of the Heart, and general atheroma, especially of the cerebral arteries.

45. *Paraplegia.*—In 3 cases hysterical, in 4 cases partial. One of these followed Syphilis, another followed Delirium tremens; another case also was syphilitic.

46. *Locomotor Ataxy.*—One case syphilitic, with loss of power, especially in the right leg, and of speech; in another case ataxia of speech and of the muscles of the right arm.

47. *Other Paralyses.*—This includes the following cases:—Duchenne's paralysis; Bell's paralysis; tremor and loss of co-ordination of all the limbs, and of speech; paralysis of all the limbs in 4; paralysis of nerve to Levator palpebræ on the right side; paralysis of right hand after a fall; paralysis of right arm; loss of power in right leg; loss of power in right leg, ptosis of right eye-lid, diplopia; paralysis of left arm and leg; loss of power in left arm; partial loss of power with rigidity of left leg; loss of power in left arm and leg.

48. *Epilepsy.*—In one case, history of potus; in one case Gout; in one case optic neuritis, blindness, and strabismus of the right eye. One of the fatal cases came on 6 months after a fall; death occurred after 261 fits. In the other fatal case the anterior lobes of the brain were atrophied; the cerebral arteries were tortuous and varicose.

49. *Spasm of Muscles.* — Contraction of the muscles of the leg and foot after fits.

50. *Chorea.*—In 5 cases the complexion was light, in 6 dark blonde, in 4 dark, in 1 very dark, in 1 red. In 7 cases there was a history of Rheumatism; in 3 of these the Heart was affected. In 7 other cases there was a Heart murmur. In 6 cases there was a history of fright—1 after being locked in a dark cupboard, 1 after a fright and a blow on the head. This case had a systolic murmur at the apex. In 1 case the movements persisted during sleep; in 1 the movements were so violent as to dislocate the left clavicle. In another, in which there was a history of Rheumatism, and also of fright, first the right side was affected, then the left, then both sides; and the legs were affected before the arms. Two cases were unilateral; 1 followed Epilepsy.

There were 13 first attacks, but 2 of these had lasted two years. One came on at the second month of pregnancy. In this there was a history of fright, and the

mind was also affected. In another the left side was the more affected; in 1 the onset was very sudden.

There were 5 second attacks; 1 a case of probable pregnancy, 1 after fits following a blow on the temple.

There was 1 third attack, and 1 sixth attack coming on at the second month of pregnancy after a fright.

The cases of pregnancy were thus 3.

51. *Hysteria.*—One case presented some of the features of disseminated sclerosis; 1 had Dysuria; in 1 the right leg was contracted, a condition which disappeared on the threat of amputation.

52. *Obscure Nerve Disorder.*—One, a case of Cervical Opisthotonos in a child 9 months old, during teething; 1 of Anæsthesia of the legs; 1 of Agraphia and Aphasia; 1 of loss of power with clonic movements of the head and right arm. One case of Spasmodic Rigidity with Epilepsy is described in the Reports, p. 275. The patient was a girl, aged 3. The rigidity attacked various groups of muscles, sometimes being hemiplegic, and being exceedingly multiform. On making the child try to stand rigid, extension of the legs, with a tendency to cross was observed. The phases lasted some quarter of an hour, and the interval between them varied from half a minute to a quarter of an hour. In the intervals all the muscles were quite flaccid, as also during sleep and under chloroform. To the induced current they acted normally. No signs of Syphilis or Rickets. The child seemed to hear, but not to understand. Up to the age of 9 months she seemed to be a fine child; at this age the rigidity was first noticed. She had a fit at 11 months, and had fits till all her teeth were cut. The mother's father was epileptic. The muscles of the eyeballs, of expression, and the depressors of the lower jaw, were under control, as is not uncommon.

53. *Dementia.*—With Chorea.

54. *Pericarditis.*—Of the cases which were not fatal, 2 were Rheumatic, 1 had also left Pleurisy; 1 supervened on Nephritis, and was complicated with left Pleuro-pneumonia; 1 with Endocarditis.

Of the fatal cases 1 had also left Pleurisy; 1 had also chronic Nephritis. In this the Spleen was enlarged, the capsule was thickened, and contained a bony plate. One was a case of Pyo-pericarditis and double Empyema. The patient was a boy aged 19. Both Empyemata were encysted, the left being apparently the older, and containing cheesy masses in its wall. The Pericardium held 20 ounces of pus, and large masses of solid exudation. No Endocarditis, but fatty degeneration of the Heart-muscle beneath the Pericardium. Pneumonia of the right apex; Spleen large and white.

55. *Valve Disease.—Aortic.*—Of the cases not fatal, the murmur was regurgitant in 8; double in 6. One case was complicated with Pleurisy. One man, who left the Hospital at his own request, dropped dead in the street the next day.

Of the fatal cases, in 1 sudden death occurred the day of admission, no adequate cause being found in the cardiac disease. One case had also an aneurism of the septum ventriculorum, as large as a pea, just below the aortic valves; also double Pleurisy. In another fatal case there was Pleurisy; in another, right Pleurisy with dilatation of the Aorta and granular Kidneys; in another Purpura.

Mitral.—Of the cases not fatal, the diagnosis of incompetence was made in 7; of stenosis in 8, with the following complications:—Loss of power in left arm; left Hemiplegia, with Phthisis of the left Lung; right Hemiplegia, Aphasia, and Epistaxis; Phthisis, with an ovarian cyst. The murmur was double in 5, in 1 of which it was probably congenital; this case had left Pneumonia. Another case had Pleurisy ofthe right side.

Of the fatal cases, in 8 the valve was constricted. One patient, an Australian bushman, made several attempts at suicide—once by hanging, and once by dividing his radial artery with a piece of potsherd.

Complicated.—In all the cases not fatal the valves affected appeared to be the aortic and mitral. One of them had right Hemiplegia, with affection of the speech; in 1 occasional dragging of the right leg was noticed, then Aphasia (at first temporary), then right Hemiplegia with Aphasia; in 1 there was recent Pericarditis.

Of the fatal cases, in 5 the aortic and mitral valves were affected. In 1 of these the Pericardium was adherent; in 1 there was double pleural effusion; in 1 Albuminuria; in 1 Epistaxis, lasting 22 hours, followed by anæmic convulsions; 1 case of dilatation of mitral and tricuspid orifices, admitting the whole hand; 1 case of mitral constriction, with Endocarditis of the pulmonary valves; 2 cases of aortic mitral and tricuspid disease; 1 of aortic mitral tricuspid, and pulmonary disease, viz., tricuspid stenosis, pulmonary atheroma, mitral stenosis and aortic atheroma, with pulmonary infarcts.

56. *Dilatation.*—One case not fatal had probably adherent Pericardium. The fatal case had an adherent Pericardium; the Heart was fatty, the left Kidney and Ureter were absent, and the aortic and mitral valves were dilated.

57. *Fibroid Degeneration.*—This interesting case gave the following post mortem appearances:—In each Pleura 2 pints of clear fluid. On the Pericardium, near the apex of the left ventricle, a raised white patch. The Heart large, the left side dilated, tricuspid and mitral orifices dilated. The wall of the left ventricle, from the apex along the junction of the septum and anterior surface of the Heart, was covered with ante mortem clot. The Endocardium here, both on the septum and wall of the ventricle, was thick and opaque, and beneath, the tissue was rough, showing irregular white fibrous strings; the Aorta was calcified, the Liver small and nutmeg.

58. *Aneurism of Heart.*—In this case there was right Pleurisy, tubercle at the base of the right Lung, and at the upper lobe of the left. There were three aneurisms of the Heart; two near the apex of the left ventricle as large as a walnut, one springing from the left ventricle, near the septum, as large as a marble. There were several ulcers in the large Intestine.

59. *Angina Pectoris.*—One in a case of double aortic murmur.

60. *Aneurism of Aorta.*—One case was relieved by repeated bleeding.

Of the fatal cases one was complicated with Pericarditis.

The occupations of the subjects of Aneurism were as follows:—Bricklayer, cabman, cheesemonger, farrier, goldbeater, 2 labourers, painter, publican, shoemaker, stableman, stevedore, tailor, telegraph engineer, warehouseman.

61. *Phlegmasia Dolens.*—Of the right leg, post partum.

62. *Obstruction of Veins.*—Of the cases not fatal, in one the left femoral vein was obstructed post partum. In another the left femoral vein was obstructed after a continued fever with diarrhœa.

The fatal case involved the vena cava inferior and both common Iliacs. Gangrene of the foot resulted. This case was also post partum.

63. *Addison's Disease.*—The fatal case in a man aged 33 was complicated with Diphtheria. Both Pleuræ were obliterated; there was purulent Pericarditis. The supra-renal bodies were thick and firm, the connective tissue round them very thick.

The nerves entered this tissue without much change; round them were many small abscesses. In the right body all trace of the natural structure was lost, and it was hard to say where connective tissue began and capsule ended; it was riddled with abscesses.

64. *Croup.*—In 3 cases Tracheotomy was performed: 2 died, 1 recovered. One case which died survived 10 days; the other was complicated with Pleurisy and Peritonitis.

65. *Laryngitis Acute.*—One case, which recovered, was complicated with consolidation of the left Lung, two others were followed by measles.

66. *Laryngitis Chronic.*—The fatal case was complicated with chronic Nephritis and Phthisis.

67. *Bronchitis Acute.*— Complicated in one case with Laryngitis, in another with Tubercle of the right apex. One was a case of acute Bronchitis supervening on Emphysema and a dilated Heart.

68. *Bronchitis Chronic.*—Complicated in 3 cases with Albuminuria; in 1 with Pneumonia of the left base; in another with Pleuropneumonia of the left base; in 2 with Phthisis; in 4 with Morbus Cordis (1 a dilated Heart, 2 a mitral murmur—1 with Albuminuria, 1 aortic); 1 with Gout; 1 with Asthma.

Of the fatal cases, 2 had Nephritis, 1 had Phthisis, 1 Pneumonia, 1 mitral disease.

69. *Pneumonia.*—Of cases not fatal, the right side was affected in 24, the left in 18; both sides in 2. The right apex was affected in 2; both apices in 1. One was complicated with Thrombosis of the veins of the left leg, 1 with acute Nephritis, 1 with Delirium tremens.

Of the fatal cases the right side was affected in 9, the left in 4; both sides in 4. Three cases were complicated with Nephritis; 1 had a cavity at the left apex, with Pleurisy on the right side; 1 had old Phthisis of both Lungs; 1 had an abscess in and around the right ovary; 1 was tuberculous; in 1 case of left Pneumonia there was collapse of the right Lung.

70. *Pleuropneumonia.*—Of cases not fatal, the right side was affected in 9 cases, the left in 15; both sides in 2. In 1 the right apex was the part affected; 1 was complicated with mitral disease; 1 ensued on an attempt at suicide by drowning; 1 was complicated with Pericarditis, Endocarditis, and acute Nephritis.

Of the fatal cases, the right side was affected in 3, the left side in none; both sides in 2. One of these latter was complicated with Pericarditis, 1 with chronic Nephritis.

71. *Abscess of Lung.*—Circumscribed abscess communicating with the base of the Lung, in a man aged 38.

72. *Gangrene of Lung.*—One case, not fatal, was complicated with aortic regurgitation. The man had been in the Hospital previously.

The fatal case affected the right side; the fifth right rib was necrosed, and the right Pleura was a putrid air-containing cavity.

73. *Cirrhosis of Lung.*—In one case, not fatal, the left apex and right base were affected; in another both apices posteriorly.

74. *Emphysema.* — In one case chronic Phthsis of both apices, in another Albuminuria.

75. *Pleurisy.*—Of cases not fatal, the right side was affected in 19, the left in 19. One case was circumscribed, 1 was without effusion, 1 was complicated with mitral disease, 1 with Pericarditis, 1 with acute Nephritis.

Of the fatal cases, 1 was complicated with Cirrhosis of the Liver and a tumour of the Pancreas; 1 case of double Pleurisy had also left Pneumonia and Pericarditis. In 1 case which began as right-sided Pleurisy there were eventually right Pyo-pneumothorax, left Pleurisy, Pericarditis, cavities in the right Lung, small cavities and tubercle in the left Lung, amyloid Spleen, tuberculous ulceration of the Intestines with doubtful amyloid reaction, and tubercles in both Kidneys.

76. *Chronic Pleurisy.*—In 2 cases with Phthisis, in 1 on the opposite side.

77. *Empyema.*—Of cases not fatal, the right side was affected in 6, the left in 4. One was circumscribed; 1 opened behind under the Scapula; 1 discharged through a bronchial tube; 1 case was treated by India-rubber uterine stems as drainage tubes, with good results. An account will be found in the *Lancet* for October 20, 1877, p. 569.

Of the fatal cases, the right side was affected in 2 cases, the left in 2; both sides in 1. One was complicated with Pleurisy on the opposite side, and Pericarditis; 1 case of encysted left Empyema was complicated with right Pneumonia; 1 case was complicated with Pericarditis. One man who came into the Hospital with left Empyema, had left Pyo-pneumo-thorax, Pleurisy of the right side, and Pericarditis.

78. *Enteritis.*—One fatal case was complicated with abscess of the Liver. The disease had its seat in the large Intestine, where the follicles were ulcerated, the ulcers being largest in the Cæcum and Rectum. There were several abscesses in the Liver, the largest the size of a small apple. The ulcers were not dysenteric in character. Clinically the case in many respects resembled Typhoid. Reports, p. 207.

79. *Typhlitis.*—Of the fatal cases one was complicated with Peritonitis, 1 with abscess of the Liver. There were two ulcers, each opposite an abscess—one in the cæcum, one about the middle of the descending colon; no enlargement of the mesenteric glands; no ulcers in small Intestine; slight general Peritonitis. Several abscesses in the Liver. The highest temperature reached was 103·5°. There was double Pleurisy. This case much resembled the last described. A full account will be found in the Reports, p. 211.

80. *Dysentery.*—In one case, not fatal, there was aortic disease, with left Pleurisy.

81. *Ulceration of Intestine.*—In 1 case, not fatal, the Duodenum was the part affected; in the fatal case the Ileum; there were also acute Nephritis and Peritonitis.

82. *Intestinal Obstruction.*—In 1 fatal case the strangulation was caused by a diverticulum. In another case (a man aged 50), it was due to a congenital malformation of the Peritoneum. The following are the notes:—Covering the small Intestine is a sort of bag, quite distinct from the Omentum, attached above to the transverse Colon and Stomach, on the right to the Duodenum and ascending Colon; to the left it turns under the bowels, and becomes attached to the Mesentery, forming a sac which is complete save at a point above the left side of the Sacrum, where is an opening the size of the palm of a man's hand, through which one or two

coils of Intestine have escaped; they are not nipped. On pulling up the lower border of the bag from the Pelvis, it brings with it a body the size of two fists, which completely filled the Pelvis, and which looked at first sight like a tumour. It turned out to be a sac filled with dilated Intestine. This sac had pressed on the Rectum, and made it flat like a band; the Bladder was also pressed against the Pubes; all projecting parts in the pelvis were pale, the sunken parts red. The large Intestine was not dilated, but the small Intestines were, and the Peritoneal coat was injected in lines along the point of junction. The mucous membrane of the Intestine showed no change, save two small scars on the transverse Colon close to each other.

83. *Constipation.*—In one case with retention of urine; in another, apparently due to congenital obstruction.

84. *Cirrhosis of Liver.*—In one case, not fatal, there was also Cirrhosis of the Kidneys, Pleuropneumonia of the left side, and Albuminuria; in another Epilepsy; in another Cirrhosis of the Kidneys.

Of the fatal cases, in 3 the Kidneys were also cirrhotic: in 1 with a fatty heart; in another with left Pleurisy and Hypertrophied Heart; in another with chronic Peritonitis. In another fatal case there was aortic and mitral disease with splenic infarcts; in another, tubercle in the left Lung; in another, there was dilatation of the tricuspid and mitral valves, the aortic valves being fused together; in another, there was chronic Peritonitis and double Pleurisy, the right Lung was caseous, with one cavity at the base. In another, a woman of 55, there was Erysipelas of the face, and also double Pleurisy and Peritonitis. The Liver was singularly deformed, the surface very irregular, with large bosses of Liver tissue. On section, bands of connective tissue were seen crossing it; in other places it was cirrhotic. Close to the vena cava was an hydatid cyst, the size of a large walnut. The Pharynx was ulcerated. Was the Liver syphilitic?

Two other cases are recorded in the Reports: one in a boy, aged 12, in whom there were symptoms resembling Enteric Fever, or Tuberculosis, p. 149; the other, described as a case of Hypertrophic Cirrhosis, in a boy aged 2, p. 221.

85. *Lardaceous Liver.*—In both fatal cases, secondary to chronic bone disease. Both were boys, aged 16. In one there had been caries of the Spine, with lumbar abscess; in this case Liver and Spleen were lardaceous. In the other there had been Hip disease; in this the Liver and Kidneys were lardaceous.

86. *Parasitic Disease* (*Echinococcus Hominis*).—In the 3 cases, not fatal, relief was procured by tapping.

In the fatal case the disease had attacked the Liver, Omentum, and Douglas' pouch. There was amyloid reaction of the Stomach, Intestines, and left Kidney; the right Kidney was in a state of Hydronephrosis, and contained a calculus, the cortex was merely a narrow line. The Ovaries were cystic, but not hydatid. In Douglas' pouch was a supplementary hydatid cyst, the size of an orange.

87. *Jaundice.*—In a woman aged 40 there was "Xanthelasma tuberosum et planum" all over the body, very symmetrical. A drawing is preserved.

The fatal case is described in the Reports as "Primary (?) Melanotic Cancer of the Liver," p. 160, but the death was certified as due to "Jaundice and Disease of the Liver." See note 23 above.

88. *Enlargement of Liver.*—In one case with Diaphragmatic Pleurisy. One woman was in the Hospital nearly two years with a large Liver and Ascites. She was tapped altogether 18 times, and left the Hospital with general health improved.

89. *Gall Stones.*—In one case gall-stone colic was complicated with Arsenic poisoning; in another case the stone was passed per anum.

90. *Peritonitis.*—In one case circumscribed, in another following Typhlitis 12 months before.

91. *Tumour.*—In one, complicated with ulceration of the Bowels, with stricture.

92. *Acute Nephritis.*—In one of the cases not fatal there was left Pleurisy, in another Otorrhœa, in another Phthisis.

One fatal case had Pericarditis

93. *Chronic Nephritis.*—In 6 cases not fatal the Heart was affected: in 1 hypertrophied, in 1 there was an aortic regurgitant murmur, and in 3 a systolic murmur at the apex; in 1 case there was necrosis of the right femur.

