

THE INFLUENCE
OF
SEX IN DISEASE

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BY
W. ROGER WILLIAMS, F.R.C.S.

SURGICAL REGISTRAR TO THE MIDDLESEX HOSPITAL
SURGEON TO THE WESTERN GENERAL DISPENSARY

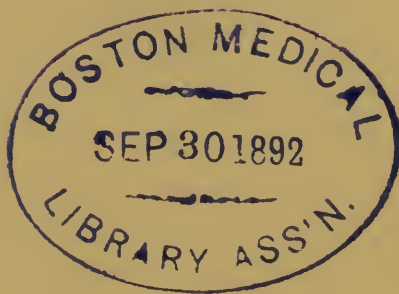


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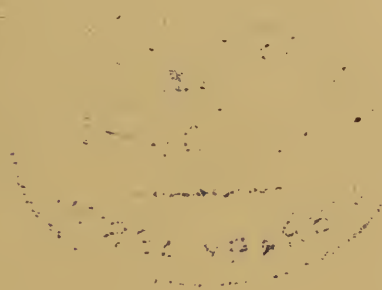
J. WHITAKER HULKE, F.R.S.

SENIOR SURGEON TO THE MIDDLESEX HOSPITAL AND TO THE
ROYAL LONDON OPHTHALMIC HOSPITAL

IN ADMIRATION OF

HIS WORK

AS A CLINICAL TEACHER



P R E F A C E.

I HAVE here brought together, and given definite expression to, a large number of facts concerning the influence of sex in disease.

Many of these facts previously existed in what may be called the amorphous state ; others are now given for the first time.

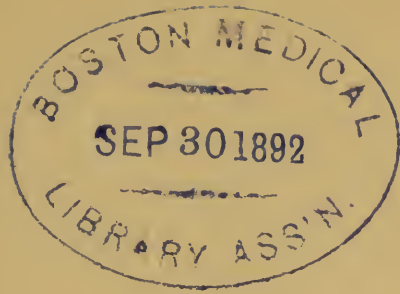
In the opening remarks I have introduced a brief general survey of the subject. As a rule, the tables speak for themselves, but in many instances some comment seemed necessary.

This work would have been impossible but for the valuable statistical reports published by the various Hospitals herein named. I am convinced that this method of investigating disease—which, after its author, may be called the Hippocratic method—is of real importance.

When I consider the great advances recently made in biological science, and the methods by which they have been attained ; and when I compare them with what is now being done by modern pathology, I am amazed at the attitude of the latter, which, in its blind pursuit of isolated facts in ultimate analysis, to the exclusion of all others, obstinately ignores the brilliant example to which I have alluded, so largely due to the labours of our illustrious countrymen.

W. ROGER WILLIAMS.

LONDON : *November*, 1885.



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‘It has long been known that in the vertebrate kingdom one sex bears rudiments of the various accessory parts, appertaining to the reproductive system, which properly belong to the opposite sex ; and it has now been ascertained that at a very early embryonic period both sexes possess true male and female glands.’—
DARWIN.

IN ORDER rightly to understand the significance of sex, we must first of all realise the highly important fact that the earliest and most primitive sexual relation was hermaphroditism ; and that the separation of the sexes, as they at present exist, was only secondarily effected, by division of labour, in the gradual progress of evolution.

All organisms, as Lamarck was the first to show, are prone to vary in consequence of ever-varying changes in the environment ; or, as Herbert Spencer puts it, life is but the continuous adjustment of internal relations to external relations.

In estimating the significance of sex, due allowance must be made for causes coming under this head.

But it is chiefly in consequence of sexual selection that male animals have been rendered so widely different from their females ; and that they tend to vary, anatomically and pathologically, in a different manner. Thus were developed

the so-called 'secondary sexual characters'—that is, those differences in the male and female sexes which appear not in the sexual organs themselves, but in other parts of the body, such as the beard of man and the breast of woman. Independently of selection, however, something must be allowed for inherent constitutional differences.

It is a very remarkable fact that in every female all the secondary male characters, and in every male all the secondary female characters, exist in a latent state, ready to be evolved under certain conditions.

Thus the females of many animals, when old, sometimes assume, more or less completely, the secondary male characters of their species; and it occasionally happens that morbid tendencies manifest a like peculiarity in their development.

— In almost all countries where statistical records have been kept, the females are found to outnumber the males. This result is partly due to artificial conditions incidental to advanced civilisation.

— Of the 25,974,439 persons in England and Wales, enumerated at the Census of 1881, 12,639,902 were males and 13,334,537 females: This shows an excess of 694,635 females. To each 100 males there were 105·5 females. In England the proportion of females to males has been slightly but steadily increasing during the last half-century.

— This preponderance of females is all the more remarkable because the male births invariably outnumber the female births; they stand to one another in the proportion of 104 of the former to 100 of the latter.

The difference would be still greater if death struck both sexes equally before birth; but the fact is that for every 100 still-born females there are 140 still-born males (Faye). This original numerical superiority of the males is, however, soon lost, owing to their much higher death-rate, especially in early infancy. Thus it has vanished by the end of the first year of life;¹ during this period in England 126 boys die for every 100 girls. At almost every subsequent age-period, the males

¹ Vide *Registrar-General's Report of the Census of 1881*, vol. iv.

have a greater liability to death, and a higher death-rate than the females, and this in increasing proportions.

These facts are well illustrated by the subjoined table,¹ showing the comparative male and female mortality per 1,000—in 12 groups of ages—for the 41 years from 1838 to 1878.

Sex	Aver- age	Under 5	5-10	10-15	15-20	20-25	25-35	35-45	45-55	55-65	65-75	75-85	Over 85
Males . .	23·3	71	8	4	6	8	9	13	18	32	67	147	311
Females . .	21·1	62	8	4	7	8	9	12	15	28	59	134	287

The superiority of woman is here well marked, except during childhood, the years of puberty, of early married life, and much child-bearing.

From the fact of this peculiarity being strongly developed during infancy, when the dress, food, and general treatment of both sexes are alike, it may be inferred that the higher male death-rate is chiefly the result of some constitutional condition inherent to sex.

As a rule women live longer than men. In his English life tables Farr estimated the mean duration of the life of males at 39·9 years, and that of females at 41·9 years.—

A more recent computation has put it at 41·9 and 45·3 years respectively; showing a gain on the former estimate of 5 per cent. for males, and of more than 8 per cent. for females. Of 89 persons, returned by the Registrar-General in the report for 1873, as dying at or over the age of 100, only 10 were males.

In England for many years past there has been a slight comparative increase in the value of female life, apparently owing to the conditions of female life being easier; for in Belgium and Sweden, where women engage in laborious employments, the mean duration of their life is considerably shortened, so that it becomes, under these circumstances, even less than that of men.

After long study of domesticated animals, Darwin con-

¹ Beddoe, Art. 'Mortality,' *Quain's Dictionary of Medicine*.

cluded that the males were more liable to vary than the females.

Good evidence can be adduced for extending this conclusion to the two sexes of mankind. Thus Wood has found that the greater number of muscular abnormalities occur in the male sex; and of 125 cases of supernumerary digits tabulated by Wilder, 86 were males, and 39, or less than half, females.

It may be stated as a general rule that congenital defects are much commoner among males than among females. Thus there were in England, according to the Census of 1881, 133 male congenital idiots to 100 female ones.

But there are many exceptions to this rule, of which spina bifida is a good example.

Deaf-mutism and blindness, though perhaps, strictly speaking, not congenital defects, may also be mentioned here. To both of these the male liability is the greater. According to the Census of 1881, there were in England, of deaf mutes 8,043 males to 6,831 females, and of the blind, 12,048 males to 10,784 females.

Twice as many males as females die in hospitals, one cause of the excess being the great number of violent deaths among males.

In accordance with these facts, and as may be inferred from their higher death-rate, males are on the whole more liable to diseases, which are simply variations inconsistent with health, than females.

The cause of this greater general variability of the male sex is unknown. Darwin thought it might perhaps be partially accounted for by the secondary sexual characters, which are extraordinarily variable, especially in the males.