Of the fatal cases in 12 the Heart was affected; in 8 of these there was dilatation and Hypertrophy; in 4 Pericarditis; in 2 uræmic convulsions; in 4 valve disease; in 1 mitral, which caused a double murmur during life; in another dilatation of all cavities, the aortic valves adherent, the mitral valves atheromatous; in another, Pericarditis and Endocarditis, with Hypertrophy; in 3 cases there was Phthisis; in 2 Pleuropneumonia; in 1 calcification of the Meninges; in another, Thrombosis of the right Iliac veins. In one case, a man aged 33, in addition to dilatation of all the cardiac cavities, adherent aortic valves, and atheromatous mitral valves, there were calculi in the pelvis of each Kidney, double Pleurisy, an abscess between Bladder and Rectum opening at the Navel, and another below the transverse Colon. In a man aged 53 an old clot was found in the right Corpus Striatum, the size of a pea, with softening round it. There was double Pleurisy; atheroma of mitral and aortic valves, and of the arch of the Aorta. The Liver was studded with spots of hard cancer the size of walnuts, some softening in the middle. There was an excess of clear fluid in the Peritoneum. A large abscess behind the left Kidney, reaching from the Spleen to the left Iliac fossa. The Kidney was full of calculi, contained in a sac which was the Pelvis; the Ureter was thickened. The left Kidney very pale.

94. *Pyelitis.*—The fatal case in a boy, aged 12. An abscess at the sigmoid flexure behind the Iliacus and Rectum, and up behind the left Kidney. The left Kidney distended, its tissue very thin; the Pelvis filled with cheesy masses; the Ureter much thickened. In the right Kidney two cheesy masses in place of one of the pyramids, and near the surface. Bladder fasciculated.

95. *Diuresis.*—In one case, a boy, aged 16, there was also Albuminuria.

96. *Abscess.*—In a woman, aged 23, who died, the Abscess was situated in the right ovary, which was adherent to all surrounding parts. The Kidneys gave an amyloid reaction; the right ovary was fixed behind the Uterus.

97. *Hæmatocele.*—One case arising very acutely, a large swelling in Douglas's pouch, not felt per Hypogastrium; persistent vomiting. The patient was treated by opium and ice per Rectum, and was fed per Rectum. In ten days the swelling could no longer be felt. After a time she returned with a relapse, but left the Hospital against advice not yet relieved.

In one fatal case, which was only in the Hospital two days, nothing could be ascertained with regard to its position within or beneath the Peritoneum, on account of the matting of parts. There was Peritonitis.

In another fatal case the cyst was tapped, and syringed out with antiseptic lotions. Death resulted from Septicæmia.

98. *Stricture of Orifice*, with enlarged left ovary and retroversion of the Uterus to the left (Retro-sinistral version). On the theory that the stricture had caused congestion of the ovary, which had fallen and pulled the Uterus backwards and to the left, the os externum was divided, the result being that the ovary diminished in size, and the Uterus regained its position.

99. *Fibrous Tumour.*—In one case an Abscess formed in the right femoral region; in one the tumour sloughed; in one there was retention of Urine; in one case the tumour, which was not perceived previously, grew rapidly during pregnancy, complicated labour, rendering turning necessary, and even leading to the apprehension of the necessity for Cæsarian section. It shrank rapidly during the puerperal state, and though at first more subperitoneal in position than submucous, spontaneously enucleated itself, and was expelled per Vaginam in 35 days after delivery, the process being accompanied by a fœtid discharge and chronic septicæmia. Growth recommenced in other fibroid nodules exactly two months after delivery. Reports, p. 109.

100. *Polypus.*—In two cases mucous; in eight fibrous; one fibroid Polypus with Pregnancy necessitated turning and craniotomy. Death from Peritonitis.

101. *Retroversion.*—In one case complicated with subinvolution. Strong nitric acid was applied to the cavity with relief.

102. *Inversion.*—Replacement being impossible, the Uterus was removed with the Ecraseur. The woman recovered.

103. *Impervious Vagina* in an unmarried woman, aged 24. She gave a history of menstruation, though it had been absent lately. On examination, however, no trace of Vagina could be found, but the Uterus could be felt per Rectum, apparently the size of a walnut. An unsuccessful attempt was made to form an artificial Vagina, and reach the Uterus.

104. *Menorrhagia.*—In two girls, aged 14, who were relieved. Cause unknown.

105. *Abortion.*—One patient had miscarried, but the Abdomen still continuing to enlarge it was examined, and a fœtal heart eventually heard. It was, therefore, a case of Twin Pregnancy, miscarriage of one fœtus, the other proceeding.

In another case a mole pregnancy seemed to have developed for three months, then development to have ceased, the mole (fleshy) being, however, retained thirteen months before its expulsion.

106. *Debility.*—In two cases after confinement, in three from destitution, in one from over-suckling (fifteen months).

The fatal case from Marasmus.

107. *Unknown.*—A man, aged 32, was in the Hospital two days. A post-mortem examination refused.

Poisons:

108. *Mercury.*—A woman, aged 26, attempted suicide with white precipitate.

In another case the same salt was taken while the person, a woman, aged 53, was drunk.

Poisons (*continued*) :

109. *Lead.*—Six men were painters; seven women carried the whitelead in a lead factory; one man was a leather stamper, punching out the leather on lead; one was a stick dresser (cause unknown); one woman was a laundress (cause unknown). One woman had also Epilepsy; one man Locomotor Ataxy.

110. *Ammonia.*—A woman, aged 46, took a liniment containing Ammonia by mistake.

111. *Phosphorus.*—Attempted suicide, a man, aged 46.

112. *Sulphuric Acid.*—Slight poisoning by mistake in a boy, aged 11.

The fatal case was a suicide.

113. *Nitric Acid.*—A woman, aged 24, took it by mistake for gin.

114. *Hydrochloric Acid.*—An engraver took the poison (which is used in his trade) by mistake.

115. *Oxalic Acid.*—A woman, aged 20. Mistake.

116. *Carbolic Acid.*—A man, aged 71, took it by mistake.

117. *Opium.*—A man, aged 34, attempted suicide with Laudanum.

The fatal case was a suicide by a woman, aged 56. On the surface of the brain was a good deal of serous effusion, a good deal of fluid in the sub-arachnoid space (at the base of the brain), and in the ventricles. No congestion.

118. *Alcohol.*—A man, aged 21, jumped into the Thames when drunk.

Two cases were complicated with Epilepsy.

A fatal case (a commercial traveller, aged 35) had chronic Nephritis and Hæmoptysis.

TABLE II,

Showing the comparative Frequency and Mortality of each Disease at different Ages.

DISEASES.	Under 5.				5–10.				10–15.				15–20.				20—				30—				40—				50—				60—				70 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
GENERAL DISEASES, A.																																											
Small-pox.. ..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	1	1	..
Chicken-pox ..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..
Measles	1	3	2	2	5	1	..	..	..	..	..	..	1	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7	6	2	2
Sequelæ of M. ..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Scarlet Fever ..	7	7	2	..	5	5	1	2	6	1	..	1	3	1	..	..	4	1	..	1	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	26	16	3	4
Sequelæ of S. F..	8	1	..	..	5	2	1	1	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	14	4	1	1
Typhus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	1	..
Enteric Fever ..	1	..	..	..	2	4	1	..	7	2	2	..	9	5	2	1	13	8	2	1	1	1	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	33	20	10	3
Sequelæ of E. F.	..	..	..	..	1	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	..
Simple Continued Fever	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..
Febricula	..	..	..	..	1	2	..	..	3	2	..	..	6	..	..	..	4	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	14	6	..	..
Ague—																																											
Tertian	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	1	1	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	2	..	..
Quotidian ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..

TABLE II (*continued*).

DISEASES.	Under 5.				5–10.				10–15.				15–20.				20—				30—				40—				50—				60—				75 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
GENERAL DISEASES, A (*continued*).																																											
Ague—																																											
Irregular . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.
Diphtheria . .	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	1
Hooping-cough . .	1	2	.	.	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	3	.	.
Mumps	.	.	.	.	.	1	.	.	1	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	1	.	.
Erysipelas—																																											
Cellulo-cutaneous (of Face) . .	.	.	.	.	.	.	.	.	1	1	.	.	1	2	.	.	1	5	.	.	1	1	.	.	.	4	.	.	.	.	.	1	.	.	.	.	.	.	4	14	.	.
Ditto (of Leg) . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	1	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	1	2	.	.
Pyæmia	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	1	1	.	.	1	2	.	.	.	.	.	.	.	.	.	.	.	.	2	1
GENERAL DISEASES, B.																																											
Rheumatism—																																											
Acute	.	.	.	.	.	.	.	.	5	7	.	.	12	20	.	.	36	42	.	.	15	9	1	.	6	10	.	.	2	.	.	.	1	.	.	1	.	.	.	.	77	88	1	1
Subacute	.	.	.	.	3	.	.	.	1	3	.	.	1	1	.	.	6	4	.	.	1	2	.	.	1	.	.	.	.	1	.	.	.	.	.	.	.	.	.	13	11	.	.
Synovial	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.
Muscular—																																											
Lumbago . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	1	.	.

DISEASES.	Under 5.				5–10.				10–15.				15–20.				20—				30—				40—				50—				60—				70 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
GENERAL DISEASES, B (*continued.*)																																											
Rheumatism—																																											
Chronic	..	..	..	..	..	..	..	..	..	2	..	..	2	..	..	..	3	5	..	..	2	4	..	..	2	2	..	..	1	2	..	..	..	..	..	..	..	..	..	..	10	15	..	..
Gout—																																											
Acute	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	2	2	..	..	1	1	..	..	..	..	..	..	..	..	..	..	6	3	..	..
Chronic	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	3	2	..	..	2	..	..	..	..	..	..	..	..	..	..	..	7	2	..	..
Chronic Osteo-Arthritis.. ..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	4	..	..	..	1	..	..	..	1	..	..	..	1	..	..	1	8	..	..
Cancer—																																											
of Lymphatic Glands ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
of Mediastinum ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
of Abdomen ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	1	..	..	1	3	..	..	..	..	..	1	1	1	5
of Stomach ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	2	..	1	..	..	..	2	..	..	..	..	..	3	1	3	..
of Liver	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	2	2	..	..	..	..	1	..	3	3
of Intestines ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	3
of Rectum ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..
of Kidney ..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	2
of Bladder ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
of Ovary ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	2	..	..
of Uterus ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	1	..	4	..	1	..	3	..	..	1	..	..	..	..	..	..	..	..	10	..	2
of Bones ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Epithelioma—																																											
of Cervix Uteri..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	5	..	..	..	2	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	11	..	..

TABLE II (*continued*).

DISEASES.	Under 5.				5–10.				10–15.				15–20.				20—				30—				40—				50—				60—				70 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
GENERAL DISEASES B (*continued*).																																												
Scrofula	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Local Scrofulous Affections—																																											
Tubercular Meningitis	..	..	..	1	..	..	1	..	..	..	2	1	..	..	1	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Phthisis Pulmonalis	..	..	1	..	..	..	..	1	..	..	..	..	2	4	2	3	15	9	5	5	10	11	6	4	6	7	3	..	2	1	3	1	..	..	..	..	..	..	..	..	35	32	20	14
Acute Miliary Tuberculosis ..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Tubercular Peritonitis	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	1
Tuberculosis of Kidneys ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Rickets	2	3	1	1	..	1	..	..	..	..	..	..	..	1	..	..	..	..	3	..	1	..	1	..	..	2	2	..	..	..	1	..	..	..	..	..	..	..	..	..	2	5	1	1
Diabetes	..	..	..	..	..	..	..	..	..	1	..	..	1	1	3	..	..	..	3	3	1	..	1	..	..	2	2	..	..	..	1	..	..	..	..	..	..	..	..	..	2	4	10	3
Purpura—																																											
Simple	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	..
Hæmorrhagic ..	..	..	..	..	..	1	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	..

DISEASES.	Under 5.				5–10.				10–15.				15–20.				20—				30—				40—				50—				60—				70 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
GENERAL DISEASES B (*continued*).																																													
*Anæmia	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	4	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	..	..
Chlorosis	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..	..
*General Dropsy ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	4	..	..
LOCAL DISEASES.																																												
DISEASES OF THE NERVOUS SYSTEM.																																												
DISEASES OF THE BRAIN AND ITS MEMBRANES.																																												
Encephalitis ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Meningitis (Simplex)	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	3	..
Softening	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	2	..	1	..
Abscess of Brain ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Apoplexy— Sanguineous ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	1	..	..	..	1	..	..	..	5	1	1	1	1	..	..	..	..	1	1	10	2

DISEASES.	Under 5.				5–10.				10–15.				15–20.				20—				30—				40—				50—				60—				70 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
DISEASES OF THE NERVOUS SYSTEM (*contd.*)																																											
Chronic Hydrocephalus	..	..	1	..	..	..	..	..	1	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	2
Tumour	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	1	3	2
Cerebral Affection	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..
DISEASES OF THE SPINAL CORD AND ITS MEMBRANES.																																										
Inflammation—Myelitis	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	2	..
DISEASES OF THE NERVES.																																										
*Paralysis—																																										
Hemiplegia ..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	3	2	..	..	2	2	1	..	4	3	..	..	8	3	1	..	3	2	..	..	..	..	22	12	..	2
Paraplegia ..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	2	2	..	..	1	1	..	..	2	1	..	..	2	1	..	..	..	..	..	..	..	..	7	6	..	..
Locomotor Ataxy	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	2	..	..	..	3	1	..	..	2	..	..	..	..	1	..	..	..	..	..	..	..	..	8	2	..	..
Infantile Paralysis	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..

DISEASES.	Under 5.				5–10.				10–15.				15–20.				20—				30—				40—				50—				60—				70 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
DISEASES OF THE NERVOUS SYSTEM (*contd.*)																																											
Local Paralysis—																																											
Facial Paralysis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	1	1	..	..		
Other Paralyses	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	2	3	..	..	4	1	..	..	..	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	12	4	..	..
FUNCTIONAL DISEASES OF THE NERVOUS SYSTEM.																																											
Tetánus	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Infantile Convulsions	1	3	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	4	..	1
Epilepsy	..		..	..	..	..	..	..	1	1	..	..	4	3	..	..	2	3	1	..	5	..	1	..	6	..	..	..	2	..	..	..	1	..	..	..	..	..	..	..	21	7	2	..
Epileptic Vertigo	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	..
Epileptic Hemiplegia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..
Laryngismus ..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Spasm of Muscles	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Chorea	..	..	..	..	2	8	..	..	9	10	..	..	..	7	..	..	..	3	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	12	28	..	..
Hysteria	..	..	..	..	..	..	..	..	..	1	..	..	..	5	..	..	1	7	..	..	..	4	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	19	..	..
Hysterical Paralysis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..

DISEASES.	Under 5.				5–10.				10–15.				15–20.				20—				30—				40—				50—				60—				70 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
DISEASES OF THE NERVOUS SYSTEM (*contd.*)																																											
Neuralgia—																																											
Diffused	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	3	..	..	..	1	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	1	6	..	..
Cephalalgia ..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	3	..	..	..
Sciatica	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	1	..	..	1	..	..	..	..	..	..	..	1	4	..	..	1	1	..	..	..	..	..	4	7	..	..
Pleurodynia ..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	1	4	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	5	..	..
Hypochondriasis .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	3	..	..	..
Obscure Nerve Disorder	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	2	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	2	..	..
DISORDERS OF THE INTELLECT.																																											
Mania	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	3	2	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	6	3	..	..
Melancholia ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	..
Dementia	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	1	..	..	..	..	..	..	1	..	..	..	..	..	..	2	3	..	..
Idiotcy	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	2	1	..	..

DISEASES.	Under 5.				5–10.				10–15.				15–20.				20—				30—				40—				50—				60—				70 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
DISEASES OF THE CIRCULATORY SYSTEM.																																											
DISEASES OF THE HEART AND ITS MEMBRANES.																																											
Diseases of the Pericardium.																																											
Pericarditis ..	..	..	..	..	..	..	..	..	1	1	..	..	1	..	2	..	..	..	..	..	..	..	..	..	2	..	1	..	..	..	..	..	..	2	..	..	..	..	..	4	1	5	..
Diseases of the Endocardium.																																											
Endocarditis ..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Valve Disease—																																											
1. Aortic ..	..	..	..	..	..	..	..	..	3	..	..	..	3	2	1	..	2	1	1	..	7	..	3	1	2	1	..	..	1	1	3	..	1	..	..	..	..	..	19	5	8	1
2. Mitral ..	..	1	..	..	3	1	..	..	2	..	1	..	6	2	1	..	5	9	2	2	1	8	4	4	2	6	1	2	3	4	1	2	1	1	..	1	..	..	24	31	10	11
3. Pulmonary ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4. Tricuspid ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
5. Complicated ..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	..	1	..	..	3	..	..	2	..	1	1	..	2	1	..	2	1	..	..	..	..	..	..	5	2	4	6
6. Congenital ..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..

DISEASES.	Under 5.				5–10.				10–15.				15–20.				20—				30—				40—				50—				60—				70 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
DISEASES OF THE CIRCULATORY SYSTEM (*continued*).																																												
Diseases of the Muscular Structure of the Heart.																																												
Dilatation.. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	3	1	..
Fatty Degeneration	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..
Fibroid Degeneration	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1
Aneurism.. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
*Angina Pectoris ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	1	1	..	..
*Syncope	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
DISEASES OF THE BLOOD VESSELS.																																											
Diseases of the Arteries.																																											
Atheroma.. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..
Aneurism— of Aorta.. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	3	..	..	..	4	1	1	..	1	..	1	..	..	..	..	..	..	..	10	1	..	1

DISEASES.	Under 5.				5–10.				10–15.				15–20.				20—				30—				40—				50—				60—				70 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
DISEASES OF THE CIRCULATORY SYSTEM (*continued*).																																											
Aneurism — of Abdominal Arteries	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Epigastric Pulsation	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Diseases of the Veins.																																											
Phlegmasia Dolens ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Obstruction ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	1

DISEASES.	Under 5.				5–10.				10–15.				15–20.				20—				30—				40—				50—				60—				70 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
DISEASES OF DUCTLESS GLANDS.																																											
DISEASES OF THE THYROID GLAND.																																											
Exophthalmic Bronchocele	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..
DISEASES OF THE SUPRA-RENAL CAPSULES.																																											
Addison's Disease .	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..
DISEASES OF THE RESPIRATORY SYSTEM.																																											
DISEASES OF THE RESPIRATORY SYSTEM NOT SIMPLY LOCAL.																																											
Croup	1	2	3	5	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	3	4	5

DISEASES.	Under 5.				5–10.				10–15.				15–20.				20—				30—				40—				50—				60—				70 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
DISEASES OF THE RESPIRATORY SYSTEM (*continued*).																																											
DISEASES OF THE LARYNX.																																											
Laryngeal Catarrh.	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..	..	..
Laryngitis—																																											
Acute	2	1	..	1	1	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	2	..	1
Chronic	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	2	1	1	..
DISEASES OF THE TRACHEA AND BRONCHI.																																											
Bronchial Catarrh	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	2	4	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	4	5	..	..
Bronchitis—																																											
Acute	1	2	1	..	..	..	..	..	1	1	..	..	..	1	..	..	1	2	..	..	2	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	5	8	1	..
Chronic	1	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	2	6	1	1	6	4	..	2	6	3	3	2	12	6	3	..	2	..	..	1	..	3	1	..	30	23	8	6
Asthma	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..