Male and female children differ less than adults in their constitution and liability to disease, as well as in other respects. On the whole, they resemble the mature female much more closely than they do the mature male.

I have no intention of entering into a detailed statement of the various diseases resulting from the anatomical peculiarities proper to each sex; although in practice it is of great

importance constantly to bear them in mind, together with the consequences they entail. I will, however, here state the most important difference between the sexes in their liability to disease, which is this: that women suffer out of all proportion from diseases of the *Generative System*, and men from diseases of the *Urinary System*.

There are in women two constitutional peculiarities not immediately attributable to sex, which it is of importance to recognise—viz. defective sanguification and a highly nervous organisation.

Exaggeration of the former of these conditions results in anæmia, debility, dyspepsia, constipation, and other gastrointestinal diseases, as well as not a few uterine and catamenial disorders.

On the other hand, it affords some protection from acute inflammatory affections, active hæmorrhages, gout, hæmophilia, aneurism, and other diseases in which atheroma is the principal lesion, to all of which women are less liable than men.

Hysteria, insanity, chorea, palpitation, goitre, migraine, neuralgia, the various forms of nervous mimicry, &c., are examples of diseases resulting from the predominance of latter condition.

Men are stronger, more passionate, more violent and intemperate than women, yet withal possessed of superior mental powers. They are also more exposed to climatic influences and to the wear and tear of life.

Hence they are more liable than women to all kinds of traumatism, delirium tremens, alcoholism, diseases of the great arteries, kidneys, lungs, brain, bones, and joints; also to gout, rheumatism, and to sudden death.

In the subjoined table I have arranged the diseases to which each sex is the more liable in order of sequence, indicating relative liability:—

Diseases to which Females are the more liable	Diseases to which Males are the more liable	Diseases to which both sexes are equally liable
Generative system. Hysteria. Goitre and Exophthalmic goitre. Prepatellar bursitis, &c. Stricture of rectum. Chorea. Cysts. Non-malignant growths. Malignant growths. Anæmia and Debility. Lateral spinal curvature. Gastric ulcer. Anal fissure. Ascites. Peritonitis. Dropsy. Dyspepsia. Constipation. Condyloma. Quinsy and Hypertrophy of tonsils. Nasal polypus. Cancrum oris. Varix and Phlebitis. Internal and external strabismus. Glaucoma. Keratitis and Corneal ulcer. Erythema. Eczema. Psoriasis. Ulcers. Spina bifida. Whooping cough. Insanity. Ulceration and stricture of intestines. Diphtheria. Influenza. Phthisis.	Stricture of urethra. Gonorrhœal rheumatism. Stone in bladder. Angina pectoris. Tetanus. Locomotor ataxy. Alcoholism. Traumatisms. Cystitis. Gout. Hydrophobia. Addison's disease. Aneurism and Atheroma. Carbuncle. Ischio-rectal abscess and Fistula-in-ano. Nephritis. Diabetes. Gangrene. Pleurisy and Empyema. Pneumonia. Asthma. Croup. Rickets. Non-strangulated hernia. Cirrhosis of liver. Ileus. Necrosis and Caries. Periostitis and Ostitis. Coxalgia. Pulpal disease of joints. Synovitis and Arthritis. Abscesses. Angular spinal curvature. Chronic lymphadenitis. Thrush. Erysipelas. Sudden death. Hydrocephalus. Laryngitis. Small-pox. Measles. Convulsions. Scarlet fever. Typhoid fever. Scrofula. Boils. Hæmorrhoids. Apoplexy.	Rheumatic fever. Epilepsy. Syphilis. Cataract. Diarrhœa. Heart disease. Bronchitis. Cholera. Strangulated hernia.

In further elucidation of the subject I have compiled the subjoined tables, which, as far as I am aware, constitute the first attempt to deal with the subject in its entirety.

The Hospital Returns refer to in-patients under treatment at the Middlesex Hospital during the years 1882-77, and at St. Bartholomew's Hospital during the years 1883-78.

Of these 37,689 were surgical cases—21,350 males and 16,339 females; 22,995 were medical cases—11,159 males and 11,836 females.

The Mortality Returns are derived from the Registrar-General's report for the twenty-five years 1872-48. They refer to the total mortality from all causes during that period.

Groups of Disease	Hospital In-patients		Mortality Returns	
	Males	Females	Males	Females
Grand total of all Diseases	32,509	28,175	5,419,865	5,082,281
No. 1. <i>Zymotics</i> :—				
Small-pox	31	14	73,179	62,110
Measles	102	86	106,271	103,269
Scarlet fever.	304	263	231,839	225,868
Febricula	141	107	—	—
Typhus fever	18	11	—	—
Typhoid fever	655	479	219,569	227,734
Ague	28	6	2,097	1,727
Remittent fever	3	1	4,051	4,372
Cholera	—	—	56,344	56,001
Diphtheria	101	141	27,645	31,285
Whooping cough	27	48	114,991	141,853
Influenza	—	—	16,539	18,298
Erysipelas	487	284	25,249	23,480
Pyæmia and Septicæmia	48	39	—	—
Puerperal fever	—	—	—	28,439
Carbuncle	55	24	3,898	1,549
Glanders and Farcy	2	1	61	1
Other zymotics	17	20	798	680
Total	2,019	1,524	882,531	927,224

Small-pox, measles, scarlet fever, and febricula.—It is generally stated that both sexes are equally prone to small-pox, measles, scarlet fever, and febricula. My figures do not support this conclusion; they show that males are the more liable and have the greater mortality.

No. 2. Constitutional Diseases	Hospital In-patients		Mortality Returns	
	Males	Females	Males	Females
<i>Rheumatism :—</i>				
Rheumatic fever . . .	964	968		
Chronic rheumatism . . .	215	201		
Gonorrhœal rheumatism . . .	100	3		
Chronic osteo-arthritis . . .	45	43		
Lumbago	27	16		
Sciatica	64	34		
Total	1,415	1,265	27,405	25,837
Gout	178	25	6,029	1,438
<i>Syphilis :—</i>				
Primary	182	172		
Constitutional	331	380		
Hereditary	12	13		
Total	525	565	15,396	14,621
<i>Other Venereal Diseases :—</i>				
Soft chancre	121	89		
Gonorrhœa	134	229		
Condyloma	17	69		
Bubo	67	36		
<i>Neoplasms :—¹</i>				
Malignant	2,573	4,317	53,867	123,433
Non-malignant	866	2,250		
Cysts	248	846	—	5,639 (ovarian)
Total	3,687	7,413		
Lupus	73	157		
Scrofula	5	3	39,440	31,737
Tabes mesenterica	2	2	73,479	65,416
Hæmoptysis	126	35	—	—
Phthisis	591	394	618,729	674,164
Hydrocephalus	91	68	107,002	79,781
Acute tuberculosis	34	32	—	—
General dropsy	2	—	84,197	117,789
Diabetes	83	38	9,165	4,629
Addison's disease	8	3	—	—
Rickets	39	20	—	—
Scurvy and Purpura	41	33	4,909	4,100
Hæmophilia	5	1	—	—
Anæmia and Debility	121	522	303,400	285,734
Privation	—	—	1,120	801
Want of breast milk	—	—	4,909	4,100
Total	7,365	10,999	1,349,047	1,439,219

¹ These cases are from a much larger field than those of the rest of the tables. (q. v. p. 11.)

Typhoid fever.—More males than females are attacked by typhoid fever; yet on the whole more females die. Of 293 cases under treatment at the Middlesex Hospital during the four years 1880–83, 157 were males and 136 females. Of the former, 13 died (8·2 per cent.); of the latter, 27 died (19·8 per cent.) This striking difference is chiefly due to the frequency of perforation in females. In these cases pregnancy had nothing to do with it. Murchison states that one sex is as liable to typhoid fever as the other. Subsequent authors have simply repeated this statement, without taking the trouble to verify it; the error therefore is widespread.

Murchison based his statement on the total number of cases of each sex under treatment at the London Fever Hospital during a given number of years. It probably means little more than that an equal number of beds were available for both sexes. My estimate is free from this objection.

Typhus fever.—Both sexes are said to be equally liable to typhus fever; but the male mortality is the greater.

Diphtheria, whooping cough, and influenza.—The liability to diphtheria, whooping cough, and influenza is decidedly the greater in females; especially is this the case with whooping cough. This relation is remarkably constant.

Carbuncle.—Men are more than twice as subject to carbuncle as women.

Rheumatic fever.—The statements usually made with regard to the relative liability of the sexes to rheumatic fever, ascribe greater proneness to it on the part of males. Of 646 cases brought together by Garrod, 345 were males and 301 females.

Of the 1,932 cases in my table, 964 were males and 968 females.

This shows that both sexes are about equally liable.

Chronic rheumatism, gonorrhœal rheumatism, chronic osteo-arthritis, lumbago, and sciatica.—Females very rarely suffer from gonorrhœal rheumatism (only about 3 per cent. of all cases are of this sex, according to my estimate).

An *acute* form of gonorrhœal rheumatism has been recently described to which females are more liable than males. To chronic rheumatism, lumbago, and sciatica females are less liable than males. Chronic osteo-arthritis, on the whole, affects both sexes equally. The non-articular variety, in which the large joints chiefly are affected—especially the hips—is said to be of more frequent occurrence in men, whilst women suffer chiefly from the poly-articular form, affecting the small joints—especially of the hand.

Gout.—With regard to gout, of 80 cases treated by Garrod, 78 were males and only 2 females. Commenting on this, Dr. Garrod says: ‘As far as my experience goes I quite agree with this estimate, my results having shown that true gout, in its well-developed articular form, is extremely rare among females; and this holds good in both hospital and private practice. To such an extent is this the case that the influence of sex becomes a diagnostic mark between gout and rheumatism, for the latter is at least as equally frequent in men as in women.’

My figures show a less pronounced distinction than is here laid down: 178 males to 25 females.

Is this an indication of increasing resemblance between our age and the degenerate period of the Roman Empire, when women gave themselves up to every kind of intemperance, and became, equally with men, the subjects of gout?

Neoplasms.—Many theories are current as to the nature of cancer and other tumours. All of them appear to me inadequate to the purpose they are intended to fulfil; sundry of them are positively misleading; none of them have a stable basis. They reflect the prevailing confusion; and its cause—the want of a clear conception of the nature of the morbid process. My views, briefly, are these:—

I regard Cancers and Tumours as new growths—that is to say, as morphological variations, comparable in their nature to the buds of plants. The further development of the bud or initial cellular mass may be either continuous or discontinuous: it may spread as ingrowth, outgrowth, or

sometimes as both. Innocent tumours I compare with ordinary buds, because they tend to reproduce the parent structure; malignant ones with the bud variations of the so-called 'sporting plants,' because their evolution manifests departure from the parent type. The varieties under each class depend on the varying degrees of evolution.

I seek the causes of these diseases in the laws of organic morphology; which, however, are but imperfectly known. Yet this much is known, that in the end all the phenomena of variation are traceable to the influence of changed and abnormal conditions of life. These conditions may be communicated to the organism either *directly*, or *indirectly* through the reproductive system. I regard the production of monstrosities as, on the whole, closely allied to tumour formation. They probably differ only in degree. By exposing the parent to certain extraordinary conditions of life, as is well known, monstrosities may be artificially produced in the offspring. This may happen without any obvious change ensuing in the parent. The morbid impulse thus generated, issues—through the parental reproductive system—as disease in the offspring. I believe the causes of cancers and other tumours will be found in unnatural conditions of life associated with advanced civilisation. The extreme susceptibility of the female reproductive system to injurious influences of this kind is a matter of great importance to the understanding of such facts as I will now proceed to state.

Neoplasms: statistics.—The development of new growths is greatly influenced by sex. Not being aware of any comprehensive statistics on this subject, embracing a sufficiently large number of cases to be perfectly reliable, I have compiled the subjoined tables, hoping by so much to make good the deficiency. For this purpose I have made an analysis of all the primary tumours—11,100 in number—under treatment at four large metropolitan hospitals during the following years: Middlesex Hospital, 17 years (1883–67); St. Bartholomew's, 11 years (1883–73); St. Thomas's, 10 years (1883–74); and University College, 12 years (1882–71). Thus:—

TABLE I.—GENERAL : ALL NEW GROWTHS.

Kind of New Growth	Total No. of cases	Males	Females	% Approx.		Appendix
				Males	Females	
Carcinoma ¹ . .	4,027	641	3,386	16	84	<p>¹ In using the terms <i>carcinoma</i> and <i>epithelioma</i>, I have followed the classification adopted by the registrars of the hospitals, whose reports I have employed. But in this respect they are not perfectly unanimous, especially with regard to uterine cancer.</p> <p>² Eighty-five per cent. of the <i>adenomas</i> were of the female breast; one was of the male breast. Of those situated elsewhere the majority were in the salivary glands (chiefly the parotid); the male liability to these was nearly double that of the female.</p> <p>³ Of the <i>enchondromas</i> 42 were connected with the bones, chiefly of hand and femur—24 males and 18 females. 20 were connected with the salivary glands: 18 with the parotid and 2 with the submaxillary—9 males and 11 females.</p> <p>⁴ Of the <i>papillomas</i>, 16 females and 1 male were of the urethra (vascular growth); 5 males and 1 female were of the bladder (villous growth).</p> <p>⁵ In this group are included the following:—Epulis, M. 4, F. 32; nasal polypus, M. 12, F. 24; aural polypus, M. 5, F. 7.</p>
Epithelioma . .	1,842	1,398	444	76	24	
Rodent ulcer . .	109	57	52	52	48	
Sarcoma . . .	912	477	435	52	48	
Myxoma . . .	41	22	19	54	46	
Keloid . . .	20	10	10	50	50	
Fibroma . . .	214	70	144	33	67	
Adenoma ² . .	328	31	297	9	91	
Lipoma . . .	415	127	288	31	69	
Osteoma . . .	182	86	96	47	53	
Enchondroma ³ .	62	33	29	53	47	
Papilloma ⁴ . .	148	65	83	43	57	
Angioma . . .	98	37	61	38	62	
Cysts:—						
Congenital .	63	32	31	51	49	
Sebaceous .	284	157	127	55	45	
Simple . .	153	59	94	38	62	
Ovarian . .	594	—	594	—	—	
Uterine fibroids .	683	—	683	—	—	
All other growths ⁵	925	385	540	42	58	
Total . . .	11,100	3,687	7,413	33	67	

TABLE II.—CANCER : SHOWING LOCALITY AND RELATIVE FREQUENCY.