DISEASES.	Under 5.				5–10.				10–15.				15–20.				20—				30—				40—				50—				60—				70 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharge		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
DISEASES OF THE RESPIRATORY SYSTEM (*continued*).																																												
DISEASES OF THE LUNG.																																												
Pneumonia ..	5	2	2	1	4	1	1	..	5	1	..	..	4	2	..	..	4	4	3	2	6	1	1	1	2	1	5	2	3	..	2	..	..	..	..	..	..	..	..	..	33	12	14	6
Lobular	2	..	2	1	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	1	2	1
Sequelæ of Pn. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Pleuro-pneumonia.	..	..	..	..	2	..	..	1	2	..	..	..	7	2	..	1	5	1	1	1	3	..	1	..	3	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	23	3	2	3
Abscess	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Gangrene	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	1	..
Congestion ..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..
*Hæmoptysis ..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	..	5	1	..	..	5	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	12	3	..	..
Cirrhosis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	3	..	1	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	3	1	2	1
Emphysema ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	1	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	4	1	..	..
Disease of the Lungs	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
DISEASES OF THE PLEURA.																																												
Pleurisy	1	..	..	..	2	..	..	..	..	2	1	..	5	1	..	..	8	3	2	..	10	2	..	..	1	1	..	..	2	..	1	..	..	..	..	..	..	..	..	..	29	9	4	..
Chronic Pleurisy	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..
Empyema	..	2	..	..	4	..	..	..	2	..	..	..	1	..	2	1	2	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9	2	2	3

DISEASES.	Under 5.				5–10.				10–15.				15–20.				20—				30—				40—				50—				60—				70 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
DISEASES OF THE RESPIRATORY SYSTEM (*continued*).																																											
DISEASES OF THE MEDIASTINUM.																																											
Tumour	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	3	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	3	5	..	..
DISEASES OF THE DIGESTIVE SYSTEM.																																											
DISEASES OF THE STOMACH.																																											
Gastritis	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..
Chronic Ulcer ..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	6	..	..	..	3	..	..	..	2	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	2	10	1	..
*Hæmatemesis ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	2	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	3	2	..	..
*Stricture	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Dyspepsia ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..	..	..	..	..	3	1	..	..	1	1	..	..	..	2	..	..	..	..	..	..	4	8	..	..
Gastrodynia ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	..
*Vomiting ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	6	..	..

DISEASES.	Under 5.				5–10.				10–15.				15–20.				20—				30—				40—				50—				60—				70 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
DISEASES OF THE DIGESTIVE SYSTEM (*continued*).																																												
DISEASES OF THE INTESTINES.																																												
Enteritis	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	1	..
Typhlitis	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	1	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	1	2
Dysentery	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	1	4	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	..	..	1
Ulceration	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	1	..
Abscess in the Subperitoneal Tissue ..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..
Melæna	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..
*Tympanites ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..
*Obstruction ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	2	..
Parasitic Disease—Tænia Solium .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Diarrhœa	..	..	..	1	..	..	..	..	1	1	..	..	..	1	..	..	..	1	..	..	1	2	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	6	..	1
Colic	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	1	..	..
Constipation ..	..	..	..	..	..	..	..	..	1	1	..	..	..	2	..	..	1	4	..	..	1	4	..	..	..	1	..	..	1	1	..	..	..	..	..	..	..	..	..	..	4	13	..	..
Diarrhœa and Vomiting	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..

DISEASES.	Under 5.				5–10.				10–15.				15–20.				20—				30—				40—				50—				60—				70 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
DISEASES OF THE DIGESTIVE SYSTEM (*continued*).																																											
DISEASES OF THE LIVER.																																											
Abscess	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Cirrhosis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	3	3	2	..	4	1	2	1	..	2	4	2	..	1	1	..	..	..	..	..	7	7	10	3
Lardaceous Liver..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..
Parasitic Disease—Echinococcus hominis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	1
Jaundice	..	..	1	..	1	..	..	..	1	..	..	..	2	..	..	..	1	3	..	..	3	3	..	..	4	1	1	..	1	2	..	..	..	2	..	..	..	..	..	..	13	11	2	..
Enlargement ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	1
DISEASES OF THE HEPATIC DUCT & GALL BLADDER.																																											
Gall Stones ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	4	1	..	..	..	1	..	..	..	1	..	..	..	..	..	..	7	3	..	..
DISEASES OF THE SPLEEN.																																											
Leucocythæmia..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..

DISEASES.	Under 5.				5–10.				10–15.				15–20.				20—				30—				40—				50—				60—				70 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
DISEASES OF THE DIGESTIVE SYSTEM (*continued*).																																											
DISEASES OF THE PERITONEUM.																																											
Peritonitis	..	..	..	..	..	..	..	..	..	2	..	..	1	..	1	..	1	..	..	..	2	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	3	1	..
*Ascites	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	2	..	..	..	1	..	..	..	..	..	..	..	..	5	..	..
Tumours	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1	..	..	..	1	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	4	..	1
DISEASES OF THE URINARY SYSTEM.																																											
DISEASES OF THE KIDNEY.																																											
Bright's Disease—																																											
1. Acute	..	1	..	..	1	..	..	..	1	1	..	..	5	2	..	..	4	6	..	1	4	..	..	..	3	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	18	11	..	1
2. Chronic ..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	1	6	1	4	3	6	6	7	3	4	2	4	4	1	2	4	1	3	2	1	..	..	..	..	..	22	14	20	12

DISEASES.	Under 5.				5–10.				10–15.				15–20.				20—				30—				40—				50—				60—				70 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
DISEASES OF THE URINARY SYSTEM (*contd.*).																																												
Pyelitis	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Calculus	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	..
*Hæmaturia renalis	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	1	..	..
*Suppression of Urine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
*Diuresis	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	2	1	..	..
DISEASES OF THE BLADDER.																																												
Cystitis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	2	..

TABLE II (*continued*).

DISEASES.	Under 5.				5–10.				10–15.				15–20.				20—				30—				40—				50—				60—				70 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
DISEASES OF THE GENERATIVE SYSTEM.																																											
DISEASES OF THE FEMALE ORGANS OF GENERATION IN THE UNIMPREGNATED STATE.																																											
DISEASES OF THE OVARY.																																											
Inflammation	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..	..
DISEASES OF THE BROAD LIGAMENT.																																											
Inflammation—																																											
Pelvic Peritonitis ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..
Pelvic Cellulitis..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	5	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10	..	..
Abscess	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	1
Periuterine or Pelvic Hæmatocele	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	11	..	1	..	4	..	..	..	3	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	20	..	2

DISEASES.	Under 5.				5–10.				10–15.				15–20.				20—				30—				40—				50—				60—				70 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
DISEASES OF THE GENERATIVE SYSTEM (*continued*).																																											
DISEASES OF THE UTERUS, INCLUDING THE CERVIX.																																											
Inflammation (Chronic) ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..
Granular Inflammation	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	3	..	..
Congestion	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..
Stricture of the Orifice	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..
Elongation of the Cervix.. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Non-Malignant Tumour—																																											
A. Fibrous Tumour.. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..	9	..	..	..	2	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	17	..	..
B. Polypus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	2	..	1	..	3	..	..	..	2	..	..	..	..	..	..	1	..	..	..	..	10	..	1

DISEASES.	Under 5.				5–10.				10–15.				15–20.				20—				30—				40—				50—				60—				70 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
DISEASES OF THE GENERATIVE SYSTEM (*continued*).																																											
DISPLACEMENTS AND DISTORTIONS.																																											
A. Anteversion	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
B. Retroversion	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	..	..	..
C. Anteflexion	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	..	..	..
D. Retroflexion	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	..	..	..
E. Inversion	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
F. Prolapsus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..
Procidentia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
DISEASES OF THE VAGINA.																																											
Catarrh (Leucorrhœa)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Inflammation	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..
Vaginismus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Malformations—																																											
Imperforate vagina	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..

DISEASES.	Under 5.				5–10.				10–15.				15–20.				20—				30—				40—				50—				60—				70 and upwards				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
DISEASES OF THE GENERATIVE SYSTEM (*continued*).																																											
DISEASES OF THE VULVA.																																											
Imperforate Hymen	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Vascular Tumour of the Meatus Urinarius ..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..
Verrucæ	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..
FUNCTIONAL DISEASES OF THE FEMALE ORGANS OF GENERATION.																																											
Amenorrhœa ..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Dysmenorrhœa ..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..
Menorrhagia ..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..
*Hæmorrhage ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..

TABLE II (*continued*).

DISEASES.	Under 5.				5–10				10–15.				15–20.				20—				30—				40—				50—				60—				70 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
AFFECTIONS CONNECTED WITH PREGNANCY.																																											
DISORDERS OF THE DIGESTIVE SYSTEM.																																											
Nausea and Vomiting	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
DISORDERS OF THE GENERATIVE SYSTEM.																																											
Hæmorrhage ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	1	
Displacements of the Uterus—																																											
Abortion	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..
AFFECTIONS CONNECTED WITH PARTURITION.																																											
Hæmorrhage (after Abortion) ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

DISEASES.	Under 5.				5–10.				10–15.				15–20.				20—				30—				40—				50—				60—				70 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
AFFECTIONS CONNECTED WITH PREGNANCY (*contd.*).																																											
Retention of part of Ovum.. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7	..	..
AFFECTIONS CONSEQUENT ON PARTURITION.																																											
Subinvolution ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	..	..	..	7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13	..	..
DISEASES OF THE MUSCLES.																																											
Progressive Muscular Atrophy..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	..

TABLE II (*continued*).

DISEASES.	Under 5.				5–10.				10–15.				15–20.				20—				30—				40—				50—				60—				70 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
DISEASES OF THE CUTANEOUS SYSTEM.																																											
Erythema—																																											
E. Læve																					1																				1			
E. Nodosum ..						1				1				1				1																						4			
Urticaria																													1										1			
Psoriasis									1					1				1			1					1													2	3		
Eczema—																																											
E. Simplex ..										1			2					1								1							1						3	3		
E. Rubrum ..										1																														1		
E. Exfoliativum																													1										1			
E. Chronicum ..		1				1				1							2					1				2												3	5		
Impetigo	1	1							1																														2	1		
Xeroderma ..																																	1							1		

DISEASES.	Under 5.				5–10.				10–15.				15–20.				20—				30—				40—				50—				60—				70 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharg d.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
DISEASES OF THE CUTANEOUS SYSTEM (*continued*).																																												
PARASITIC DISEASE OF THE SKIN.																																												
Tinea tonsurans ..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Scabies	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..
CONDITIONS NOT NECESSARILY ASSOCIATED WITH GENERAL OR LOCAL DISEASES.																																											
Debility	3	5	..	..	..	..	..	..	..	1	..	..	1	7	..	..	3	14	1	..	2	8	..	..	..	5	..	..	2	..	..	..	..	2	..	..	1	1	..	..	12	43	1	..
Pain	2	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	6	..	..	..

DISEASES.	Under 5.				5–10.				10–15.				15–20.				20—				30—				40—				50—				60—				70 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
CONDITIONS NOT NECESSARILY ASSOCIATED, &c. (*continued*).																																											
Malingering ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..
Unknown.. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Nil	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	..	..
POISONS.																																											
METALS AND THEIR SALTS.																																											
Mercury	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	2	..	..	..
Lead—																																											
Lead Colic ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	..	4	3	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	6	6	..	..
Lead Palsy ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	..
CAUSTIC ALKALIES.																																											
Ammonia.. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..

TABLE II (*continued*).

DISEASES.	Under 5.				5–10.				10–15.				15–20.				20—				30—				40—				50—				60—				70 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
POISONS (*contd.*)																																												
METALLOIDS.																																											
Phosphorus ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..
ACIDS.																																												
Sulphuric Acid ..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
Nitric Acid ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Hydrochloric Acid ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Oxalic Acid ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Carbolic Acid ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..
VEGETABLE POISONS.																																											
Opium	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Intoxication ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	1	..	4	1	1	..	6	1	..	..	2	..	..	..	..	..	..	..	..	..	..	..	16	2	2	..
Delirium tremens ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	1	..	..	8	1	..	..	4	1	..	..	5	..	..	..	..	..	..	..	1	..	..	..	21	3	..	..
Mania a Potu ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Belladonna ..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..

Table showing the Average Stay of the Medical Cases in Hospital, &c.

Within—Weeks of admission.	Discharged.		Died.	
	M.	F.	M.	F.
1	103	67	93	49
2	144	136	52	19
3	121	155	23	19
4	108	133	20	13
5	101	99	14	10
6	72	74	12	5
7	51	56	8	8
8	33	54	5	3
9	27	30	2	6
10	17	18	3	5
11	9	20	2	..
12	11	8	1	2
13	11	10	5	2
14	3	6	1	..
15	5	6	1	..
16	3	1	..	1
17	9	3	..	2
18	3	3	..	..
19	1	2	..	..
20	1	2	..	1
21	..	..	1	..
22	2	4	..	..
24	..	3	1	..
25	2	..	..	..
26	..	..	1	..
27	1	1	1	..
28	1	..	1	..
29	2	..	..	1
30	1	..	1	..
31	1	..	..	..
32	1	..	..	..
34	..	1	1	..
35	1	..	..	..
39	1	..	..	..
42	..	1	..	..

Deaths within 1 week of admission.			
Day.	M.	F.	Total.
1	16	13	29
2	19	7	26
3	14	10	24
4	12	3	15
5	14	9	23
6	11	5	16
7	7	2	9
	93	49	142
	142		

DEATHS.

The total number of *Deaths* during the year was 361

Of these there occurred within 24 hours of admission .. .. 29 = 8 per cent.

Within one week of admission .. 142 = 39 „

„ a fortnight „ .. 213 = 58 „

„ three weeks „ .. 255 = 70 „

„ a month „ .. 288 = 79 „

The average time of fatal cases in Hospital was in days .. .. { Males, 26·4 / Females, 27·7 } 27·0

DISCHARGES.

The total number of *Discharges* during the year was 1,773

Of these, the number discharged within 24 hours was .. .. } 5 = ·28 per cent.

Within 1 week .. .. 170 = 10 „

„ 2 weeks .. .. 450 = 25 „

„ 3 „ .. .. 726 = 41 „

„ 4 „ .. .. 967 = 54 „

„ 5 „ .. .. 1,167 = 65 „

„ 6 „ .. .. 1,313 = 74 „

The average stay in Hospital of patients discharged was in days .. .. { Males, 32·7 / Females, 32·8 } 32·8

The average time of all the medical cases in the Hospital was in days .. .. { Males, 31·3 / Females, 32·3 } 31·8

PERNOCTATIONS.

There are 230 beds in the medical wards, giving the number of possible pernoctations for the year, 230 × 365, or 83,950; but of the 10 medical wards, 4 were closed during a portion of the year. This would take away about 8,918 pernoctations, leaving 75,032

The actual number of pernoctations has been as follows:—

Of cases admitted in 1876 or 1877 and discharged in 1877	58,113	
Of cases remaining in at the end of the year 1875	5,060	
Of fatal cases	9,772	
		72,945
Giving a difference of		2,087

This gives a nightly average of about 5 empty beds, and the time between successive occupants about 22 hours.

SURGICAL REPORT.

TABLE I,

Showing the total Number of Cases of each Disease under Treatment during the year 1877, *with the Results.*

DISEASES.	Total number of cases under treatment.		Discharged cured and relieved.		Unrelieved.		Died.		Remaining in at the end of the year 1877.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
GENERAL DISEASES.										
Phagedæna	1	1	1	1	..	..	..	..	..	..
Erysipelas—										
a. Simple	11	9	10	8	..	..	..	..	1	1
b. Phlegmonous	31	11	26	9	..	..	3	1	2	1
c. Diffuse Inflammation ..	1	2	..	..	..	..	1	..	..	2
Pyæmia	1	1	..	1	..	..	1	..	..	..
Equinia	1	..	1	..	..	..	..	..	..	..
Syphilis—										
A. Primary Syphilis—										
Soft Chancre	1	2	1	2	..	..	..	..	..	..
Phagedænic Sore	1	..	1	..	..	..	..	..	..	..
B. Hereditary Syphilis	5	3	3	3	..	..	1	..	1	..
C. Secondary Syphilis—										
Local Syphilitic Affections—										
Brain	1	..	1	..	..	..	..	..	..	..
Tongue	..	1	..	1	..	..	..	..	..	..
Palate and Pharynx ..	4	4	4	3	..	..	..	..	..	1
Larynx	1	1	1	1	..	..	..	..	..	..
Rectum	..	3	..	3	..	..	..	..	..	..
Anus	..	2	..	2	..	..	..	..	..	..
Bone	5	3	3	3	..	..	..	..	2	..
Skin	18	17	17	15	..	..	1	..	..	2
Eye	3	3	3	3	..	..	..	..	..	..
Testis	1	..	1	..	..	..	..	..	..	..
Muscle	..	2	..	1	..	..	..	..	..	1
Cancer—										
A. Scirrhus—										
Rectum	1	4	..	3	..	..	1	..	..	1
Female Breast	..	36	..	24	..	8	..	1	..	3
Sup. Maxilla	1	..	1	..	..	..	..	..	..	..
Œsophagus	1	..	1	..	..	..	..	..	..	..
Intestine	..	1	..	..	..	..	..	1	..	..
Uterus	..	1	..	..	..	1	..	..	..	..