Seat of Cancer	Males	Females	Total	Appendix			
Breast	14	1,419	1,433	¹ (a) SKIN OF HEAD AND NECK, INCLUDING RODENT ULCER.			
Uterus and Prostate	5	1,221	1,226				
Tongue	419	70	489	Seat	Males	Females	Total
Skin ¹	273	143	416	Rodent ulcer	57	52	109
Rectum	136	137	273	Cheek	40	20	60
Lip	247	2	249	Neck	11	9	20
External genitals ² .	136	107	243	Eyelids	12	6	18
Stomach	150	89	239	Nose	12	5	17
Liver	88	84	172	Scalp	8	1	9
Esophagus	99	25	124	External ear	3	2	5
Mouth	94	13	107	Orbit	3	—	3
Intestines ³	25	30	55	Forehead	1	1	2
Lymphatic glands .	31	24	55	Chin	1	—	1
Testis and ovary . .	25	21	46	Not specified	25	3	28
Bladder	30	11	41	Total	173	99	272
Superior maxilla . .	22	18	40	^(b) SKIN OF TRUNK AND LIMBS.			
Peritoneum	13	22	35	Seat	Males	Females	Total
Larynx	22	2	24	Leg	15	3	18
Anus	14	7	21	Foot	8	7	15
Kidney	13	7	20	Thigh	6	8	14
Bones (other than jaws)	7	7	14	Hand	12	1	13
Pelvis	1	9	10	Groin	5	3	8
Lung	7	3	10	Back	3	3	6
Tonsil	6	3	9	Chest	3	3	6
Mediastinum	6	3	9	Perinæum	1	2	3
Pancreas	6	3	9	Hip	2	—	2
Pharynx	4	4	8	Abdomen	1	1	2
Inferior maxilla . .	6	1	7	Axilla	2	—	2
Bile duct	1	2	3	Arm	2	—	2
Thyroid	2	1	3	Forearm	1	—	1
Gall bladder	1	1	2	Not specified	39	13	52
Pericardium	1	1	2	Total	100	44	144
Parotid	2	—	2	² Penis 75, scrotum 61. Vulva 69, vagina 29, clitoris 6, nymphæ 3.			
Pleura	—	2	2	³ Colon : M. 9, F. 7 = 16; Ileo-cæcal valve : M. 1, F. 1 = 2;			
Dura mater	—	1	1	Sigmoid : M. 10, F. 5 = 15;			
Lachrymal sac	—	1	1	Ileum : —, F. 1 = 1; Duodenum : M. 1, F. 3 = 4; Unspecified : M. 4, F. 13 = 17.			
Abdominal wall (not skin)	1	—	1				
Symphysis pubis . . .	—	1	1				
Urethra	1	—	1				
Eyeball	—	1	1				
Spleen	1	—	1				
Coccygeal gland . . .	1	—	1				
Unclassified	186	386	572				
Total	2,096	3,882	5,978				

TABLE III.—SARCOMA : SHOWING LOCALITY AND RELATIVE FREQUENCY.

Seat of Sarcoma	Males	Females	Total	CONNECTIVE TISSUE— <i>continued.</i>			
Bones ¹	152	128	280	Sarcoma of the Connective Tissue, &c.			
Connective tissue ²	125	109	234	Males	Females	Total	
Other parts ³	78	110	188	Abdominal wall	2	2	4
Unclassified	122	88	210	Upper lip	1	2	3
Total	477	435	912	Forearm	—	3	3
¹ BONES.				Shoulder	2	1	3
Sarcoma of Special Bones				Foot	1	—	1
Males	Females	Total		Axilla	—	1	1
Face (nearly all of the jaws—chiefly the upper)	59	55	114	Thumb	1	—	1
Femur	22	20	42	Buttock	1	—	1
Humerus	9	4	13	Ischio-rectal fossa	—	1	1
Scapula	6	4	10	Abdomen	1	—	1
Fibula	6	4	10	Unspecified	60	59	119
Skull	5	5	10	Total	125	109	234
Tibia	6	3	9	³ OTHER PARTS.			
Innominate	4	4	8	Sarcoma of Special Parts			
Ribs	3	1	4	Males	Females	Total	
Foot	3	1	4	Breast	2	66	68
Radius	—	3	3	Testis and ovary	20	1	21
Ulna	1	1	2	Choroid	9	5	14
Clavicle	1	1	2	Parotid	6	8	14
Hand	—	2	2	Retina (glioma)	7	5	12
Coccyx	—	2	2	Skin	4	7	11
Sternum	—	1	1	Lymphatic glands	5	2	7
Sacrum	1	—	1	Multiple	2	4	6
Unspecified	26	17	43	Rectum	4	1	5
Total	152	128	280	Kidney	2	3	5
² CONNECTIVE TISSUE.				Bladder	2	1	3
Sarcoma of the Connective Tissue, &c.				Muscle	2	—	2
Males	Females	Total		Prostate	2	—	2
Face	9	7	16	Tonsil	2	—	2
Neck	9	6	15	External ear	1	—	1
Thigh	4	8	12	Nose	1	—	1
Orbit	7	2	9	Optic nerve	—	1	1
Leg	5	4	9	Uterus	—	1	1
Palate	3	5	8	Vulva	—	1	1
Groin	7	1	8	Vagina	—	1	1
Scalp	4	2	6	Submaxillary gland	1	—	1
Arm	4	1	5	Colon	1	—	1
Popliteal space	2	2	4	Mesentery	1	—	1
Mediastinum	2	2	4	Thyroid	—	1	1
				Pharynx	—	1	1
				Larynx	1	—	1
				Unspecified	3	1	4
				Total	78	110	188

Neoplasms: general remarks.—The liability of females to new growths is more than twice that of males. This may be seen on reference to Table I. Of the 11,000 cases there tabulated, 3,687 are males and 7,413 females; or the percentage proportion is 33 males to 67 females.

This striking difference is entirely due to the great frequency with which, in females, the breast, uterus, and, in a less degree, the ovary, are attacked, the corresponding male organs seldom suffering.

Omitting these, the male liability would preponderate in a very decided manner; the proportion would then be 1·4 males to 1 female.

In females, 70 per cent. of *all new growths* attack the *reproductive organs*; in males, only 7 per cent.

53·8 per cent. of all new growths are cancers; 8·2 per cent. sarcomas; 28·1 per cent. non-malignant tumours; 9·9 per cent. cysts.

Cancers.—Of the 5,978 cases of cancer in Table I., 2,096 are males and 3,882 females; the proportion being 1 male to 1·85 females.

According to the Mortality Returns, which include all kinds of malignant disease, the proportion is 1 male to 2·28 females.

Of late years, however, this distinction has been less pronounced. Thus for the three years 1881–79 the proportion is 1 male to 1·98 females.

As a group, *epithelial cancers* are of more frequent occurrence in males, the numbers being 1,398 males to 444 females, or 1 female to 3·14 males.

Rodent ulcers are pretty equally distributed between the sexes.

In females, 79·1 per cent. of all *cancers* attack the reproductive organs; in males, only 9·4 per cent. These are distributed as follows:—

Locality	Males per Cent.	Females per Cent.
Breast	73	40.58
Uterus or prostate	26	34.9
External genitals	7.12	3.06
Testis or ovary	1.30	.6
Total	9.41	79.14

Relative liability of each sex to cancer in special localities.—For every case of cancer of the prostate there occur 244 cases of uterine cancer; and for every case of cancer of the male breast, 101 of the female breast.

In *all other situations*, except the rectum, liver, and intestines, the male liability to cancer greatly exceeds the female liability. In the *lower lip* it is 123 times as great, in the *mouth* 7 times, in the *tongue* 6 times, in the *œsophagus* 4 times, in the *skin* twice, in the *stomach* 1.6 times, and in the *external genitals* 1.27 times.

Both sexes are equally liable to cancer of the *rectum*, *liver*, and *intestines*.

Sarcomas.—Males have a greater liability to *sarcomas* and *myxomas* than females; but the difference is not very great, as may be seen on reference to Table I. In females, 20.1 per cent. of all *sarcomas* attack the reproductive organs; in males, only 6.7 per cent.

These are distributed as follows:—

Locality	Males per Cent.	Females per Cent.
Breast	56	19.00
Uterus or prostate	56	.28
External genitals	—	.57
Ovary or testis	5.60	.28
Total	6.72	20.13

Non-malignant growths.—The liability of females to *non-malignant growths*, as compared with males, is even greater than their liability to cancers.

Of 3,116 cases, there are 866 males to 2,250 females ; or 1 male to 2·5 females.

This excessive female liability is partly due to the same causes we have seen with regard to cancer—viz., the frequency with which the breast (255 cases) and uterus (683 cases) are involved—in all, 938 cases.

Omitting these, however, the female liability to non-malignant tumours would still be considerably in excess of the male liability : the proportion would then be 1 male to 1·5 females.

Almost every kind of non-malignant growth is of more common occurrence in the female sex. Females are ten times as liable as males to adenomas, and more than twice as liable to lipomas and fibromas.

Cysts.—The female liability to cysts is even greater than it is to non-malignant growths and cancers.

Of 1,094 cysts, there are 248 males to 846 females ; or 1 male to 3·5 females. This preponderance of females is entirely due to the frequency of *ovarian cysts*. Omitting these, each sex would be about equally liable.