DISEASES.	Total number of cases under treatment.		Discharged cured and relieved.		Unrelieved.		Died.		Remaining in at the end of the year 1877.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
GENERAL DISEASES (*continued*).										
B. Medullary Cancer—										
Testis	1	..	..	..	..	..	1	..	..	..
Upper Jaw	3	1	..	..	2	1	..	..	1	..
Glands	1	..	1	..	..	..	..	..	..	..
Nose	..	1	..	1	..	..	..	..	..	..
Bladder	1	..	..	..	..	..	1	..	..	..
C. Epithelial Cancer—										
Lip	10	..	8	..	2	..	..	..	..	..
Tongue	10	3	6	2	3	1	1	..	..	..
Mouth	5	..	1	..	3	..	..	..	1	..
Face	8	1	7	1	1	..	..	..	..	..
Uterus	..	1	..	..	..	1	..	..	..	..
Vulva	..	3	..	2	..	1	..	..	..	..
Scrotum	3	..	3	..	..	..	..	..	..	..
Penis	6	..	5	..	1	..	..	..	..	..
Anus	1	1	1	..	..	..	..	..	..	1
Rectum	1	1	..	..	1	1	..	..	..	..
Larynx	1	..	..	..	..	..	1	..	..	..
Lupus	..	3	..	2	..	..	..	..	..	1
Rodent Ulcer	2	1	2	1	..	..	..	..	..	..
Scrofula										
Lymphatic Glands	2	1	2	1	..	..	..	..	..	..
Testicle	8	..	7	..	..	..	..	..	1	..
Joints	26	18	17	15	3	..	..	1	6	2
Skin	3	2	3	2	..	..	..	..	..	..
Nose	..	2	..	1	..	..	..	..	..	1
Bone	12	4	9	2	2	..	..	..	1	2
DISEASES OF THE NERVOUS SYSTEM.										
Meningocele	1	..	..	..	1	..	..	..	..	..
Neuralgia	1	1	1	1	..	..	..	..	..	..
Hysteria	2	6	2	6	..	..	..	..	..	..
Tetanus, Traumatic	3	..	1	..	..	..	2	..	..	..
Hydrophobia	1	..	..	..	..	..	1	..	..	..
Spasm of Sterno-Mastoid	..	1	..	..	..	1	..	..	..	..
DISEASES OF THE EYE.										
A. Conjunctiva—										
Catarrhal Ophthalmia	3	4	3	4	..	..	..	..	..	..
Purulent „	1	3	1	3	..	..	..	..	..	..
Granular	3	5	3	5	..	..	..	..	..	..
Gonorrhœal	5	..	3	..	..	..	..	..	2	..
Phlyctenular	..	4	..	4	..	..	..	..	..	..

DISEASES.	Total number of cases under treatment.		Discharged cured and relieved.		Unrelieved.		Died.		Remaining in at the end of the year 1877.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F
DISEASES OF THE EYE (*continued*).										
Rheumatic Ophthalmia ..	1	2	1	2	..	..	..	..	..	..
Pterygium	..	1	..	1	..	..	..	..	..	..
B. Cornea—										
Keratitis	13	19	13	17	..	1	..	..	..	1
Do. Interstitial ..	8	6	8	6	..	..	..	..	..	..
Rheumatic Keratitis ..	..	1	..	1	..	..	..	..	..	..
Corneal Fistula	..	2	..	2	..	..	..	..	..	..
Hypopyon	3	1	3	1	..	..	..	..	..	..
Ulcers	6	9	6	9	..	..	..	..	..	..
Opacity	7	2	6	1	1	1	..	..	..	..
Staphyloma	2	2	2	2	..	..	..	..	..	..
C. Iris—										
Iritis	6	7	6	7	..	..	..	..	..	..
Rheumatic Iritis	3	..	3	..	..	..	..	..	..	..
Irido-choroiditis	1	1	1	..	..	..	..	..	..	1
Synechia	1	..	1	..	..	..	..	..	..	..
Irido-cyclitis	1	1	1	..	..	..	..	..	..	1
Occluded Pupil	1	2	1	2	..	..	..	..	..	..
D. Crystalline Lens— Cataract—										
Hard	11	16	7	13	1	1	..	..	3	2
Soft	2	1	1	1	1	..	..	..	..	..
Traumatic	5	..	4	..	1	..	..	..	..	..
Congenital	4	1	2	..	2	..	..	..	..	1
Lamellar	1	..	1	..	..	..	..	..	..	..
Dislocation of Lens ..	..	2	..	1	..	1	..	..	..	..
E. Diseases of Retina and Optic Nerve—										
Glioma	..	1	..	..	..	1	..	..	..	..
Optic Neuritis	1	..	..	..	1	..	..	..	..	..
Retino-Choroiditis ..	1	2	1	..	..	2	..	..	..	..
White Atrophy of Optic Disc	1	5	..	1	1	4	..	..	..	..
Chromatopsy	..	1	..	..	..	1	..	..	..	..
F. Diseases of the Choroid—										
Choroiditis	2	1	1	1	1	..	..	..	..	..
Sarcoma of Choroid ..	1	..	1	..	..	..	..	..	..	..
G. Diseases of Sclerotic—										
Episcleritis	1	..	1	..	..	..	..	..	..	..
Ulcers	..	1	..	1	..	..	..	..	..	..
H. Hemiopia	1	..	..	..	1	..	..	..	..	..
I. Diseases of Vitreous—										
Opacities	..	1	..	..	..	1	..	..	..	..

DISEASES.	Total number of cases under treatment.		Discharged cured and relieved.		Unrelieved.		Died.		Remaining in at the end of the year 1877.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
DISEASES OF THE EYE (*continued*).										
J. General Affections of the Eye—										
Glaucoma	5	9	3	7	..	..	..	..	2	2
Sympathetic Ophthalmia	..	2	..	1	..	1	..	..	..	..
Total Disorganization of Eye	2	1	2	1	..	..	..	..	..	..
Sanguineous Cyst	1	..	1	..	..	..	..	..	..	..
K. Strabismus—										
Internal	11	10	10	10	..	..	..	..	1	..
External	..	1	..	1	..	..	..	..	..	..
Paralysis Inferior Rectus	1	..	1	..	..	..	..	..	..	..
L. Hypermetropia and Asthenopia	4	3	4	3	..	..	..	..	..	..
Myopia	2	5	1	3	1	1	..	..	..	1
Amblyopia	1	1	1	..	..	1	..	..	..	..
M. Diseases of the Lachrymal Apparatus—										
Lachrymal Obstruction	2	4	2	4	..	..	..	..	..	..
Dacryo-Cystitis	..	2	..	2	..	..	..	..	..	..
N. Diseases of the Eyelids—										
Entropion	1	5	1	4	..	..	..	..	..	1
Ectropion	1	1	1	1	..	..	..	..	..	..
Trichiasis	5	..	5	..	..	..	..	..	..	..
Herpes	3	..	3	..	..	..	..	..	..	..
Tarsal Tumour	2	4	2	4	..	..	..	..	..	..
Ptosis	1	..	1	..	..	..	..	..	..	..
O. Diseases of Orbit—										
Sarcoma	1	..	..	..	1	..	..	..	..	..
DISEASES OF THE EAR.										
Otorrhœa	2	1	2	1	..	..	..	..	..	..
Polypus	1	..	1	..	..	..	..	..	..	..
Otitis Interna	2	5	1	3	..	1	1	1	..	..
Deafness	..	1	..	1	..	..	..	..	..	..
DISEASES OF THE NOSE.										
Sarcoma	..	1	..	1	..	..	..	..	..	..
Abscess	1	..	1	..	..	..	..	..	..	..
Polypus	..	1	..	..	..	1	..	..	..	..
Epistaxis	3	1	3	..	..	..	..	..	..	1
Naso Pharyngeal Polypus	..	1	..	1	..	..	..	..	..	..
Ozœna	3	1	3	1	..	..	..	..	..	..
DISEASES OF THE CIRCULATORY AND ABSORBENT SYSTEMS.										
Aneurism—										
External Iliac	1	..	1	..	..	..	..	..	..	..
Femoral	1	..	1	..	..	..	..	..	..	..
Popliteal	2	..	2	..	..	..	..	..	..	..
Varicose Veins	2	1	2	1	..	..	..	..	..	..

DISEASES.	Total number of cases under treatment.		Discharged cured and relieved.		Unrelieved.		Died.		Remaining in at the end of the year 1877.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
DISEASES OF THE CIRCULATORY AND ABSORBENT SYSTEMS (*continued*).										
Thrombosis	3	3	3	2	..	1	..	..	..	..
Secondary Hæmorrhage	2	..	1	..	..	..	1	..	..	..
Lymphatic Glands—										
Abscess	4	4	4	4	..	..	..	..	..	..
Enlarged Glands	5	5	5	3	..	2	..	..	..	..
Lymphangitis	3	..	3	..	..	..	..	..	..	..
Lymphadenoma	2	..	..	..	..	..	2	..	..	..
DISEASES OF THE LIPS.										
Malformations—										
Single Harelip	9	3	8	3	1	..	..	..	..	..
Double „	3	..	2	..	1	..	..	..	..	..
DISEASES OF MOUTH AND CHEEK.										
Stomatitis	..	1	..	1	..	..	..	..	..	..
Ranula	..	1	..	1	..	..	..	..	..	..
Cancrum Oris	2	..	1	..	..	..	..	..	1	..
Deformity	1	2	1	1	..	..	..	..	..	1
DISEASES OF GUMS AND JAWS.										
Phosphorus Necrosis	..	2	..	1	..	..	..	..	..	1
Epulis	1	2	1	2	..	..	..	..	..	..
Sarcoma	6	..	4	..	2	..	..	..	..	..
Abscess of Antrum	..	2	..	2	..	..	..	..	..	..
Hæmorrhage after extraction of a tooth	1	..	1	..	..	..	..	..	..	..
Carious Tooth	1	..	1	..	..	..	..	..	..	..
DISEASES OF PALATE AND FAUCES.										
Enlarged Thyroid	..	1	..	1	..	..	..	..	..	..
„ Tonsils	3	5	2	4	1	1	..	..	..	..
Tonsillitis	4	9	4	9	..	..	..	..	..	..
Sarcoma of Tonsil	1	..	..	..	1	..	..	..	..	..
Cleft Palate	7	14	5	11	1	1	..	..	1	2
Abscess, Retro-Pharyngeal	1	1	1	1	..	..	..	..	..	..
Perforation of Palate	1	1	1	..	..	1	..	..	..	..
DISEASES OF THE TONGUE.										
Glossitis	..	1	..	1	..	..	..	..	..	..
Varix of Ranine Vein	..	1	..	1	..	..	..	..	..	..

TABLE I (*continued*).

DISEASES.	Total number of cases under treatment.		Discharged cured and relieved.		Unrelieved.		Died.		Remaining in at the end of the year 1877.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Diseases of Salivary Glands.										
Parotid Glandular Tumour ..	3	1	1	1	1	..	..	..	1	..
Euchondroma of Submaxillary Gland	..	1	..	1	..	..	..	..	..	..
Diseases of the Intestines.										
Hernia—										
Umbilical	3	4	2	2	..	..	..	1	1	1
Inguinal	28	1	20	..	..	..	6	..	2	1
Femoral	2	23	2	15	..	..	..	8	..	..
Ventral	2	1	2	1	..	..	..	..	..	..
Intussusception	1	..	..	..	..	..	1	..	..	..
Fæcal Fistula	2	..	1	..	..	..	..	..	1	..
Diseases of Rectum and Anus.										
Fistula in Ano	27	10	24	10	1	..	..	..	2	..
Hæmorrhoids	16	8	16	7	..	..	..	..	..	1
Fissure of Anus	..	2	..	2	..	..	..	..	..	..
Fibrous Stricture	..	3	..	..	..	2	..	1	..	..
Prolapsus Ani	3	2	3	1	..	..	..	1	..	..
Ulcer of Rectum	2	2	2	2	..	..	..	..	..	..
Ischio-Rectal Abscess	4	2	4	2	..	..	..	..	..	..
Recto-Vesical Fistula	1	..	..	..	1	..	..	..	..	..
Diseases of Urinary System.										
Ectopia Vesicæ	1	..	..	..	..	..	..	..	1	..
Cystitis—										
Acute	1	..	..	..	..	..	..	..	1	..
Chronic	4	4	2	2	1	1	1	..	..	1
Villous growth of Bladder.. ..	..	1	..	1	..	..	..	..	..	..
Renal Calculus	1	..	1	..	..	..	..	..	..	..
Calculus Vesicæ—										
a. Uric Acid	6	1	6	..	..	..	..	..	..	1
b. Oxalate of Lime	1	..	1	..	..	..	..	..	..	..
c. Phosphatic	1	1	1	1	..	..	..	..	..	..
Tubercular Disease of Urinary Tract	6	..	4	..	1	..	1	..	..	..
Irritable Bladder	5	3	4	3	1	..	..	..	..	..

DISEASES.	Total number of cases under treatment.		Discharged cured and relieved.		Unrelieved.		Died.		Remaining at the end of the year 1877.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Diseases of Urinary System (*continued*).										
Diseases of Prostate Gland.										
Enlarged Prostate	7	..	4	..	..	..	2	..	1	..
Gonorrhœa and its Complications.										
Gonorrhœa	5	..	4	..	..	..	..	..	1	..
Phimosis	6	..	6	..	..	..	..	..	..	..
Paraphimosis	2	..	2	..	..	..	..	..	..	..
Prostatitis	1	..	1	..	..	..	..	..	..	..
Bubo	1	..	1	..	..	..	..	..	..	..
Perineal Abscess	1	..	1	..	..	..	..	..	..	..
Orchitis	1	..	1	..	..	..	..	..	..	..
Diseases of Urethra.										
Stricture—										
a. Organic	29	..	23	..	1	..	2	..	3	..
b. Traumatic	4	..	3	..	..	..	1	..	..	..
c. Congestive	1	..	1	..	..	..	..	..	..	..
Urinary Fistula	13	..	12	..	1	..	..	..	..	..
Extravasation of Urine	5	..	3	..	..	..	2	..	..	..
Retention of Urine	5	..	5	..	..	..	..	..	..	..
Urethral Calculus	5	..	4	..	..	..	..	..	1	..
Diseases of the Penis and Testis.										
Malformation—										
Phimosis	25	..	25	..	..	..	..	..	..	..
Hypospadias	1	..	..	..	1	..	..	..	..	..
Narrow Meatus	1	..	1	..	..	..	..	..	..	..
Paraphimosis	3	..	3	..	..	..	..	..	..	..
Hæmatocele	2	..	2	..	..	..	..	..	..	..
Hydrocele	15	..	13	..	..	..	..	..	2	..
Encysted Hydrocele	1	..	1	..	..	..	..	..	..	..
„ „ of Cord ..	1	..	1	..	..	..	..	..	..	..
Orchitis	4	..	3	..	..	..	..	..	1	..
Sarcoma Testis	1	..	..	..	1	..	..	..	..	..
Varicocele	3	..	3	..	..	..	..	..	..	..
Inflamed Scrotum	1	..	1	..	..	..	..	..	..	..
Gangrene of Penis	1	..	1	..	..	..	..	..	..	..

DISEASES.	Total number of cases under treatment.		Discharged cured and relieved.		Unrelieved.		Died.		Remaining in at the end of the year 1877.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
DISEASES OF FEMALE ORGANS OF GENERATION.										
Diseases of the Ovary	..	25	..	11	..	5	..	9	..	..
Diseases of Round Ligament.										
Cyst in Canal of Nuck ..	..	1	..	1	..	..	..	..	..	..
Diseases of the Vagina.										
Vesico-Vaginal Fistula ..	..	7	..	6	..	..	..	..	..	1
Diseases of Vulva.										
Abscess of Labium ..	..	2	..	2	..	..	..	..	..	..
Cystic Tumour of Labium .	..	1	..	1	..	..	..	..	..	..
Noma	..	1	..	..	..	1	..	..	..	..
Fibrous Tumour	..	2	..	2	..	..	..	..	..	..
Vascular Tumour of Urethra	..	3	..	3	..	..	..	..	..	..
Affections connected with Parturition.										
Ruptured Perinæum ..	..	6	..	4	..	1	..	..	..	1
DISEASES OF THE FEMALE BREAST.										
Abscess	..	7	..	7	..	..	..	..	..	..
Non-Malignant Tumours—										
Cysts	..	2	..	2	..	..	..	..	..	..
Mammary Glandular ..	..	8	..	8	..	..	..	..	..	..
DISEASES OF MALE BREAST.										
Hypertrophy	1	..	1	..	..	..	..	..	..	..
DISEASES OF THE ORGANS OF LOCOMOTION.										
Diseases of Bones.										
Ostitis	1	..	..	..	1	..	..	..	..	..
Periostitis	7	4	6	4	..	..	..	..	1	..
Chronic Abscess	1	..	1	..	..	..	..	..	..	..
Diffuse Periostitis—										
Acute Necrosis	11	4	5	3	..	..	2	..	4	1
Caries	19	5	15	5	..	..	..	..	4	..
Necrosis	44	23	30	17	2	..	4	1	8	5
Perforating Ulcer	8	..	7	..	..	..	..	..	1	..
Mollities Ossium	1	..	..	..	..	..	1	..	..	..

DISEASES.	Total number of cases under treatment.		Discharged cured and relieved.		Unrelieved.		Died.		Remaining in at the end of the year 1877.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
DISEASES OF THE ORGANS OF LOCOMOTION (*continued*).										
Diseases of Bones (*continued*).										
Tumours—										
a. Exostosis	4	4	4	4	..	..	..	..	..	..
b. Sarcoma	4	1	1	..	2	..	1	..	..	1
c. Enchondroma	3	1	3	1	..	..	..	..	..	..
Old Amputations	8	3	7	2	1	..	..	..	..	1
Deformities after Fracture, &c. ..	4	1	4	..	..	1	..	..	..	..
„ from Rickets	..	1	..	1	..	..	..	..	..	..
Diseases of Joints.										
Acute Synovitis	21	14	18	11	..	..	..	..	3	3
Chronic do.	25	16	20	12	..	..	..	..	5	4
Chronic Disease	80	39	53	20	5	5	7	4	15	10
Ankylosis	7	9	7	7	..	1	..	..	..	1
Knock-Knee	6	4	4	3	2	..	..	..	..	1
Disease of the Sacro-Iliac—										
Synchondrosis ..	2	..	1	..	..	..	1	..	..	..
Diseases of the Spine.										
Caries	24	16	18	12	1	2	1	1	4	1
Psoas, Lumbar, and other Abscesses	14	3	7	..	2	1	2	..	3	2
Lateral Curvature.. ..	4	9	3	9	..	..	..	..	1	..
Spina Bifida	2	1	1	1	..	..	1	..	..	..
Diseases of Muscles, Tendons, &c.										
Flat Foot	8	6	8	6	..	..	..	..	..	..
Contraction of Tendons, Fasciæ, or Muscles	4	5	4	4	..	1	..	..	..	..
Club-Foot—										
a. Talipes Equinus	6	1	6	1	..	..	..	..	..	..
b. Do. Valgus	2	..	2	..	..	..	..	..	..	..
c. Do. Equino-varus.. ..	17	9	13	9	1	..	..	..	3	..
d. Do. Varus	4	2	3	2	..	..	..	..	1	..
Supernumerary Thumbs	2	..	2	..	..	..	..	..	..	..
Distortion of Toes	4	2	4	2	..	..	..	..	..	..
Wry-neck	3	..	3	..	..	..	..	..	..	..
Enlarged Bursa Patellæ	2	2	1	2	..	..	..	..	1	..
Inflammation and Suppuration of Bursa Patellæ	6	18	6	15	..	..	..	..	..	3
Do. do. of other Bursæ ..	..	1	..	1	..	..	..	..	..	..
Diffuse Palmar Ganglion	..	5	..	5	..	..	..	..	..	..
Bursal Tumour	1	..	1	..	..	..	..	..	..	..
Ganglion	..	3	..	3	..	..	..	..	..	..
Webbed Fingers and Toes.. ..	..	1	..	1	..	..	..	..	..	..
Congenital Hypertrophy of Toe ..	..	1	..	1	..	..	..	..	..	..
Weak Ankles	..	1	..	1	..	..	..	..	..	..