Lupus.—Much unnecessary confusion has arisen owing to the lax use of the term lupus.

I understand by lupus a special kind of new growth, quite as distinct in its way as cancer or any other neoplasm, characterised by the presence of minute ‘apple-jelly tubercles.’ I exclude altogether from my conception of lupus the so-called lupoid ulcerations due to syphilis, struma, cancer, &c.

The disease called lupus erythematosus I regard as a transitional form between the neoplastic and inflammatory processes.

It is sufficiently distinct from lupus vulgaris to require separate consideration.

Women are more liable to it than men : of 53 cases seen by Kaposi,¹ 18 were males and 35 females. Devergie, Hutchinson, and Kaposi have between them tabulated 344 cases of lupus vulgaris ; to these I have added the 230 cases contained in my table. The result is that, of the total 574

¹ *Trans. Internat. Med. Congr.*, vol. iii., p. 166.

cases, 233 are males and 341 females, or 1 male to 1.46 females.

Phthisis.—The statements that have been made with regard to the influence of sex in the causation of phthisis are conflicting.

Louis, whose well-known work on phthisis is the great storehouse of statistical information, makes this pertinent remark, which is still to the point :—

‘The records of medicine contain, unless I deceive myself much, very few documents indeed capable of rigorously demonstrating the relative amount of tendency in the two sexes to phthisis.’

Bayle thought it destroyed about equal numbers of each sex ; but the facts collected by Louis do not support this view.

He concluded that females are more liable than males at all periods of life ; of his 127 cases, 70 were females and 57 males ; this proportion he regarded as fairly representative. On reference to the accompanying table it will be seen that more women die of phthisis than men ; and the proportion (109 to 100) is greater than is accounted for by the excess of females in the whole population.

It may be asked, what is the cause of the great excess of males among the hospital in-patients ? Dr. Farr has answered this question in one of his reports. He says, ‘What is specially remarkable in London is the high mortality of men of all ages after twenty-five. This is due to phthisis and pulmonary disease. The mortality of women in London exceeds the mortality of women in England generally : but it is in nothing like so great an extent as men.’

Scrofula.—It is difficult to speak with absolute certainty as to the influence of sex in the development of scrofula.

Although most of the facts at my disposal point in the opposite direction, I am, nevertheless, inclined to believe there is some measure of truth in what Sir Astley Cooper says on this subject in his lectures of surgery. These are his words : ‘I do not exaggerate when I say, that within the last year I have seen 500 cases of scrofulous affections ; never a day

passes over my head without my seeing a case, and frequently three or four. This very day I have seen more ; and if asked how many were boys among them, I should answer, not one. What is the reason of it? Why boys will take exercise, and thus are less liable to the complaint, whilst girls are not allowed to do so ; and if predisposed to the disease, are almost always attacked by it.' In the above table 39,440 males and 31,737 females are recorded as having died of scrofula. With the exception of phthisis, all other scrofulous affections of which I have any account are of more frequent occurrence in males. This is especially the case with fistula-in-ano, coxalgia, pulpy disease of the joints, spinal caries, hydrocephalus, tabes mesenterica, lymphadenitis, &c.

Rickets.—According to Guérin, females are more frequently affected with rickets, the proportion being 198 to 148. My table shows 39 males to 20 females, which is, I think, more in accordance with English experience.

Diabetes : Addison's disease.—Diabetes is about twice as common in men as in women ; and Addison's disease is about three times as common.

Hæmophilia.—Hæmophilia generally attacks the males of a family, leaving the females exempt.

'I do not think I have ever seen a marked tendency to hæmorrhage in a woman belonging to a bleeder family,' says Wickham Legg.

However, a few such cases have been seen by others.

Anæmia and debility.—Females are more than four times as prone to anæmia and debility as males.

The Mortality Returns on this subject are misleading. They refer for the most part to persons who died of conditions allied to starvation, and these cases ought to be classed under that heading.

Hysteria.—It has been estimated by Briquet that one-fourth of all women are affected with decided hysteria ; and that one-half of them exhibit undue nervous susceptibility, which differs but little from it.

But, although females are chiefly subject to this affection, it is by no means exclusively confined to their sex. Out of

1,000 cases collected by Briquet, 1 male was affected in proportion to 29 females. The ratio in my table is 1 to 16.

No. 3. Diseases of the Nervous System	Hospital In-patients		Mortality Returns	
	Males	Females	Males	Females
Cephalalgia	18	23	—	—
Hysteria	27	344	—	—
Pleurodynia	9	27	—	—
Other neuralgias	14	30	—	—
Chorea	77	210	471	1,107
Epilepsy	185	102	29,370	26,741
Insanity	41	37	6,677	7,799
Hypochondriasis	16	7	—	—
Convulsions	1	13	354,170	276,554
Tetanus	17	1	—	—
Hydrophobia	3	—	299	74
Meningitis	80	54	—	—
Cerebro-spinal meningitis	2	—	—	—
Encephalitis	13	3	53,068	43,327
Myelitis	14	7	—	—
Cerebral abscess	5	3	—	—
Apoplexy	86	47	116,165	117,211
Hemiplegia	191	146	116,263	119,946
Paraplegia	71	42		
Locomotor ataxy	65	10		
Perforating ulcer of the foot	22	9		
Paralysis agitans	11	5		
Progressive muscular atrophy	24	15		
Infantile paralysis	23	17		
Lateral spinal sclerosis	8	2		
Disseminated spinal sclerosis	4	3		
Pseudo-hypertrophic muscular paralysis	2	—		
Facial paralysis	24	14	—	—
Cerebral softening	5	3	—	—
Brain disease (unspecified)	—	—	63,989	48,759
Total	1,058	1,174	740,472	641,518

Chorea.—It is generally agreed that the female liability to chorea is about three times as great as the male liability. This very nearly coincides with my estimate—77 males to 210 females. This predominance in favour of the female sex is manifested even in early childhood, but it becomes more pronounced as life advances. Of adults who are for the first time attacked, very few are men.

Epilepsy.—There is no uniformity in the conclusions

arrived at by different authors as to the relative liability of the two sexes to epilepsy.

But all are agreed in this : that the difference either way is not very great.

According to Dr. Gowers,¹ who has analysed a large number of cases, in pure epilepsy the female liability is the greater. His were consecutive cases, taken as they came under treatment at the National Hospital for the Paralysed and Epileptic : 52 per cent. of them were females, 48 per cent. males.

On reference to the above table, it will be seen that the cases there included do not support Dr. Gowers's conclusion. Of the hospital in-patients, 185 were males, and 102 females ; whilst the Mortality Returns show 29,370 male deaths to 26,741 female deaths.

Reynolds and Nothnagel found epilepsy about equally frequent in both sexes.

Hystero-epilepsy.—Hystero-epilepsy is at least twice as common in females as in males.

Insanity.—In all civilised countries, if we take equal numbers living of each sex and at all ages, there will be found more insane females than insane males. According to the Census of 1881, there then were in England 84,503 insane persons : 44,714 females and 34,789 males.

Nevertheless it is a disputed question whether more males than females go mad.

It is admitted that the excess of female lunatics is greater than is accounted for by the excess of female population : therefore some other cause must be sought to explain it.

Such a cause is supposed to be found in the presumed greater proportionate mortality of male lunatics.

Correction being made for this, it is calculated that the male liability is the greater : the exact proportion for 1881, according to the Registrar-General,² is 106·8 male lunatics to 100 female lunatics. But the Mortality Returns show that for every 100 male lunatics there die 116 female lunatics ; whereas

¹ *Lancet*, vol. i., 1880, p. 315.

² *Census Report of England for 1881*, vol. iv. p. 67.

the proportion of males to females in the whole population is only 100 to 105·5.

Therefore this conclusion is evidently erroneous.

It has unfortunately been so generally adopted that I hardly expect the prevailing misapprehension will soon disappear—all disproofs notwithstanding. Nevertheless I will state the facts as they stand. The female liability to insanity is undoubtedly the greater. This is evident both from the fact that the greater proportion of insane persons actually living at any given time are of this sex, and that the female mortality from this cause is in excess of the male mortality.