DISEASES.	Total number of cases under treatment.		Discharged cured and relieved.		Unrelieved.		Died.		Remaining in at the end of the year 1877.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Diseases of the Cellular Tissue.										
Abscess	97	53	85	46	..	1	1	3	11	3
Connective Tissue Tumours—										
a. Fatty	7	10	6	9	1	..	..	..	..	1
b. Sarcoma	4	4	2	1	1	2	..	..	1	1
c. Fibrous	4	1	4	1	..	..	..	..	..	..
Sebaceous Cysts	6	4	6	4	..	..	..	..	..	..
Dermoid Cysts	..	2	..	2	..	..	..	..	..	..
Simple Cysts	..	3	..	3	..	..	..	..	..	..
Hypertrophy of Face and Head	1	..	..	..	1	..	..	..	..	..
Diseases of the Cutaneous System.										
Ulcer	25	21	18	19	1	..	2	1	4	1
Carbuncle	5	3	4	3	..	..	1	..	..	..
Boil	2	1	2	1	..	..	..	..	..	..
Gangrene	4	..	3	..	..	..	..	..	1	..
Nævus	3	3	3	3	..	..	..	..	..	..
In-growing Toe-nail	6	2	6	2	..	..	..	..	..	..
Congenital Moles	..	2	..	2	..	..	..	..	..	..
Cicatrix	1	3	1	2	..	1	..	..	..	..
Fibroma	..	1	..	1	..	..	..	..	..	..
Keloid	1	1	..	1	1	..	..	..	..	..
Onychia	1	3	1	3	..	..	..	..	..	..
General Injuries.										
Burns and Scalds	29	20	23	10	..	1	4	5	2	4
Contusions	13	2	12	2	..	..	1	..	..	..
Local Injuries.										
Injuries of the Head—										
Contusion	2	2	2	2	..	..	..	..	..	..
Scalp Wound	36	11	27	8	..	..	2	1	7	2
Concussion of Brain	57	6	53	6	..	..	2	..	2	..
Fracture of Vault of Skull—										
Simple	7	2	2	..	..	..	5	2	..	..
Compound	5	1	2	1	..	..	2	..	1	..
Fracture Base of Skull	3	..	..	..	..	..	3	..	..	..

DISEASES.	Total number of cases under treatment.		Discharged cured and relieved.		Unrelieved.		Died.		Remaining in at the end of the year 1877.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
LOCAL INJURIES (*continued*).										
Of the Face.										
Contusion	3	1	1	1	..	..	1	..	1	..
Wound	10	3	8	3	..	..	1	..	1	..
Fracture, Lower Jaw ..	11	..	10	..	..	..	..	..	1	..
Date-stone in Nostril ..	..	1	..	1	..	..	..	..	..	..
Injuries of the Eye.										
Foreign Body in Eye ..	3	..	3	..	..	..	..	..	..	..
Burns	10	1	10	1	..	..	..	..	..	..
Wound of Eye	10	5	6	5	..	..	..	..	4	..
Contusions of Globe ..	6	1	6	1	..	..	..	..	..	..
Injuries of the Neck.										
Scald of Throat	1	..	1	..	..	..	..	..	..	..
Cut Throat	6	3	5	3	..	..	1	..	..	..
Foreign Body in Œsophagus	1	..	1	..	..	..	..	..	..	..
Wounds	1	..	1	..	..	..	..	..	..	..
Injuries of the Chest.										
Contusions	4	1	4	1	..	..	..	..	..	..
Fractured Ribs and Sternum, Lung not Wounded	11	3	10	2	..	..	..	..	1	1
Do. Lung Wounded ..	9	2	4	..	..	..	5	2	..	..
Wound	1	1	1	..	..	..	..	1	..	..
Dislocation of Sternum ..	1	..	1	..	..	..	..	..	..	..
Injuries of the Back.										
Contusion	4	1	4	1	..	..	..	..	..	..
Fracture of the Spine ..	4	1	1	..	..	..	3	1	..	..
Concussion	3	..	2	..	..	..	1	..	..	..
Wound	1	..	1	..	..	..	..	..	..	..
Sprain	1	1	1	1	..	..	..	..	..	..
Injuries of the Abdomen.										
Contusion	7	..	6	..	..	..	..	..	1	..
Do. with Rupture of Viscera	5	..	4	..	..	..	1	..	..	..
Wound	3	1	2	1	..	..	..	..	1	..

DISEASES.	Total number of cases under treatment.		Discharged cured and relieved.		Unrelieved.		Died.		Remaining in at the end of the year 1877.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
LOCAL INJURIES (*continued*).										
Injuries of the Pelvis.										
Contusion of Penis ..	2	..	..	..	..	..	..	..	2	..
Wound of Scrotum ..	5	..	5	..	..	..	..	..	..	..
Wound of Vulva	..	1	..	1	..	..	..	..	..	..
Ruptured Urethra.. ..	3	..	3	..	..	..	..	..	..	..
Fracture of Pelvis.. ..	3	..	1	..	..	..	2	..	..	..
Do. do. with Injury to Viscera	1	..	..	..	..	..	1	..	..	..
Hairpin in Bladder ..	..	1	..	1	..	..	..	..	..	..
Catheter in Urethra ..	1	..	1	..	..	..	..	..	..	..
Injuries of the Upper Extremity.										
Contusion	4	..	4	..	..	..	..	..	..	..
Poisoned Wounds.. ..	1	1	1	1	..	..	..	..	..	..
Wound—										
Of Arm	7	1	6	1	..	..	1	..	..	..
Of Forearm	6	1	5	1	..	..	..	..	1	..
Of Hand	20	..	18	..	..	..	..	..	2	..
Of Elbow Joint	1	..	..	..	..	..	..	..	1	..
Of Wrist Joint	1	1	..	1	..	..	..	..	1	..
Injuries of Vessels	7	..	6	..	..	..	..	..	1	..
Fracture of—										
Clavicle	4	1	3	..	..	..	..	..	1	1
Scapula	2	..	2	..	..	..	..	..	..	..
Humerus—										
Simple	5	4	3	4	..	..	..	..	2	..
Compound	1	..	..	..	..	..	1	..	..	..
Ununited	1	..	1	..	..	..	..	..	..	..
Forearm—										
Simple	7	3	6	2	..	..	..	..	1	1
Compound	2	1	1	..	..	..	1	..	..	1
Ununited	1	..	1	..	..	..	..	..	..	..
Bones of Hand—										
Compound	15	1	14	1	..	..	1	..	..	..
Dislocation of—										
Clavicle	1	..	1	..	..	..	..	..	..	..
Humerus	4	1	2	1	1	..	1	..	..	..
Co. Dislocation of Humerus	1	..	..	..	..	..	1	..	..	..
Radius and Ulna	..	1	..	1	..	..	..	..	..	..
Phalanx	1	..	1	..	..	..	..	..	..	..

DISEASES.	Total number of cases under treatment.		Discharged cured and relieved.		Unrelieved.		Died.		Remaining in at the end of the year 1877.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
LOCAL INJURIES (*continued*).										
Injuries of Lower Extremity.										
Contusions	15	7	14	5	..	..	1	..	..	2
Sprained Ankle	3	5	3	5	..	..	..	..	..	..
Impacted Needles	1	3	1	3	..	..	..	..	..	..
Wounds—										
Of Thigh	3	2	2	1	..	..	..	1	1	..
Over Knee	3	2	3	2	..	..	..	..	..	..
Of Leg	9	3	9	2	..	..	..	..	..	1
Of Foot	10	..	9	..	..	..	1	..	..	..
Of Knee Joint	3	..	2	..	..	..	..	..	1	..
Division of Posterior Tibial Artery	1	..	1	..	..	..	..	..	..	..
Fracture of Femur—										
Simple	58	11	47	10	..	..	3	..	8	1
Compound	2	..	2	..	..	..	..	..	..	..
Fracture of Cervix Femoris—										
Intracapsular	4	4	4	4	..	..	..	..	..	..
Extracapsular	3	2	3	2	..	..	..	..	..	..
Fracture of Patella	26	5	23	5	..	..	..	..	3	..
Fracture of both Bones of the Leg—										
Simple	74	30	67	26	..	..	..	..	7	4
Compound	13	6	9	3	..	..	2	2	2	1
Fracture of Tibia alone—										
Simple	30	6	27	5	..	..	..	..	3	1
Compound	2	..	1	..	..	..	1	..	..	..
Fracture of Fibula alone—										
Simple	38	9	29	7	..	..	..	..	9	2
Compound	1	..	..	..	..	..	1	..	..	..
Fracture of Bones of Foot—										
Simple	..	1	..	1	..	..	..	..	..	..
Compound	2	..	..	..	..	..	1	..	1	..
"Pott's Fracture" of Leg	8	4	8	1	..	..	..	..	..	3

DISEASES.	Total number of cases under treatment.		Discharged cured and relieved.		Unrelieved.		Died.		Remaining in at the end of the year 1877.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
LOCAL INJURIES (*continued*).										
Dislocations—										
Hip, Congenital	..	1	..	..	..	1	..	..	..	..
Co. of Foot..	1	..	1	..	..	..	..	..	..	..
Diseases and Injuries not classified.										
Nihil	1	2	1	2	..	..	..	..	..	..

ABSTRACT OF TABLE I,

With Average Duration of Surgical Patients in the Hospital.

Discharged Cured or Relieved	M. = 1531	
	F. = 818	
Discharged Unrelieved	M. = 71	
	F. = 66	
Died	M. = 110	
	F. = 50	
Remaining in at the end of the year 1877	M. = 184	
	F. = 105	
Average stay in the Hospital	M. = 35·43 days.	
	F. = 33·35 „	

Average stay in the Hospital of all Surgical Patients = 34·69 days.

APPENDIX TO TABLE I.

General Diseases:

Equinia.—A groom, 22 years of age, was attacked by an eruption on the back of both forearms a day or two after he began to tend a horse with "cracked heels." Seven days after the appearance of the eruption he presented himself at the Hospital with a crop of from seven to ten pustules, like those produced by vaccination, on the back of each wrist and forearm. The pustules were flattened, umbilicated, and surrounded by a dull red areola. They shrivelled, and completely disappeared within a week.

Eight days before the appearance of the eruption a child living in the house in which he lodged had been vaccinated. Patient's hands were badly chapped at that time, but he declared he never touched the child. (Clinical Society's Trans., Vol. X., p. 121.)

Syphilis.—The small number of cases is accounted for by the fact that the syphilitic wards have been used as general wards during the year, owing to several of the general wards having been closed for improvements in bath-rooms, &c.

Hard Carcinoma of the Breast.—In the case of one patient, a woman, 39 years old, the disease was preceded by an eczematous condition of the nipple. The affection of the nipple was of nineteen months' duration, the carcinoma of three months. Amputation of the breast was performed, after which the patient made a good recovery.

Diseases of the Nervous System:

Hydrophobia.—A clerk, 21 years of age, was bitten five months before admission in the middle and ring fingers of the right hand by a large dog, which ran away immediately, and of which nothing more is known. The patient remained well until two days before admission, when he fell ill with pains in his joints, and also felt pain in the fingers which had been bitten. He was admitted on the 11th July, early on the morning of which day he had failed in his attempt to swallow liquids. There was no redness or pain in the fingers, but tenderness on pressing the tip of the middle finger. He was much agitated, and in great mental distress, but ascribed his illness to trivial causes, and avoided mentioning the dog-bite. When offered drink put it away from him with a shudder, but on being pressed managed to swallow two or three spoonfuls of brandy. On the 12th July suffered much from thirst, but became extremely agitated when drink was offered him. During the day became so violent from delirious excitement that he was obliged to be strapped down. On the 13th much quieter, was rational, and quite free from delusions. Suffered from frequent general convulsions. Spit up a great deal of frothy mucus. Frequently hawked with a kind of barking sound. Remained conscious up to the time of his death on the afternoon of this day. At the post-mortem examination the spinal cord was found congested and ecchymosed; the brain was normal. Organs generally healthy.

Diseases of the Circulatory and Absorbent Systems:

Aneurism.—During the past year four cases of aneurism have been treated in the Hospital, one of the external iliac, one of the femoral, two of the popliteal artery.

The aneurism of the external iliac occurred in the person of a policeman, aged 30, who had always lived a temperate life, and had enjoyed good health save for an attack of rheumatism, for which he had been treated ten years previously at the Birmingham Hospital. He stated shortly that he had suffered pain in the right groin eighteen months previously for some time after slipping off the

kerb; that for the last six months he had been lifting heavy bales of goods, and walking several miles daily; that six weeks previous to admission a tumour had appeared in the groin, and had been gradually increasing in size.

On admisssion he was suffering from a pulsating tumour, the size of half a large orange, just above and beneath Poupart's ligament in the line of the external iliac artery. The pulsation could not be controlled by pressure upon the abdominal aorta, for the abdominal walls were muscular and thick. The lower extremity was larger than the left, but was not œdematous. The patient's general condition was good. He had never had syphilis. Two days after admission (July 18) a consultation was held, at which the opinion was almost unanimously in favour of ligature of the external iliac, or, if that were not possible, of the common iliac.

On July 24th, as the aneurism was considerably larger than it was on admission, Mr. Savory ligatured the external iliac artery just below its origin. At the operation the artery was found to be dilated for some distance above the aneurism. Thick silk was employed. The wound was closed with wire sutures, and dressed with carbolic oil. The whole limb was enveloped in cotton wool, and laid upon a pillow.

For six or seven hours all went well, after which pain was complained of, and the wound was found filled with blood. The clots were turned out, and the wound was carefully examined; but as only general oozing was discovered, and this speedily ceased after exposure, the edges were brought together with strapping, and cold wet lint was applied. From this time his progress was almost uninterruptedly good.* The highest temperature reached was 102°. On the 28th September he was sent to the Convalescent Hospital at Highgate. In November he returned on account of a hernia in the seat of the operation, for which he was supplied with an abdominal belt. The aneurism was now the size of a small walnut; a very faint pulsation could be detected in it. Pulsation could also be distinguished in the tibial arteries at the ankle. The patient walked well with a stick. He was kept under observation for three weeks, after which he was again sent to Highgate.

The femoral aneurism occurred in a man 55 years old, a boot finisher, who stated that he had noticed the tumour four months ago, that under treatment it diminished in size in three weeks, but that three weeks previous to admission it had again began to increase in size. He had always lived a temperate life, and, although his health had never been good, the only serious ailment from which he had suffered was an attack of "rheumatic gout" seventeen years ago. In working at his trade he was accustomed to press the toe of the boot into his right groin. In addition to this, having been lame for the last two years from an accident, he leant almost all his weight upon the right lower limb.

On admission there was a pulsating tumour, the size of a pigeon's egg, over the right femoral artery, one-third above Poupart's ligament, two-thirds below the ligament. It was well defined, with a distensile pulsation, having a distinct bruit. It was surrounded by several enlarged glands, which somewhat obscured its character. The pulsation could be controlled by pressure upon the abdominal aorta, and by this means the tumour was diminished in size. The tibial arteries were scarcely perceptible at the right ankle, but pulsated forcibly on the left side.

With the exception of slight chronic bronchitis the health of the patient appeared to be good. A week after his admission the tumour was evidently smaller, and the pulsation was less strong. A consultation was held, at which some doubts were expressed as to the aneurismal nature of the tumour, but the opinion was unanimous that no other treatment should be adopted than rest. The patient left the Hospital the next day with the intention of resting at home.

Of the popliteal aneurisias, one was under the care of Mr. Smith, the other under the care of Mr. Callender.

The first case was that of a blocker, aged 41, who had always been a healthy man, had never suffered from gout, rheumatism, or syphilis, and who was not in the habit of drinking more than three or four pints of beer daily, and an occasional draught of whisky. Three or four weeks before admission he had been troubled with rheumatic pains in the knee and leg. A few days later a tumour was discovered in the ham, and this had gone on enlarging up to the

* The ligature came away on the nineteenth day.

time of admission. He said that six months ago he had been thrown out of a cart, and had hurt his right leg so much that he had been lame for several days, after which he believed he completely recovered from the fall.

He was admitted on March 9th, suffering from a pulsating tumour in the lower part of the right popliteal space, measuring about 2 inches by 1½ inches. It was tense, elastic, with a distensile forcible pulsation, a marked thrill, and a loud double bruit. The pulsation was easily arrested, and the tumour was much diminished in size by pressure upon the femoral artery. There was no swelling of the foot or leg, and the pulsation of the tibials was distinct. There was not any evidence of arterial disease in any other part of the body, or of visceral disease, either thoracic or abdominal. On the 10th of March, the tumour having neither increased nor diminished in size during the previous week, Esmarch's bandage and tubing were applied, the aneurism being left out as the baudage was put on from below upwards. The tubing was applied high up in the thigh. The apparatus was kept on for an hour, during the last half of which chloroform was administered on account of the pain produced. A Signorini's tourniquet was then applied for two hours longer, when the tumour was found to be much diminished in size, hard, and without pulsation. A flannel bandage was applied, and the limb was laid on a pillow. The patient appeared exhausted by the operation. On the 6th of April he was sent to the Convalescent Hospital, apparently perfectly well. ("Lancet," 1877, Vol. I., p. 750.)

Mr. Callender's patient was a waiter, aged 36, who had always enjoyed good health, had never suffered from rheumatism or syphilis. He was accustomed to drink about the same quantity as the last patient, namely, three or four pints of beer with an occasional glass of whiskey. Four months before admission he fell down with his right leg very sharply bent, and for a few moments he endured violent pain in the ham. But this passed off, and it was not until five weeks later that he noticed a swelling where the pain had been. The swelling gradually increased in size, but he kept on working in spite of it up to the time of his admission into the Hospital. At that time he suffered from a large pulsating tumour which completely filled the right popliteal space, and caused the muscles on the inner side to project considerably. The pulsation was distensile, and could be arrested by pressure upon the femoral artery, which also reduced the size of the tumour. The foot and leg were swollen and œdematous. The general health of the patient appeared to be good. Five days after admission (December 18, 1876), as there was no improvement in the condition of the tumour, digital compression was commenced in the afternoon, and continued for eleven hours until late at night. It was kept up by relays of students, and the pressure of the fingers was supplemented by a long shot bag (14 lbs.) suspended over a pulley above the bed. The groin became very tender from the pressure, but the pulsation of the tumour appeared to be lessened.

On December 22nd digital pressure was recommenced, and was continued for ten hours, when there was no longer any pulsation to be detected in the tumour; but on the 23rd a very faint pulsation could still be distinguished, and this continuing until the 28th, the pressure was resumed on that day, and continued for ten hours. From this time the pulsation completely ceased, and the tumour became small and firm. Pulsation could even then be distinguished in the tibial vessels.

The patient left the Hospital on the 2nd of February apparently perfectly well.

Diseases of Mouth and Cheek:

Deformity of Mouth.—A very singular narrowing of the buccal orifice in a woman, 46 years old, the orifice being so small that she could only introduce the smallest portions of food through it. She stated that this condition had existed from childhood, and had been caused by the application of some medicaments to a skin disease, from which she then suffered. Scar-tissue surrounded the mouth for some considerable distance, but superficial scar-tissue and of a very pliable nature. Operation was performed first on the right side by raising up a flap of skin and subcutaneous tissue, turning this down over the incised corner of the mouth, and turning the mucous and

submucous tissues up over the margin of the incision. The operation succeeded perfectly, and was afterwards practised on the left side. By this means the mouth was considerably increased in size.

Diseases of Palate and Fauces:

Sarcoma of Tonsil.—Primary round-celled sarcoma of the tonsil of three months' duration in an otherwise healthy man of 53 years of age. The tumour was as large as a racquet ball. It was removed with the écraseur, and the patient made a rapid recovery. But he returned in three months with recurrence of the disease in sitû, and with secondary enlargement of the cervical glands. As the tumour threatened to interfere with respiration and deglutition it was again removed with the écraseur.

Diseases of the Tongue:

Varix of the Ranine Vein.—A woman, 46 years old, had noticed a small lump under the tongue for five years. No cause was assigned for its occurrence. On examination she was found to be suffering from a Varix of the Ranine Vein beneath the right side of the tongue. The dilatation was uniform, measuring an inch long by half an inch across.

The surface of the tumour was first touched with nitrate of silver, and as this produced no effect it was tied at each end with thread soaked in perchloride of iron. No constitutional disturbance followed the operation. The threads came away at the end of a week. The tumour still remained prominent and soft.

Diseases of Salivary Glands:

Enchondroma of Submaxillary Gland.—A remarkably good specimen of Enchondroma of the Submaxillary Salivary Gland was removed from a girl of 15 years, in whom it had been growing about four years. There was no history of injury or other cause. (Path. Soc. Trans., Vol. XXVIII., p. 228.)

Diseases of the Intestines:

Intussusception.—A child, 8 months old, was admitted on March 15th. It had been taken ill on the 12th, commencing to scream suddenly about 1 p.m., and seeming to be in great pain in the belly. Its bowels had acted naturally in the morning. It was put in a warm bath, after which it began to be sick. This continued until the evening of the 13th, but during that day a little blood was passed by the bowel. On the 13th and 14th, as the child was still in much pain, a syringe was introduced into the rectum, and the bowel was distended with air. Slight relief appeared to be afforded by both inflations. On admission the child was very pale and ill, its abdomen was much distended. There was no protrusion from the anus, nor could any tumour be felt in the abdomen. Chloroform was administered, and warm water was freely injected into the rectum, but most of it returned at once, bringing away with it some blood-tinged mucus, and a little thin fœcal matter. On the 16th the child seemed a little easier, there was no sickness, but the bowels had not acted, although a good deal of bloody mucus had come away. Abdominal section was performed, when an Intussusception was found of the lower two-thirds of the ileum at the ileo-cœcal valve. The intussuscepted portion could neither be drawn nor pressed out, so the valve was slit up on a director. When the ileum was drawn out it was gangrenous, and this rendered it necessary to remove it completely, and join the intestine above and below with carbolised catgut ligatures. The mesentery was ligatured with carbolised catgut. Two ulcers in the transverse colon due to sloughing were also ligatured with carbolic catgut. The child sank and died from exhaustion a few hours after the operation.

Diseases of Urinary System:

Gangrene of Penis.—A labourer, 22 years of age, suffered from gangrene of a large portion of his penis, following balanitis and neglect. Incisions were made, and the patient made a good recovery with the loss of the greater part of the penis.

Diseases of the Organs of Locomotion:

Mollities Ossium.—A labourer, aged 51 years, was admitted into the Hospital on account of an intracapsular fracture of the femur, which had happened from very slight violence—the rolling over of a chair on which he had set his foot to clean his boot. He had also two myeloid tumours of the lower jaw, which had been growing about seven years. He sank and died a few days after admission. At the autopsy all the large bones and the skull were found atrophied and softened by the fatty form of Mollities Ossium, whilst in the head of each femur and of one humerus were found cavities containing clear fluid.

Diseases of the Cellular Tissue:

Lipoma.—A large tumour, consisting of fat and fibrous tissue, and enclosing striated muscular fibres, was removed from the calf of a girl, 7 years old, in whom it had been noticed about the time she first began to walk. Three weeks after the operation suppuration took place in the knee-joint. This was followed by pyæmia. During the pyæmia the thigh was amputated on account of the pain and suppuration in the knee and leg. In spite of profuse diarrhœa, of a large abscess over the lower jaw laying bare the bone, and a second abscess over the sternum, the child recovered. (Path. Soc. Trans., Vol. XXVIII., p. 221.)

Hypertrophy of Face and Head.—A blacksmith, 29 years old, suffered from general hypertrophy of the right side of the head, face, and neck, which had gradually commenced about two years previously. It slowly increased, until seven or eight months before admission it completely closed the right eye. The disease appeared to affect chiefly the skin and subcutaneous tissue, the bones not at all. The affected parts were red, firm, and glazed. The disease stopped short almost abruptly at the middle line. It affected the interior of the mouth as well as the outside. The patient died about three months after his discharge from the Hospital, and as no autopsy could be obtained the nature of his disease still rests in obscurity. It was thought that it might be due to disease of the cervical sympathetic, or to occlusion of the right lymphatic duct.

General Injuries:

Poisoned Wounds.—A dissection wound of the hand in one of the students was followed by symptoms of septicæmia, which fortunately passed off in the course of a few days. The second case was that of a nurse in the Hospital, whose index finger was poisoned by unhealthy discharge from a wound.

Injuries of the Face:

Date-stone in Nostril.—A girl, 4 years old, was admitted with discharge from the left nostril, thick and offensive, and ulceration around the margin of the nostril. This condition was said to have existed seven months, but no cause was assigned for it. On careful examination a date-stone was found high up in the nostril, and was removed, after which the symptoms rapidly subsided.

Injuries of the Chest:

Dislocation of the Sternum.—Dislocation backwards of the Manubrium Sterni in the driver of a carriage, who was crushed whilst driving his carriage under a low archway. His back was crushed by the arch, and his chest against the dashboard of the carriage. The dislocation was easily reduced, but could not be kept in place. The patient recovered without any bad symptoms, but the Manubrium Sterni remained displaced.

Injuries of the Abdomen:

Rupture of the Spleen.—A labourer, 34 years old, fell through a glass roof, a distance of forty feet, sustaining severe damage to his chest and abdomen. He suffered from great and persistent collapse for two or three days. A week after admission he became jaundiced, and as the jaundice passed off bed-sores formed. He finally died from exhaustion more than three months after admission. At the autopsy the liver was found to be normal, but there was a rupture of the spleen, which had cicatrised, and around which was an old and partially decolorised clot of blood.

TABLE II,

Showing the comparative Frequency and Mortality of each Disease at different Ages.

DISEASES.	Under 5.				5–10.				10–15.				15–25.				25–35.				35–45.				45–55.				55–65.				65–75.				75 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
GENERAL DISEASES.																																											
Phagedæna ..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..
Erysipelas—																																											
a. Simple ..	..	..	..	..	..	..	..	..	1	..	..	..	1	1	..	..	5	1	..	..	2	2	..	..	1	2	..	..	..	2	..	..	..	..	..	..	..	..	..	..	10	8	..	..
b. Phlegmonous	1	2	..	..	1	..	..	..	..	..	..	..	3	1	..	..	7	..	1	..	4	1	..	1	6	4	2	..	4	1	..	..	..	..	..	..	..	..	..	..	26	9	3	1
c. Diffuse Inflammation ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Pyæmia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
Equinia	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Syphilis—																																											
A. Primary—																																											
Soft Chancre ..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	..
Phagedænic Sore	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
B. Hereditary ..	2	..	..	..	..	1	1	..	1	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	3	1	..

DISEASES.	Under 5.				5–10.				10–15.				15–25.				25–35.				35–45.				45–55.				55–65.				65–75.				75 and upwards.				Total.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
General Diseases (*continued*).																																												
Syphilis (*continued*)																																												
Local Syphilitic Affections—																																												
Tongue	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Palate and Pharynx	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	..	2	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	3	..	..
Larynx	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..
Rectum	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..
Testis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Eye	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	..	..	..	..	..	..	..	..	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	3	..	..
Bone	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1	..	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	3	..	..
Skin	..	..	..	..	..	..	..	..	..	..	..	..	5	5	..	..	8	5	1	..	1	2	..	..	3	2	..	..	..	1	..	..	..	..	..	..	..	..	..	..	17	15	1	..
Brain	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Muscle	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Anus	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..
Cancer—																																											
A. Scirrhus—																																											
Rectum	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	1	..
Female Breast	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	13	..	..	..	6	..	1	..	10	..	..	..	2	..	..	..	..	..	..	..	32	..	1
Œsophagus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..
Intestine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Uterus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Sup. Maxilla	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..

DISEASES.	Under 5.				5–10.				10–15.				15–25.				25–35.				35–45.				45–55.				55–65.				65–75.				75 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
GENERAL DISEASES (*continued*).																																													
Cancer (*continued*)																																													
B. Medullary—																																													
Testis																						1																				1		
Bladder																																					1					1		
Glands																									1																1			
Upper Jaw																									2				1												2	1		
Nose																													1													1		
C. Epithelial—																																													
Lip																									3				2				5								10			
Tongue																									4	1	1		4	1			1	1							9	3	1	
Mouth																									3				1												4			
Face																	1				2					1			2				3								8	1		
Uterus																										1																1		
Rectum																						1							1												1	1		
Scrotum																													2				1								3			
Vulva																		1				1				1																3			
Anus																																	1								1			
Larynx																											1																1		
Penis																	1				2				1				1				1								6			
Lupus													1																	1												2			
Rodent Ulcer																														1			2								2	1		

DISEASES.	Under 5.				5–10.				10–15.				15–25.				25–35.				35–45.				45–55.				55–65.				65–75.				75 and upwards.				Total.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
General Diseases (*continued*).																																												
Scrofula—																																											
Lymphatic Glands ..									1				1									1																		2	1		
Testicle ..													1				3				3																		7			
Bone ..	2				7	2							2																										11	2		
Joints ..	5	1			6	11			4	2		1	5	1																								20	15		1
Skin					1	1			1				1													1												3	2		
Nose																		1																						1		
Diseases of Nervous System.																																											
Meningocele ..	1																																						1			
Neuralgia																		1							1														1	1		
Hysteria													2	4				1								1													2	6		
Tetanus, Traumatic											1				1										1														1		2	
Spasm of Sterno-Mastoid ..																										1														1		
Hydrophobia ..															1																									1		

DISEASES.	Under 5.				5–10.				10–15.				15–25.				25–35.				35–45.				45–55.				55–65.				65–75.				75 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
DISEASES OF THE EYE.																																												
Conjunctiva	..	3	..	..	1	2	..	..	2	3	..	..	5	3	..	..	1	4	..	..	1	3	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	11	19	..	..
Cornea	3	2	..	..	6	8	..	..	9	7	..	..	7	16	..	..	5	4	..	..	1	..	..	..	1	1	..	..	3	1	..	..	2	2	..	..	..	..	..	..	39	41	..	..
Iris	..	1	..	..	..	..	..	..	..	..	..	..	7	3	..	..	1	4	..	..	1	1	..	..	2	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	13	9	..	..
Crystalline Lens ..	2	..	..	..	2	..	..	..	3	1	..	..	..	1	..	..	2	1	..	..	2	1	..	..	3	2	..	..	3	4	..	..	1	5	..	..	2	2	..	..	20	17	..	..
General Affections of the Eye ..	..	1	..	..	3	1	..	..	1	1	..	..	4	4	..	..	..	1	..	..	2	1	..	..	1	3	..	..	2	6	..	..	1	..	..	..	..	..	..	..	14	18	..	..
Strabismus ..	1	2	..	..	5	4	..	..	3	1	..	..	2	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11	11	..	..
Lachrymal Apparatus	..	..	..	..	..	1	..	..	1	3	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	6	..	..
Eyelids	2	..	..	..	4	2	..	..	2	1	..	..	2	..	..	..	..	2	..	..	1	2	..	..	1	2	..	..	..	..	..	..	1	..	..	..	..	..	..	..	13	9	..	..
Sclerotic	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..
Retina and Optic Nerve	..	1	..	..	..	1	..	..	..	1	..	..	..	2	..	..	2	4	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	9	..	..
Choroid	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	3	1	..	..
Diseases of Orbit..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Ditto Vitreous ..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
DISEASES OF THE EAR.																																											
Otorrhœa	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	2	1	..	..
Polypus	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Otitis Interna ..	1	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	1	1	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	4	1	1
Deafness	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..

TABLE II (*continued*).

DISEASES.	Under 5.				5–10.				10–15.				15–25.				25–35.				35–45.				45–55.				55–65.				65–75.				75 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
DISEASES OF THE NOSE.																																											
Sarcoma																					1																				1			
Epistaxis																	1				1								1										3			
Polypus																					1																		1			
Abscess													1																										1			
Naso-Pharyngeal Polypus																																										
Ozœna		1			1				1				1																1										1			
																																						3	1		
DISEASES OF THE CIRCULATORY SYSTEM.																																										
External Iliac																	1																						1			
Femoral																													1										1			
Popliteal																					2																		2			
Thrombosis													1	1			1	1			1					1													3	3		
Secondary Hæmorrhage													1										1																1		1	
Lymphatic Glands	1				2				2				1	3			1	4			1	2			1														9	9		
Varicose Veins																		1							2														2	1		
Lymphangitis													2																1										3			
Lymphadenoma							1								1																										2	

DISEASES.	Under 5.				5–10.				10–15.				15–25.				25–35.				35–45.				45–55.				55–65.				65–75.				75 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
DISEASES OF THE LIPS.																																												
Harelip	9	2	..	..	3	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	12	3	..	..
DISEASES OF MOUTH AND CHEEK.																																												
Stomatitis	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Ranula	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Canerum Oris ..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Deformity ..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..
DISEASES OF GUMS AND JAWS.																																												
Phosphorous Necrosis, &c. ..	..	..	..	..	1	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	2	3	..	..
Epulis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	..
Tumours	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	2	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	6	..	..	..
Diseases of Tongue	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..
DISEASES OF PALATE AND FAUCES.																																												
Enlarged Thyroid ..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Enlarged Tonsils ..	1	..	..	..	..	2	..	..	..	1	..	..	1	2	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	5	..	..

DISEASES.	Under 5.				5–10.				10–15.				15–25.				25–35.				35–45.				45–55.				55–65.				65–75.				75 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
DISEASES OF PALATE AND FAUCES (*continued*).																																											
Tonsillitis ..	..	..	..	..	..	..	..	..	..	..	..	..	2	6	..	..	2	2	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	9	..	..
Sarcoma of Tonsil	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Cleft Palate ..	.	2	..	..	2	2	..	..	2	2	..	..	1	6	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	12	..	..
Abscess and Necrosis	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	..
DISEASES OF SALIVARY GLANDS.																																											
Parotid Glandular Tumour ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	2	1	..	..
Enchondroma of Submaxillary Gland	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
DISEASES OF THE INTESTINES.																																											
Intussusception ..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Hernia—																																											
Umbilical ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	2	..	..	..	..	..	..	1	..	..	..	..	..	..	..	2	2	..	1
Inguinal ..	..	..	..	..	..	..	..	..	1	..	..	..	2	..	1	..	4	..	1	..	2	..	1	..	3	..	1	..	5	..	1	..	3	..	1	..	..	..	..	..	20	..	6	..
Femoral ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	5	..	..	1	2	..	1	..	4	..	3	..	3	..	4	..	..	..	..	2	15	..	8

DISEASES.	Under 5.				5–10.				10–15.				15–25.				25–35.				35–45.				45–55.				55–65.				65–75.				75 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
DISEASES OF THE INTESTINES (*continued*).																																												
Hernia—																																											
Ventral ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	2	1	..	..
Fæcal Fistula ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
DISEASES OF RECTUM AND ANUS.																																											
Fistula in Ano ..	..	..	..	..	..	..	..	..	1	..	..	..	6	2	..	..	6	7	..	..	8	..	..	..	3	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	25	10	..	..
Hæmorrhoids ..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	..	2	1	..	..	5	2	..	..	5	1	..	..	3	..	..	..	..	1	..	..	..	..	..	..	16	7	..	..
Fissure of Anus ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..
Fibrous Stricture..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	1
Prolapsus Ani ..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	1	..	1
Ischio-Rectal Abscess	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	..	..	..	..	..	1	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	4	2	..	..
Ulcer of Rectum ..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	..
Recto-Vesical Fistula	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..

TABLE II (*continued.*)

DISEASES.	Under 5.				5–10.				10–15.				15–25.				25–35.				35–45.				45–55.				55–65.				65–75.				75 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
DISEASES OF URINARY SYSTEM.																																												
Renal Calculus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Cystitis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	1	..	..	..	1	..	..	..	..	1	1	..	1	..	..	..	..	..	..	..	3	3	1	..
Villous growth	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Calculus Vesicæ—																																											
a. Uric Acid	..	2	..	..	1	..	..	..	1	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	..	..	..
b. Oxalate of Lime	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
c. Phosphatic	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..
Urethral Calculus	2	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..
Irritable Bladder	..	2	..	..	1	..	..	..	..	..	..	..	..	1	..	..	3	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	5	3	..	..
Tubercular Disease of Urinary Mucous Membrane	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	1	..	..	..	2	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..	1	..
Diseases of Prostate Gland.																																											
Enlarged Prostate	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	2	..	1	..	..	..	1	..	4	..	2	..