This is only what we might have expected *à priori* from the greater nervous instability of women, and from the extreme susceptibility of their sexual organisation. On the other hand, the causes that drive men mad are their violent passions, their intemperate habits, and their greater exposure to the wear and tear of life.

Some forms of madness, such as congenital idiocy and general paralysis, are much commoner in the male than in the female sex.

Tetanus and hydrophobia.—Men are much more liable than women to tetanus and hydrophobia.

Of 777 cases of *tetanus* tabulated by Friedrich, Curling, and Thambuyn, 621 are males and 126 females. The male liability is therefore more than five times as great as the female liability.

These cases were nearly all of traumatic origin. I am not aware of any statistics showing the influence of sex in cases of idiopathic tetanus.

Locomotor ataxy.—The liability to locomotor ataxy is much the greater in males; of 149 cases collected by Eulenberg, only 21 were females.

Apoplexy and hemiplegia.—It is generally believed that men are more subject to apoplexy and hemiplegia than women. In the above table the returns relating to hospital in-patients strongly support this view, but it is surprising to find that the Mortality Returns indicate a contrary result.

I am unable to account for this discrepancy.

No. 4. Diseases of the Circulatory System	Hospital In-patients		Mortality Returns	
	Males	Females	Males	Females
Pericarditis	638	686	7,608	7,154
Heart disease			206,966	218,734
Aneurism :—				
Thoracic aorta	115	22	—	—
Abdominal aorta	20	2	—	—
Other vessels	47	9	—	—
Total	182	33	7,652	2,608
Varix	32	45	—	—
Phlebitis	25	54	—	—
Gangrene	40	13	17,505	15,038
Lymphadenitis (acute)	41	17	—	—
„ (chronic)	104	86	—	—
Total	1,062	934	239,731	243,534

Heart disease.—Until I had completed the above table I was not aware that diseases of the heart are of commoner occurrence in women than in men; indeed I shared the usually received opinion which favours the contrary view. This table shows the proportion to be 686 females to 638 males.

With regard to *angina pectoris*, the male liability is much the greater: out of 88 cases collected by Sir John Forbes, 8 only, or 1 in 11, occurred in females.

Aneurism.—Men are so much more exposed to the exciting causes of aneurism than women, that we need not be surprised to find them suffering more frequently from this disease.

Of 551 cases of all kinds of aneurism tabulated by Crisp, more than seven-eighths occurred in men. I think this estimate gives an exaggerated idea of the relative male liability. My estimate is that about one-fifth of all cases are females.

This is the general rule, but locality makes some difference. Thus carotid aneurisms are said to be of equally frequent occurrence in both sexes, and aneurisms of the limbs are very rare among females.

Gangrene, phlebitis, and varix.—Gangrene, like aneurism, is of much more frequent occurrence in the male than in the female sex, but to phlebitis and varix females are the more prone.

Lymphadenitis.—Lymphadenitis, both in its acute and chronic form, is of commoner occurrence in males.

No. 5. Diseases of the Respiratory System	Hospital In-patients		Mortality Returns	
	Males	Females	Males	Females
Goitre	3	12	—	—
Exophthalmic goitre	7	42	—	—
Croup	21	13	63,754	55,721
Laryngitis	63	53	18,385	14,223
Pleurisy	378	176	13,343	9,702
Empyema	82	39	—	—
Pneumothorax	15	7	—	—
Asthma	16	8	58,850	43,825
Emphysema	67	31	—	—
Bronchitis	599	592	380,522	368,861
Pneumonia	704	358	323,823	254,978
Gangrene of lung	8	7	—	—
Lung disease (unspecified).	—	—	52,585	42,712
Total	1,963	1,338	911,262	790,022

Goitre, cretinism, myxœdema, cachexia strumipriva, &c.—Much has been written of late about goitre, cretinism, myxœdema, cachexia strumipriva, and the thyroid functions, but I find complete silence as to the relationship between these conditions and the reproductive system.

I propose to call attention to some facts which show that this neglected relationship is in reality of the highest importance. The principle of evolution enables us to understand the intimate correlation existing between the reproductive system, the vocal apparatus—including the thyroid body—the cerebral development, and the general nutrition of the body; in consequence of which none of these parts can undergo important changes without seriously affecting the others, especially in early life.

Darwin has adduced overwhelming evidence to show that the vocal organs were primarily used and perfected into language in correlation with the reproductive system.

According to him, some early progenitor of man first found his voice during courtship, to express various emotions then excited, such as love, hate, jealousy, triumph, &c.

Almost everyone is now agreed that man owes his mental superiority to the higher development of his brain in correlation with the continued use of language.

Passing from these general considerations to particular facts, we see that emasculation of young animals arrests the growth of the larynx, thyroid, and of the vocal cords, causing a peculiar alteration in the voice. In addition to this, the general nutrition of the body is modified: there is a tendency to obesity, and the muscles are but feebly developed. The nervous system also shows deficiency in the special psychical characters of the male sex. Eunuchs exhibit all these changes.

In thyroidless cretins, who presented the usual changes in the general nutrition of the body, sexual system, &c., Curling discovered symmetrical fatty growths of the neck.

It requires no great stretch of the imagination to think of xanthelasma and fatty tumours as the result of analogous changes.

Certainly both of these, like goitre, manifest a remarkable predilection for the female sex.

At least 90 per cent. of goitrous persons are females.

Many young women get slight swelling of the thyroid at puberty, at the catamenial period, and after coitus; this may be mistaken for goitre, which indeed occasionally develops from it.

On this subject Malgaigne remarks: 'The ancients thought that a woman's neck enlarged immediately after the first connection; and this idea has been popularly preserved to the present time. Thus some nations still measure the circumference of the bride's neck on the day and on the day after marriage. Others go farther, and pretend to be able to recognise virginity by the following proceeding. The circumference of the neck, at its middle part, is taken with a piece of string; this is then doubled into a loop, the two ends of which are held between the incisor teeth, whilst the loop itself is made to encircle the top of the head. If the thread

passes freely over the vertex, bad sign ; but if, on the contrary, the loop is too small to pass, the conclusion drawn is in favour of virginity.

‘ Physiologists have disdained these popular traditions, but I must say, without wishing to attach too much importance to them, that they are not without some foundation. Thus, in the absence of goitre or any deformity whatever, I have always found the loop too small in the case of young girls of from fifteen to twenty years old, whose morals were above suspicion.

‘ In women who have lived in wedlock for several years the neck is certainly larger, and it has appeared to me to have increased in size especially from the effects of pregnancy and confinements.’

The extreme susceptibility of the reproductive system to injurious and unnatural changes in the environment is now well known.

That goitrous persons are really exposed to such injurious surroundings, we have evidence not only in what is known of the history of goitrous localities—which are generally damp and *deficient in sunlight*—but also in the pale, unhealthy, and scrofulous condition of those who, more than any others, are the subjects of this disease.

The conclusion is that goitre is the result of morbid action of the reproductive system, thus induced, reacting on the thyroid body.

But the most striking example of the correlation to which I have called attention is to be found in the next stage of the downward course of the goitrous condition—viz., in the remarkable disease known as cretinism. The relationship between these two diseases has long been a puzzle to pathologists, but it is perfectly intelligible according to the view here advanced, as also are the phenomena of exophthalmic goitre (Grave’s disease).

The offspring of goitrous persons are not unfrequently cretins. It has been stated that when both parents are goitrous for two generations in succession, the offspring, being the third generation, are sure to be cretins.

Creteinism arises in the same localities and under the same conditions as goitre.

In most cretins the thyroid is absent or atrophied ; the voice and speech are imperfect ; the reproductive power is feeble or absent ; the brain and skull are ill-developed, with consequent loss of the higher mental faculties and sometimes idiocy, as well as blindness, deaf-dumbness, &c. ; whilst the general nutrition of the whole body suffers in a marked degree.