TABLE II (*continued*).

DISEASES.	Under 5.				5–10.				10–15.				15–25.				25–35.				35–45.				45–55.				55–56.				65–75.				75 and upwards.				Total.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Diseases of Urinary System (*continued*).																																											
Gonorrhœa and its Complications.																																											
Gonorrhœa ..	..	..	..	..	1	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..
Phimosis ..	..	..	..	..	..	..	..	..	..	..	..	..	5	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	..	..	..
Paraphimosis ..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..
Bubo	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Prostatitis ..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Perineal Abscess ..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Orchitis	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Diseases of Urethra.																																											
Stricture—																																											
a. Organic ..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	6	..	..	..	7	..	1	..	4	..	1	..	2	..	..	..	2	..	..	..	..	..	..	..	24	..	2	..
b. Inflammatory	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
c. Traumatic ..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	1	..
Urinary Fistula ..	..	..	..	..	1	..	..	..	..	..	..	..	2	..	..	..	4	..	..	..	2	..	..	..	2	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	13	..	..	..

DISEASES.	Under 5.				5–10.				10–15.				15–25.				25–35.				35–45.				45–55.				55–65.				65–75.				75 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
DISEASES OF URINARY SYSTEM (*continued*).																																												
Diseases of Urethra (continued).																																												
Extravasation of Urine	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	3	..	2	..
Retention of Urine	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	5	..	..	..
Diseases of Penis and Testis.																																											
Malformations—																																											
Hypospadias, &c...	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..
Phimosis ..	10	..	..	..	3	..	..	..	4	..	..	..	5	..	..	..	3	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	25	..	..	..
Paraphimosis ..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..
Hæmatocele ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..
Hydrocele ..	2	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	3	..	..	..	..	..	..	..	4	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	15	..	..	..
Varicocele ..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..
Tumours ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Inflamed Scrotum	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Orchitis ..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..
Gangrene of Penis	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..

TABLE II (*continued*).

DISEASES.	Under 5.				5–10.				10–15.				15–25.				25–35.				35–45.				45–55.				55–65.				65–75.				75 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
DISEASES OF FEMALE ORGANS OF GENERATION.																																												
Diseases of the Ovary	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	1	..	2	..	3	..	7	..	5	..	1	..	..	..	3	..	..	..	1	..	..	..	..	..	..	..	16	..	9
Diseases of Vagina.																																												
Vesico-Vaginal Fistula	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	3	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	..	..
Diseases of Vulva, &c.																																											
Abscess of Labium	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..
Cyst of Labium ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..
Noma	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Ruptured Perinæum	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..	..
Fibrous and Vascular Tumours..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	2	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..	..
Cyst in Canal of Nuck	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
DISEASES OF THE FEMALE BREAST.																																											
Abscess	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	3	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7	..	..

DISEASES.	Under 5.				5–10.				10–15.				15–25.				25–35.				35–45.				45–55.				55–65.				65–75.				75 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
DISEASES OF THE FEMALE BREAST (*continued*).																																											
Non-Malignant Tumours—																																											
Cysts	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..
Mammary Glandular	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	1	..	..	..	3	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	..	..
DISEASES OF MALE BREAST.																																											
Hypertrophy ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
DISEASES OF THE ORGANS OF LOCOMOTION.																																											
Ostitis	..	..	..	..	..	..	..	..	1	..	..	..	2	3	..	..	2	1	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Periostitis ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	6	4	..	..
Chronic Abscess ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Perforating Ulcer ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	2	..	..	..	3	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	7	..	..	..
Mollities Ossium ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Diffuse Periostitis—																																											
Acute Necrosis	1	..	..	..	1	1	..	..	3	1	..	..	..	2	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	3	2	..
Caries ..	..	..	..	..	..	1	..	..	2	1	..	..	7	2	..	..	1	1	..	..	3	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	15	5	..	..
Necrosis ..	..	2	..	..	8	1	1	..	2	3	1	..	11	3	..	1	3	4	1	..	3	2	..	..	4	..	..	..	1	2	1	..	..	..	..	..	..	..	..	..	32	17	4	1

TABLE II (*continued*).

DISEASES.	Under 5.				5–10.				10–15.				15–25.				25–35.				35–45.				45–55.				55–65.				65–75.				75 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
DISEASES OF THE ORGANS OF LOCOMOTION (*contd.*).																																												
Tumours—																																											
a. Exostosis	..	..	..	..	..	..	..	..	..	..	..	..	4	3	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	4	..	..				
b. Enchondroma	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	1	..	..				
c. Sarcoma	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	3	..	1	..				
Old Amputations, &c.	..	1	..	..	1	1	..	..	1	..	..	..	4	2	..	..	1	..	..	..	4	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	12	4	..	..				
Diseases of Joints.																																											
Acute Synovitis	..	..	..	..	1	..	..	..	2	1	..	..	2	7	..	..	8	1	..	..	4	1	..	..	1	..	..	..	..	1	..	..	..	..	..	..	18	11	..	..				
Chronic do.	..	..	..	..	2	..	..	..	3	..	..	..	7	5	..	..	3	3	..	..	3	3	..	..	2	..	..	..	..	1	..	..	..	..	..	..	20	12	..	..				
Chronic Disease	1	3	..	..	8	4	1	..	12	2	2	1	14	8	2	1	7	4	..	1	8	3	..	..	6	..	1	1	1	1	..	..	1	..	1	..	58	25	7	4				
Ankylosis	..	..	..	..	..	1	..	..	..	2	..	..	2	2	..	..	1	2	..	..	4	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7	8	..	..				
Knock-Knee, &c.	1	..	..	..	2	1	..	..	1	1	..	..	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	3	..	..				
Disease of Sacro-iliac Synchondrosis	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..				
Diseases of the Spine.																																											
Caries	5	2	..	..	10	3	..	..	..	3	..	..	..	4	..	..	3	1	..	..	..	1	..	1	..	..	..	..	1	..	..	..	..	..	..	..	19	14	1	1				
Psoas, Lumbar, and other Abscesses	2	..	..	..	4	..	..	..	..	..	..	..	2	1	1	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	9	1	2	..				

DISEASES.	Under 5.				5–10.				10–15.				15–25.				25–35.				35–45.				45–55.				55–65.				65–75.				75 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
DISEASES OF THE ORGANS OF LOCOMOTION (*contd.*).																																											
Diseases of the Spine (contd.).																																											
Lateral Curvature	..	..	..	..	1	..	..	..	2	5	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	9	..	..
Spina Bifida, &c.	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	..
Diseases of Muscles, Tendons, &c.																																											
Contraction of Tendons, Fasciæ, or Muscles	..	1	2	..	..	..	1	..	..	1	..	..	..	1	..	..	..	..	..	..	1	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	5	..	..
Flat Foot	..	..	..	..	..	..	..	..	1	3	..	..	5	3	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	8	6	..	..
Club-Foot—																																											
a. Talipes Equinus	2	1	..	..	2	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	1	..	..
b. Do. Valgus	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..
c. Do. Equino-Varus	9	3	..	..	3	..	..	..	4	1	..	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	14	9	..	..
d. Do. Varus	1	1	..	..	1	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	2	..	..
Wry-Neck	..	..	..	..	2	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..

TABLE II (*continued*).

DISEASES.	Under 5.				5–10.				10–15.				15–25.				25–35.				35–45.				45–55.				55–65.				65–75.				75 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
DISEASES OF THE ORGANS OF LOCOMOTION (*contd.*).																																												
Diseases of Muscles, Tendons, &c. (contd.)																																												
Enlarged Bursa Patellæ	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	2	..	..
Webbed Fingers, &c.	2	..	..	..	..	..	..	..	..	4	..	..	2	..	..	..	1	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	5	..	..
Inflammation and Suppuration of Bursa Patellæ	..	..	..	..	..	..	..	..	..	1	..	..	3	8	..	..	1	2	..	..	1	4	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	6	15	..	..
Do. do. of other Bursæ	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Ganglion	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..
Diffuse Palmar Ganglion	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	3	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..	..
Bursal Tumour	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
DISEASES OF THE CELLULAR TISSUE.																																											
Abscess	8	5	1	..	9	3	..	..	4	3	..	..	23	15	..	..	20	9	..	..	9	6	..	1	6	2	..	1	4	2	..	..	2	1	..	1	..	1	..	..	85	47	1	3
Connective Tissue Tumours— *a.* Fatty	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	2	..	..	5	3	..	..	..	3	..	..	..	..	..	..	..	..	..	..	7	9	..	..

DISEASES.	Under 5.				5–10.				10–15.				15–25.				25–35.				35–45.				45–55				55–65.				65–75.				75 and upwards.				Total.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
DISEASES OF THE CELLULAR TISSUE (*continued*).																																											
Tumours (*continued*)—																																											
b. Sarcoma	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	2	2	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	3	3	..	..
c. Fibrous	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	4	1	..	..
Sebaceous Cysts	..	..	..	..	1	..	..	..	..	1	..	..	3	2	..	..	1	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	4	..	..
Dermoid Cysts	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..
Simple Cysts	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..
Hypertrophy of Head and Face	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
DISEASES OF THE CUTANEOUS SYSTEM.																																										
Ulcer	..	..	..	1	1	..	..	..	..	..	..	..	5	2	..	..	5	3	..	..	2	6	..	..	3	5	1	..	3	3	1	..	..	..	..	..	..	..	19	19	2	1
Carbuncle	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	2	..	..	..	..	2	..	..	1	..	1	..	1	..	..	..	..	..	4	3	1	..
Boil	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	..
Gangrene	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	3	..	..	..
Cicatrix	1	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	3	..	..
Nævus	3	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	3	..	..
In-growing Toe-Nail	..	..	..	..	..	..	..	..	1	..	..	..	3	1	..	..	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	2	..	..
Fibroma	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..
Congenital Mole	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..
Onychia	..	..	..	..	1	..	..	..	..	1	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	3	..	..
Keloid	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..

TABLE II (*continued*).

DISEASES.	Under 5.				5–10.				10–15.				15–25.				25–35.				35–45.				45–55.				55–65.				65–75.				75 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
GENERAL INJURIES.																																												
Burns and Scalds..	15	7	4	2	4	1	..	1	..	..	..	..	..	3	..	..	2	..	..	1	1	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	23	11	4	5
Contusions ..	..	..	..	..	1	..	..	..	1	..	..	..	1	..	..	..	4	..	..	..	1	1	..	..	3	..	..	..	1	1	..	..	..	..	..	..	..	..	1	..	12	2	1	..
LOCAL INJURIES.																																												
Injuries of the Head.																																												
Contusions ..	..	..	..	..	1	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	..
Scalp Wounds ..	..	..	..	..	2	..	..	..	2	..	..	..	5	1	..	1	5	1	..	..	6	2	1	..	4	1	..	..	2	1	..	..	1	..	1	..	..	2	..	..	27	8	2	1
Concussion of Brain	5	3	..	..	6	2	..	..	11	..	..	..	16	1	..	..	10	..	..	..	2	..	1	..	2	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	53	6	2	..
Fractures of Skull.	..	..	..	1	1	..	..	..	..	..	1	..	1	..	2	..	1	..	2	1	..	..	2	..	..	1	1	..	1	..	1	..	..	1	..	..	..	..	..	..	4	1	10	2
Injuries of the Face.																																												
Contusions ..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	1	1	1	..
Wounds	1	..	..	..	2	..	..	..	1	1	..	..	1	..	..	..	..	..	..	..	1	1	1	..	1	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	8	3	1	..
Fractures, &c. ..	..	1	..	..	1	..	..	..	1	..	..	..	..	..	..	..	4	..	..	..	1	..	..	..	2	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	10	1	..	..
Injuries of the Eye	1	..	..	..	2	1	..	..	4	2	..	..	9	2	..	..	4	1	..	..	4	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	25	7	..	..
Injuries of the Neck.																																												
Cut Throat ..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	3	..	..	..	1	2	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	5	3	1	..
Other Injuries ..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..

DISEASES.	Under 5.				5–10.				10–15.				15–25.				25–35.				35–45.				45–55.				55–65.				65–75.				75 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
LOCAL INJURIES (*continued*).																																													
Injuries of the Chest.																																													
Contusions ..	..	..	..	..	2	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	1	..	..
Wounds	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
Fractured Ribs ..	..	..	..	..	..	..	1	..	1	..	..	..	1	..	..	..	2	..	..	..	4	1	2	1	4	..	1	..	1	..	..	1	1	1	1	..	..	..	..	14	2	5	2
Dislocation of Sternum	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Injuries of the Back.																																												
Contusions and Sprains	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	..	2	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	2	..	..
Fracture of Spine .	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	3	1
Other Injuries ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	2	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	1	..
Injuries of the Abdomen.																																												
Contusions ..	..	..	..	..	2	..	..	..	2	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	..	..	..
Do., with Rupture of Viscera ..	..	..	..	..	..	..	..	..	2	..	..	..	1	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	1	..
Wounds	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	..
Injuries of the Pelvis.																																												
Hairpin in Bladder	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..

DISEASES.	Under 5.				5–10.				10–15.				15–25.				25–35.				35–45.				45–55.				55–65.				65–75.				75 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
LOCAL INJURIES (*continued*).																																													
Injuries of the Pelvis (continued).																																													
Contusions	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Wounds	..	..	..	..	..	..	..	..	2	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	4	1	..	..
Fractures	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	1	..	3	..
Ruptured Urethra, &c.	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..
Injuries of the Upper Extremity.																																												
Contusions	..	..	..	..	..	..	..	..	1	..	..	..	2	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..
Poisoned Wounds	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	1	..	..
Wound—																																												
Of Arm	..	..	..	..	..	1	..	..	2	..	..	..	2	..	1	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	1	1	..
„ Forearm and Wrist	..	..	..	..	..	..	..	..	2	..	..	..	1	1	..	..	1	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	2	..	..
„ Hand	1	..	..	..	..	..	..	..	4	..	..	..	17	1	..	..	4	..	..	..	2	..	1	..	2	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	32	1	1	..
Injuries of Vessels	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	2	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	..	..	..
Fracture—																																												
Of Clavicle and Scapula	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	5	..	..	..
„ Humerus	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	1	1	..	..	2	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	4	4	1	..
„ Forearm and Hand	..	..	..	..	1	..	..	..	..	..	..	..	2	..	..	..	4	..	..	..	1	..	..	..	..	..	1	..	..	2	..	..	..	..	..	..	..	..	..	..	8	2	1	..
Dislocations, &c.	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	2	..	1	..	..	..	..	..	1	..	..	..	..	1	1	..	1	..	..	..	..	..	..	..	5	2	2	..

DISEASES.	Under 5.				5–10.				10–15.				15–25.				25–35.				35–45.				45–55.				55–65.				65–75.				75 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
LOCAL INJURIES (*continued*).																																											
Injuries of Lower Extremities.																																											
Contusions ..	..	..	..	..	1	1	..	..	2	..	..	..	3	..	..	..	5	1	..	..	1	..	1	..	1	..	..	..	1	1	..	..	..	1	..	..	..	1	..	..	14	5	1	..
Sprained Ankle ..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	1	1	..	..	1	..	..	..	..	1	..	..	1	1	..	..	..	..	..	..	..	..	..	..	3	5	..	..
Wounds of Vessels	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Wounds—																																											
Of Thigh ..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	1
Over Knee ..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	3	2	..	..
Of Leg	1	..	..	..	2	..	..	..	2	1	..	..	3	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9	2	..	..
Of Foot ..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	5	..	..	..	1	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	9	..	1	..
Of Knee-Joint ..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..
Impacted Needles	..	..	..	..	..	..	..	..	..	1	..	..	1	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	3	..	..
Fracture of Femur	15	7	..	..	7	..	..	..	3	2	..	..	4	..	..	..	6	..	..	..	3	..	1	..	6	..	..	..	3	..	2	..	2	1	..	..	..	..	..	..	49	10	3	..
Cervix Femoris ..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	1	..	..	..	..	2	..	..	..	2	..	..	2	2	..	..	2	..	..	..	7	6	..	..
Patella	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	..	7	2	..	..	9	1	..	..	5	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	23	5	..	..
Both Bones of the Leg—																																											
Simple	..	1	..	..	1	..	..	..	1	..	..	..	12	1	..	..	13	4	..	..	16	2	..	..	11	7	..	..	10	7	..	..	3	2	..	..	..	2	..	..	67	26	..	..
Compound ..	..	..	..	..	1	1	..	..	..	..	1	..	1	..	..	..	3	..	..	..	3	1	..	..	..	..	..	..	1	..	..	..	..	..	1	1	..	1	..	1	9	3	2	2
Fracture of Tibia—																																											
Simple	..	2	..	..	4	1	..	..	6	..	..	..	7	..	..	..	3	..	..	..	3	..	..	..	2	1	..	..	..	1	..	..	2	..	..	..	..	..	..	..	27	5	..	..
Compound ..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..

DISEASES.	Under 5.				5–10.				10–15.				15–25.				25–35.				35–45.				45–55.				55–65.				65–75.				75 and upwards.				TOTAL.			
	Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.		Discharged.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
LOCAL INJURIES (*continued*).																																													
Injuries of Lower Extremities (contd.).																																													
Fracture of Fibula—																																													
Simple	..	..	..	..	..	..	..	..	2	1	..	..	2	..	..	..	10	1	..	..	7	3	..	..	4	..	..	..	3	1	..	..	1	1	..	..	..	..	..	..	29	7	..	..
Compound ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Fracture of Bones of Foot	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
"Pott's Fracture" of Leg	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	2	..	..	..	2	..	..	..	1	1	..	..	1	..	..	..	..	..	..	..	8	1	..	..
Dislocations ..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..
Nihil	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	..

SURGICAL OPERATIONS PERFORMED.