Some cretins are also goitrous ; and these manifest the same tendencies, only in a less degree.

In describing, for the first time, the disease now known as myxœdema, Sir William Gull spoke of it as a cretinoid state supervening in adults, referring thereby chiefly to the peculiar modification of the general nutrition of the body, resembling that seen in cretins. Dr. Ord subsequently discovered atrophy of the thyroid in these cases, in which the mind also is affected.

To complete the demonstration, we have precisely the same cretinoid state (cachexia strumipriva) supervening after excision of the thyroid.

I am not aware of any observations as to the action of the reproductive system under the last two conditions, with the exception of one made by Dr. Ord, who stated at the Clinical Society discussion in 1883 that the first patient in whom he had studied myxœdema, twenty years previously, bore two children after the disease was well established.

Asthma, croup, pleurisy, &c.—Males are about twice as prone to asthma, croup, pleurisy, empyema, emphysema, and pneumonia as females.

Pneumonia.—Of 63 cases of acute croupous pneumonia tabulated by me, 28 were females ; and of 866 cases of catarrhal pneumonia, 267 were females.

Bronchitis.—The liability to bronchitis is equal in both sexes.

Quinsy, peritonitis, constipation, &c.—Females are much more liable to the following diseases than males:—

Quinsy, hypertrophy of the tonsils, peritonitis, gastric ulcer, constipation, dyspepsia, stricture of rectum, and fissure of the anus.

No. 6. Diseases of the Gastro-Intestinal System	Hospital In-patients		Mortality Returns	
	Males	Females	Males	Females
Alveolar abscess	18	17	—	—
Teething	—	—	56,027	47,968
Ranula	2	7	—	—
Glossitis	12	—	—	—
Stomatitis	14	20	1,277	2,388
Hypertrophied tonsils	15	46	—	—
Quinsy	158	259	4,513	4,099
Thrush	—	—	14,572	13,323
Dyspepsia	68	109	—	—
Hæmatemesis	43	38	—	—
Constipation	60	105	—	—
Worms	—	—	1,134	1,320
Diarrhœa	14	18	226,959	212,835
Dysentery	13	10	19,683	17,338
Gastritis }	120	106	8,560	10,431
Enteritis }			42,246	41,339
Gastric ulcer	60	117	—	—
Stomach disease(unspecified)	—	—	31,034	33,413
Ulceration of intestines	2	1	10,571	11,913
Stricture of intestines	—	—	2,979	3,742
Typhlitis, &c.	54	33	—	—
Ileus	39	19	14,762	14,189
Peritonitis	67	85	15,610	22,294
Intestinal obstruction	41	36	3,632	3,206
Hernia :—				
Non-strangulated	169	80	10,724	10,122
Strangulated	125	115		
Abscess of rectum	6	4	—	—
Ulcer of rectum	12	6	—	—
Stricture of rectum	9	57	—	—
Fissure of anus	22	47	—	—
Prolapse of anus	11	7	—	—
Ischio-rectal abscess	67	29	—	—
Fistula-in-ano	248	82	1,790	751
Hæmorrhoids	140	108	—	—
Total	1,609	1,561	446,073	450,681

Gastric ulcers.—Perforating ulcer of the stomach is a disease to which young women from 18 to 25 years of age are more liable than others.

Chronic gastric ulcer is chiefly met with in elderly males.

Congenital contraction.—Congenital contractions of the stomach are commoner in females.

Ischio-rectal abscess, fistula-in-ano, &c.—Men are nearly three times as liable to ischio-rectal abscess and fistula-in-ano as women; they have also the greater liability to ileus, typhlitis, and non-strangulated hernia.

Diarrhœa.—Both sexes are equally liable to diarrhœa and strangulated hernia.

Hernia: general remarks.—All statistics show that males are more liable to hernia than females.

After careful consideration of all the circumstances, Kingdon estimated the relative liability at 2 males to 1 female for all ages and including every variety of hernia. Malgaigne had previously computed it at 4 to 1. My table shows the proportion at 1.5 to 1, but I prefer Kingdon's estimate, as resting on a wider basis.

Inguinal and femoral.—The records of the City of London Truss Society show that inguinal hernia is much the commonest form, more than two-thirds of the total number of applicants of both sexes, for trusses for every description of hernia, being affected with inguinal hernias. Males are chiefly liable to these ruptures; with them femoral hernias are of rare occurrence, constituting, according to Bryant, only about 4 per cent. of all cases.

Females are nearly equally liable to inguinal and femoral hernias.

The general belief that they have a greatly preponderating liability to the latter is evidently erroneous, since, out of a total of 1,442 cases of all ages, Kingdon found that the majority of femoral over inguinal hernias was only 54.

As applied to *adult* females, however, this general belief is not far from the truth, since inguinal hernias are comparatively rare at that age, most of the cases originating during early life. Thus, of 193 girls under fifteen years of age, Kingdon found 184 inguinal hernias and only 9 femoral.

In women under twenty, according to Bryant, 87 cases of inguinal hernia occur to 13 of femoral; but after the age of forty this proportion is altered for 32 of inguinal to 68 of femoral.

Umbilical hernia.—Both sexes are equally liable to the congenital form of umbilical hernia so common in infants, but the acquired form which occurs in advanced life is chiefly met with in stout women.

Strangulated hernia.—Those who have previously written on this subject have contented themselves with such statements as the above. They have avoided all reference to the important question as to the relative liability of the sexes to *strangulated* hernia.

My table shows that both sexes suffer almost equally in this respect: 125 males to 115 females. This is corroborated by the Mortality Returns: 10,724 males to 10,122 females.

The influence of sex in the different varieties of *strangulated* hernia is shown in the subjoined table:—

Kind of Strangulated Hernia	Males	Females
Inguinal	114	11
Femoral	11	94
Umbilical	—	7
Ventral	—	3
Total	125	115

Hernia of the ovary.—In women it occasionally happens that the ovary is contained in the sac of an ordinary hernia, either with or without the bowel, &c. In 38 cases of this kind mentioned by Mr. Hulke¹ as collected by Englisch of Vienna, the hernia was inguinal in 27; in most of them the displacement was on the left side, and in 9 it was double. Most of the cases were of congenital origin.

Among more than 4,000 cases of inguinal hernia treated at the Truss Society, Mr. Langton found 67 cases of hernia of the ovary. This condition is not unfrequently associated with anomalies in the development of the genital organs. The uterus in these cases is generally ante-flexed and inclined to the affected side.

Doubtful cases may be diagnosed by the undue tenderness of the swelling and the peculiar sickly pain on pressure, very different from that of an ordinary hernia.

¹ *British Medical Journal*, Jan. 28, 1882, p. 119.

	Hospital In-patients		Mortality Returns	
	Males	Females	Males	Females
NO. 7.—DISEASES OF THE LIVER, SPLEEN, AND PANCREAS.				
Cirrhosis of liver	143	96	—	—
Ascites	35	59	—	—
Jaundice	72	76	17,481	16,932
Gall stones	14	20	—	—
Abscess of liver	16	—	—	—
Hydatids of liver	20	17	—	—
Amyloid liver	6	2	—	—
Hepatitis	—	—	17,570	17,589
Liver disease (unspecified)	—	—	61,329	54,874
Splenic disease	22	11	986	874
Pancreas disease	—	1	167	149
Total	328	282	97,533	90,418
NO. 8.—DISEASES OF THE GENERATIVE SYSTEM.				
Paramenia	—	—	—	2,271
Childbirth	—	—	—	55,649
All other diseases ¹	830	2,133	1,131	21,416
Total	830	2,133	1,131	79,336
NO. 9.—DISEASES OF THE URINARY SYSTEM.				
Acute nephritis	194	107	21,004	14,529
Chronic nephritis	372	231	5,236	3,135
Kidney disease (unspecified)	2	2	41,967	13,373
Ischuria	—	—	2,005	755
Hæmaturia	61	15	—	—
Pyelitis	11	12	—	—
Renal calculus	34	20	4,512	524
Vesical calculus	78	7		
Urethral calculus	10	1		
Stricture of urethra	925	2	5,218	25
Traumatic stricture of urethra	22	—		
Cystitis	62	67	6,549	1,453
Tubercle of the bladder, &c.	17	2	—	—
Incontinence of urine	9	9	—	—
Retention of urine	95	1	—	—
Extravasation of urine	46	—	—	—
Urinary abscess	47	—	—	—
Urinary fistula	64	—	—	—
Hypertrophy of prostate	56	—	—	—
Abscess of prostate	10	—	—	—
Total	2,115	414	86,491	33,794

¹ Neoplasms, venereal and puerperal diseases are not included here.