OPERATIONS.	AGE AND SEX.																									
	Under 5 Years.		5—		10—		20—		30—		40—		50—		60—		70—		Total.		Cured and Relieved		Not Relieved.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Operations on the Eye.																										
Strabismus	1	3	5	4	4	3	1	1	..	..	..	..	..	..	..	..	..	..	11	11	11	11	..	..	..	..
Iridectomy	1	2	1	1	3	2	1	6	1	2	4	2	1	..	6	3	..	1	18	19	17	19	1	..	..	..
Cataract—																										
Linear Extraction	..	..	1	..	1	..	..	1	1	1	1	1	1	3	2	5	2	2	10	13	10	12	..	1	..	..
Needle Operation	1	..	..	..	1	..	..	..	1	1	..	..	..	..	..	..	..	..	3	1	3	1	..	..	..	..
Suction „	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..
Abscission	1	..	1	3	4	2	1	2	..	..	1	..	..	..	..	..	..	..	8	7	8	7	..	..	..	..
Extirpation of Globe	..	..	1	1	1	..	2	2	..	1	2	1	1	..	2	2	1	..	10	7	10	7	..	..	..	..
Pterygium	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	1	..	..	..	..
Entropion and Ectropion	..	..	1	..	..	..	..	..	3	1	1	..	..	..	..	..	..	..	2	4	2	4	..	..	..	..
Anterior chamber tapped	..	..	..	1	..	..	1	1	1	..	..	..	..	..	..	..	..	..	2	2	2	2	..	..	..	..
Peritony	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..
Excision of Joints and Bones.																										
Knee	..	..	2	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	3	1	2	1	1	..	..	..
Ununited Fracture of Forearm	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..

OPERATIONS.	AGE AND SEX.																									
	Under 5 Years.		5—		10—		20—		30—		40—		50—		60—		70—		Total.		Cured and Relieved.		Not Relieved.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
EXCISION OF JOINTS AND BONES (*continued*).																										
Elbow	..	..	1	..	..	1	1	..	..	..	1	..	..	..	..	..	..	..	3	1	2	1	1	..	..	..
Wrist	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..
Removal of Sequestra:																										
From Head and Face	..	1	3	..	..	..	3	..	4	2	..	..	2	..	..	..	..	..	12	3	12	3	..	..	..	..
„ Upper Extremity	..	..	1	..	3	1	1	..	1	..	1	..	..	..	..	1	..	..	7	2	7	2	..	..	..	..
„ Lower Extremity	..	..	3	1	7	3	3	1	1	..	2	..	..	..	..	..	..	..	16	5	14	5	..	..	2	..
AMPUTATIONS.																										
Primary:																										
Arm	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	2	..	2	..	..	..	..	..
Forearm	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	2	..	2	..	..	..	..	..
Parts of Hand	..	..	Many		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Thigh	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	2	..	2	..	..	..	..	..
Leg	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	1	1	..	..	..	..	1	1
Parts of Foot	..	..	Many		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Kneejoint	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..
Secondary:																										
Forearm	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..
Leg	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	1	..

OPERATIONS.	AGE AND SEX.																									
	Under 5 Years.		5—		10—		20—		30—		40—		50—		60—		70—		Total.		Cured and Relieved.		Not Relieved		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Amputations (*continued*).																										
For Disease:																										
Arm	..	..	..	..	..	..	..	..	2	..	1	..	..	..	..	1	..	..	3	1	3	1	..	..	..	..
Forearm	..	..	..	..	..	..	1	..	..	..	3	..	..	..	..	..	..	..	4	..	4	..	..	..	..	..
Hip Joint	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	1	1	..	..	..	..	1	1
Thigh	..	..	..	1	6	1	2	..	3	..	1	..	..	..	..	..	..	..	12	2	11	2	..	..	1	..
Leg	..	..	..	..	..	..	1	..	2	1	1	..	..	..	1	..	1	..	6	1	4	1	..	..	2	..
Ankle Joint	..	..	..	..	4	1	..	..	..	..	..	..	..	..	..	..	..	..	4	1	4	1	..	..	..	..
Parts of Hand	..	..	Many		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Parts of Foot	..	..	Many		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Removal of Tumours.																										
Cancer:																										
Jaw	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..
Breast	..	..	..	..	..	..	..	..	..	7	..	4	..	8	..	1	..	..	..	20	..	19	..	..	..	1
Tongue	..	..	..	..	..	..	..	..	..	..	1	..	3	..	2	1	1	..	7	1	6	1	..	..	1	..
Lip	..	..	..	..	..	..	..	..	..	..	..	..	3	..	5	..	..	..	8	..	8	..	..	..	..	..
Labium	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..
Penis and Serotum	..	..	..	..	..	..	..	..	1	..	2	..	2	..	2	..	1	..	8	..	8	..	..	..	..	..
Skin	..	..	..	..	..	..	..	..	1	..	1	..	..	1	2	..	2	..	6	1	6	1	..	..	..	..
Testis	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..
Rodent Ulcer	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	1	..	..	..	..	..

OPERATIONS.	AGE AND SEX.																									
	Under 5 Years.		5—		10—		20—		30—		40—		50—		60—		70—		Total.		Cured and Relieved.		Not Relieved.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Removal of Tumours (*continued*).																										
Connective Tissue Tumours:																										
Lymphoma	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..
Fatty	..	..	..	..	..	..	1	1	1	1	4	2	..	3	..	1	..	..	6	8	6	8	..	..	..	..
Fibro-cellular and Fibrous	..	..	..	..	3	..	..	..	1	1	..	1	..	..	..	1	..	..	4	3	4	3	..	..	..	..
Sarcomata	..	..	..	..	1	..	..	..	..	1	..	2	1	1	..	..	..	..	2	4	2	4	..	..	..	..
Exostosis	..	..	..	..	2	2	2	1	..	..	..	..	..	..	..	..	..	..	4	3	4	3	..	..	..	..
Enchondroma	..	..	..	..	1	2	1	..	1	1	..	..	..	..	..	..	..	..	3	3	3	3	..	..	..	..
Epulis	..	..	..	..	..	..	1	..	..	1	..	1	..	..	..	..	..	..	1	2	1	2	..	..	..	..
Sebaceous Tumours	..	..	1	..	..	2	3	1	1	..	..	..	..	..	..	..	..	..	5	3	5	3	..	..	..	..
Dermoid cysts	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	2	..	..	..	..
Tonsils removed	..	..	..	2	1	1	..	..	..	..	..	..	..	..	..	..	..	..	1	3	1	3	..	..	..	..
Testicle removed	..	..	..	..	..	..	1	..	..	..	2	..	..	..	..	..	..	..	3	..	3	..	..	..	..	..
Upper Jaw removed	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..
Lower do. do.	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	2	..	2	..	..	..	..	..
Adenoid Tumours:																										
Breast	..	..	..	..	..	..	..	3	..	2	..	3	..	2	..	..	..	..	..	10	..	10	..	..	..	..
Submaxillary Gland	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..

OPERATIONS.	AGE AND SEX.																									
	Under 5 Years.		5—		10—		20—		30—		40—		50—		60—		70—		Total.		Cured and Relieved.		Not Relieved.		Died.	
	M	F	M	F	M	F	M	F	M	F	M		M	F	M	F	M	F	M	F	M	F	M	F	M	F
REMOVAL OF CALCULI.																										
By Lithotomy—Lateral	2	..	1	..	3	..	..	..	1	..	..	..	1	..	..	..	..	..	8	..	8	..	..	..	..	..
Dilatation of Urethra	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..
From Urethra	2	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	3	..	..	..	..	..
INCISIONS.																										
Colotomy	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	1	1	1	..	..	..	..	1
Abdominal Section	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..
Ovariotomy	..	..	..	..	..	..	..	2	..	1	..	4	..	..	..	..	..	..	..	7	..	3	..	..	..	4
Incomplete Operation	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	2
Exploratory Incision	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
For Hernia:																										
Inguinal:																										
Herniotomy—																										
Opening of Sac	..	..	..	..	1	..	..	..	1	..	1	..	3	..	..	..	..	..	6	..	1	..	..	..	5	..
Without opening	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	1	..
Femoral:																										
Herniotomy—																										
Opening of Sac	..	..	..	..	..	..	1	..	..	2	..	4	..	3	..	4	..	5	1	18	1	12	..	..	..	6
Without opening	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	2	..	..	..	..	..	2

OPERATIONS.	AGE AND SEX.																									
	Under 5 Years		5—		10—		20—		30—		40—		50—		60—		70—		Total.		Cured and Relieved.		Not Relieved.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Incisions (*continued*).																										
For Hernia:																										
Umbilical;																										
Herniotomy--																										
Opening of Sac	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	1	1	1	1	..	..	..	..
Hæmorrhoids—																										
By Excision or Ligature	..	..	..	..	1	..	..	1	4	2	2	..	6	1	1	1	..	..	14	5	14	5	..	..	..	..
Subcutaneous Osteotomy	..	1	..	..	1	..	..	2	..	..	..	..	..	..	..	..	..	..	1	3	1	2	..	..	..	1
Fissure of the Anus	..	..	..	..	..	1	..	1	..	2	..	..	..	..	..	..	..	..	..	4	..	4	..	..	..	..
Tenotomy	7	4	3	4	6	5	2	..	..	..	..	..	..	..	..	..	..	..	18	13	18	13	..	..	..	..
Anal Fistula	..	..	..	..	1	..	4	2	6	2	4	..	2	1	..	..	..	..	17	5	17	5	..	..	..	..
Phimosis	9	..	3	..	9	..	6	..	1	..	1	..	..	..	..	..	1	..	30	..	30	..	..	..	..	..
Tracheotomy	1	..	1	..	..	..	..	..	1	..	..	1	1	..	..	..	..	..	4	1	2	1	..	..	2	..
Perinæal Section	..	..	..	..	..	..	1	..	3	..	..	..	..	..	..	..	..	..	4	..	4	..	..	..	..	..
Ligature of Vessels.																										
External Iliac	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	2	..	1	..	..	..	1	..
Radial Artery	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	2	..	2	..	..	..	..	..
Ulnar do.	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..

OPERATIONS.	AGE AND SEX.																									
	Under 5 Years.		5—		10—		20—		30—		40—		50—		60—		70—		Total.		Cured and Relieved.		Not Relieved.		Died.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Miscellaneous Operations.																										
Re-amputation of Stumps	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	1	1	1	1	..	..	..	..
Ingrowing Toe-nail	Many		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Nerve Stretching	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..
Trephining	..	..	..	..	..	1	1	..	..	..	..	..	1	..	..	..	..	..	2	1	..	..	..	..	2	1
Hairpin in Bladder	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..
Radical Cure of Spina Bifida	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	1	..	..	1	..
Reparative Operations.																										
Harelip	7	2	3	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	10	3	9	3	1	..	..	..
Cleft Palate	..	2	2	1	1	3	2	1	..	..	..	..	..	..	..	..	..	..	5	7	5	7	..	..	..	..
Deformity from Cicatrices	1	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	1	2	1	2	..	..	..	..
Vesico-vaginal Fistula	..	..	..	..	..	..	..	2	..	2	..	2	..	..	..	..	..	..	..	6	..	6	..	..	..	..
Ruptured Perinæum	..	..	..	..	..	..	..	3	..	1	..	..	..	..	..	..	..	..	..	4	..	4	..	..	..	..

During the year 1877 Anæsthetics were administered 1896 times.

Of these Chloroform was administered.. ..	699	times.
Nitrous Oxide Gas alone	29	„
Ether alone	23	„
Bichloride of Methylene	22	„
Ether, preceded by Nitrous Oxide ..	1123	„
	1896	

No Death.

APPENDIX

TO

TABLE OF OPERATIONS.

EXCISION OF JOINTS AND BONES:

All the excisions were performed for chronic disease.

Knee.—In a boy, 11 years old. Osteomyelitis rapidly followed excision of the knee. Amputation of the thigh was performed, but the disease extended up the shaft of the Femur, and death speedily followed from osteomyelitis and pyæmia.

AMPUTATIONS:

Primary—

Arm.—Amputation was performed in a youth 18 years of age for rapidly-spreading traumatic gangrene following a simple fracture of the Forearm. The gangrene was thought to be due to too tight application of strapping and bandage.

Leg.—Death in a male, aged 27, from pyæmia. Death from exhaustion in a woman, aged 69, fifteen days after amputation.

For Disease—

Arm.—In a man, aged 47, after excision of the Elbow. In a woman, aged 62, for disease of the Elbow. In two men, on account of paralysed and painful limbs, due to old injuries.

Forearm.—In every case for chronic disease of the Wrist-joint.

Hip-joint.—An Italian, 54 years of age, suffered so much pain from a pulsating sarcoma of the head of the Femur that, in spite of his reduced condition, amputation was performed. The operation was performed on the woman after unsuccessful subcutaneous osteotomy of the neck of the Femur.

Thigh.—In nine males and one female, for chronic disease of the Knee-joint. In one male, for acute necrosis of the Tibia. In two males, for sarcomatous tumours of the Thigh. In one child (female), 7 years old, on account of acute inflammation and suppuration of the Knee-joint, following some time after the removal of a very large fibro-lipoma of the upper part of the leg. The only death occurred in the case of the boy mentioned above from osteo-myelitis and pyæmia.

Leg.—In three cases for chronic disease of the Ankle-joint, due in one case to abscess of the lower end of the Tibia. In one case for spontaneous gangrene of the Foot, a man, 30 years of age. In a man, 27 years old, for perforating ulcer of the stump of a Syme's operation. In a man and a woman, for chronic ulcers of the Leg.

The deaths occurred in the woman and in an old man of 74, whose Leg was amputated for diseased Ankle.

Ankle-joint.—In every case Syme's amputation. In three cases for diseased Ankle. In two cases for old Deformity.

Removal of Tumours:

Testicle Removed.—In three cases for strumous disease.

Jaw Removed.—In all cases for sarcomatous tumours.

Incisions:

Colotomy.—In both cases for malignant disease.

Abdominal Section.—For acute intussusception. (See Appendix to Table I.)

Subcutaneous Osteotomy.—In a male, for deformity due to congenital fracture of the Leg. In a child, for ricketty deformity of the Legs. In two young women, Adams's operation of subcutaneous osteotomy was performed. One of these afterwards suffered amputation of the Hip-joint.

Ligature of Vessels:

External Iliac.—A man, 36 years old, was admitted with a pulsating, suppurating tumour in the situation of the Femoral Glands. He was much exhausted by repeated hæmorrhages. Bleeding occurred soon after admission, and the blood flowed per saltum. The External Iliac was ligatured, but the patient succumbed a few hours after the operation. The autopsy discovered a large glandular abscess—probably gonorrhœal—which had made its way into the Femoral Artery and Vein.

SUB-TABLE, SHOWING THE NUMBER OF CASES OF ERYSIPELAS, PYÆMIA, &c.

DISEASES.	Under 5.		5–10.		10–20.		20–30.		30–40.		40–50.		50–60.		60–70.		70–80.		Total.		Deaths.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Erysipelas—																						
Admissions..	..	..	..	..	1	2	1	1	6	1	1	3	2	1	..	1	..	..	11	9	..	..
Occurring in Hospital	..	..	..	..	..	..	2	1	1	3	1	..	1	..	..	1	..	..	5	5	..	..
,, after Operations	..	..	..	1	2	..	..	..	..	..	..	1	..	2	..	..	1	..	3	4	1	1
Phlegmonous Inflammation—																						
Admissions..	1	1	1	..	1	1	5	..	7	2	7	2	4	3	3	..	..	..	29	9	3	1
Occurring in Hospital	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	1	..
,, after Operations	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Diffuse Cellulitis—																						
Admissions..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	1	..
Occurring after Operations	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..
Pyæmia and Septicæmia—																						
Admissions..	..	..	..	..	1	..	..	1	1	..	..	..	..	..	..	..	..	..	2	1	1	..
Occurring in Hospital	..	..	..	..	3	1	..	1	..	..	1	..	..	..	..	..	1	..	5	2	5	2
,, after Operations	..	..	..	1	1	..	1	..	..	..	2	..	..	..	..	..	..	..	4	1	4	..
Phagedæna—																						
Admissions..	..	1	..	..	1	..	1	1	..	..	..	..	..	..	..	..	..	..	2	2	..	..

TABLE OF AMPUTATIONS WITH THE PERCENTAGE OF DEATHS DURING THE TEN YEARS *from* 1868 *to* 1877, *inclusive.*

OPERATIONS.	CASES UNDER TREATMENT.										PERCENTAGE OF DEATHS.										Total Number of		Average Percentage of Deaths.
	1868	1869	1870	1871	1872	1873	1874	1875	1876	1877	1868	1869	1870	1871	1872	1873	1874	1875	1876	1877	Cases.	Deaths.	
PRIMARY.																							
Thigh	..	1	..	2	3	2	..	1	1	2	..	100·	..	50·	33·33	..	..	100·	..	..	12	4	33·33
Knee-Joint	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Leg	3	1	3	1	..	..	..	..	3	2	100·	..	33·33	..	..	..	..	..	66·66	100·	13	8	61·53
Ankle-Joint	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Shoulder-Joint ..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	100·	..	..	..	2	1	50·
Arm	2	1	2	1	1	3	3	3	2	2	..	..	50·	..	..	..	..	33·33	..	..	20	2	10·
Forearm	7	4	1	3	5	..	..	2	2	2	14·28	..	..	..	..	..	..	..	50·	..	26	2	7·69
SECONDARY.																							
Thigh	1	1	2	1	1	..	1	..	2	..	100·	..	..	..	..	..	..	..	50·	..	9	2	22·22
Knee-Joint	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Leg	5	1	..	3	..	1	1	2	..	1	60·	..	..	66·66	..	..	..	..	..	100·	14	5	35·71
Arm	..	..	2	..	2	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	5	..	..
Forearm	..	1	1	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	4	..	..

OPERATIONS.	CASES UNDER TREATMENT.										PERCENTAGE OF DEATHS.										Total Number of		Average Percentage of Deaths.
	1868	1869	1870	1871	1872	1873	1874	1875	1876	1877	1868	1869	1870	1871	1872	1873	1874	1875	1876	1877	Cases.	Deaths.	
FOR DISEASE.																							
Hip-Joint	..	..	..	..	..	1	1	2	1	2	..	..	..	..	..	..	100·	..	100·	100·	7	4	57·14
Thigh	13	10	9	18	15	12	19	18	9	14	53·84	20·	11·11	22·22	13·33	..	10·52	27·77	11·11	7·14	137	25	18·24
Knee-Joint	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..
Leg	10	8	5	4	5	7	7	9	2	7	30·	25·	40·	..	..	14·28	..	..	50·	28·57	64	11	17·18
Ankle-Joint	6	4	..	2	8	8	9	7	6	5	..	25·	..	..	12·5	..	11·11	..	16·66	..	55	4	7·27
Shoulder-Joint ..	..	1	2	1	..	..	..	..	1	..	..	..	..	100·	..	..	..	..	100·	..	5	2	40·
Arm	3	1	1	..	1	..	..	2	4	4	..	100·	100·	..	100·	..	..	..	25·	..	16	4	25·
Forearm	2	..	1	3	2	1	4	3	2	4	..	..	100·	..	..	..	..	..	..	..	22	1	4·54

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