Urinary diseases in general.—It is a remarkable fact in connection with diseases of the urinary system that the male liability to almost every kind of disease greatly preponderates.

Stone in the bladder.—It is usually stated that males are about twenty times as liable to stone in the bladder as females. I think this an exaggeration; my estimate says about ten times.

No. ro. Diseases of the Locomotor System	Hospital In-patients.		Mortality Returns	
	Males	Females	Males	Females
Periostitis and Ostitis	118	68	—	—
Acute necrosis	34	8	—	—
Necrosis	367	162	—	—
Spinal caries	89	48	—	—
Caries of other bones	117	78	—	—
Spinal abscesses	86	77	—	—
Abscess in bone	14	2	—	—
Angular spinal curvature	66	40	—	—
Acute synovitis of joints	101	52	—	—
Chronic synovitis of joints	225	181	—	—
Acute arthritis	27	14	—	—
Chronic arthritis	13	11	—	—
Pulpy degeneration of joints	434	279	—	—
Coxalgia	454	249	—	—
Acute suppuration of joints	28	15	—	—
Anchylosed, stiff and contracted joints	131	112	—	—
Loose cartilage in joints	11	2	—	—
Inflammation and suppuration of prepatellar bursæ	102	343	—	—
Inflammation and suppuration of other bursæ	46	25	—	—
Total	2,463	1,766	21,027	16,515

To all the diseases in this table, with the exception of those of the prepatellar bursæ, males have the greater liability.

No. 11. Deformities, Malformations, &c.	Hospital In-patients		Mortality Returns	
	Males	Females	Males	Females
Premature births	—	—	166,476	129,675
Cyanosis	—	—	5,717	4,148
Spina bifida	4	15	3,723	4,629
Lateral spinal curvature	26	54		
Genu valgum	93	59		
Genu varum	6	1		
Talipes varus	14	18		
" valgus	40	21		
" equinus	39	31		
" equino-varus	79	39		
" plantaris	5	6		
Torticollis	12	11	6,185	4,099
Harelip	58	53		
" and Cleft palate	3	1		
Cleft palate	53	73		
Imperforate anus	4	9		
Ectropion vesicæ	5	2		
Phymosis	481	—		
Generative organs	8	22		
Other malformations	1	4		
Total	931	419	182,101	142,551

No. 12. Diseases of the Cutaneous System, &c.	Hospital In-patients		Mortality Returns	
	Males	Females	Males	Females
Eczema	71	103		
Psoriasis	9	22		
Erythema	20	58		
Herpes	14	18		
Pemphigus	11	14	4,099	3,413
Pityriasis rubra	10	—		
Urticaria	8	4		
All others	5	13		
Total	148	232		
Abscess	765	487	12,435	9,859
Sinus	30	36	—	—
Ulcer	342	258	3,989	5,075
Ingrowing toe-nail	114	53	—	—
Corns and bunions	6	12	—	—
Onychia	12	5	—	—
Paronychia	8	7	—	—
Furuncle	5	4	—	—
Total	1,430	1,094	20,523	18,347

No. 13. Diseases of the Nose and Ear	Hospital In-patients		Mortality Returns	
	Males	Females	Males	Females
Epistaxis	29	25	—	—
Other diseases of the nose	20	38	—	—
Total	49	63		
Diseases of the ear	27	30	—	—
Total	76	93	—	—

No. 14. Diseases of the Eye	Hospital In-patients		Mortality Returns	
	Males	Females	Males	Females
Catarrhal ophthalmia	36	23	—	—
Granular "	16	8	—	—
Phlyctenular "	13	14	—	—
Purulent "	15	18	—	—
Gonorrhœal "	9	5	—	—
Sympathetic "	18	3	—	—
Keratitis	53	76	—	—
Interstitial keratitis	13	19	—	—
Corneal ulcer	70	87	—	—
Leucoma	50	43	—	—
Onyx	2	1	—	—
Hypopyon	5	7	—	—
Staphyloma	28	22	—	—
Conical cornea	1	4	—	—
Pannus	6	8	—	—
Iritis	77	68	—	—
Kerato-iritis	5	2	—	—
Irido-choroiditis	9	7	—	—
Occluded pupil	14	5	—	—
Hard cataract	141	138	—	—
Soft cataract	36	19	—	—
Traumatic cataract	38	12	—	—
Synechia	28	6	—	—
Choroiditis	10	17	—	—
Retinitis	6	3	—	—
Optic neuritis	8	21	—	—
White atrophy	10	7	—	—
Glaucoma	49	90	—	—
Entropion	16	29	—	—
Ectropion	9	9	—	—
Trichiasis	5	8	—	—
Internal strabismus	102	168	—	—
External strabismus	10	21	—	—
Atrophied globe	22	15	—	—
Panophthalmitis	9	3	—	—
Dacro-cystitis, &c.	8	20	—	—
Errors of refraction	26	31	—	—
Total	973	1,037	—	—

The above table shows *inter alia* that females are much more liable than males to glaucoma, internal and external strabismus, and corneal ulcers.

No. 15. Alcoholic Diseases	Hospital In-patients		Mortality Return	
	Males	Females	Males	Females
Chronic alcoholism	45	26	5,707	2,568
Acute alcoholism	98	24	10,448	1,398
Total	143	50	16,155	3,966

No. 16. Unclassified	Hospital In-patients		Mortality Returns	
	Males	Females	Males	Females
Sudden deaths (causes un- specified)	—	—	48,633	34,059
General deaths (causes un- specified)	—	—	79,140	73,439
Total	—	—	127,773	107,498

No. 17. Traumatism	Hospital In-patients		Mortality Returns	
	Males	Females	Males	Females
Burns	170	129	34,851	33,934
Scalds	129	121		
Contusions :—				
General and shock	200	61		
Of head	43	15		
Of face	45	21		
Of eye	11	6		
Of chest	58	14		
Of neck	14	2		
Of back	89	27		
Of abdomen	86	26		
Of upper limb	36	10		
Of lower limb	233	84		
Total (all contusions)	1,114	516		

No. 17. Traumatisms	Hospital In-patients		Mortality Returns		
	Males	Females	Males	Females	
<i>Fractures :—</i>					
Multiple	12	3			
<i>Head :—</i>					
Vault of skull	92	18			
Base of skull	86	10			
Nasal bones	16	1			
Malar bone	1	1			
Superior maxilla	13	1			
Inferior maxilla	55	17			
Total (all fractures of head)	263	48			
Ribs	200	54			
Spine	36	1			
Pelvis	61	9			
<i>Upper limb :—</i>					
Simple {	Scapula	14	2		
	Clavicle	55	13		
	Humerus	76	27		
	Forearm (both bones)	35	18		
	Radius	13	8		
	Ulna	3	2		
Hand	14	2			
Total (all simple fractures of upper limb)	210	72			
Comp. {	Humerus	21	3		
	Forearm	23	8		
	Hand	15	3		
Total (all compound fractures of upper limb)	59	14			
<i>Lower limb :—</i>					
Simple {	Femur {	Intracapsular	29	69	
		Extracapsular	21	13	
	Patella {	Shaft	395	162	
		Transverse	150	87	
	Tibia {	Starred	3	1	
		Tibia	245	66	
	Fibula {	Fibula	362	79	
		Tibia and Fibula	712	201	
	Pott's	34	5		
Foot	31	3			
Total (all simple fractures of the lower limb)	1,982	686			

No. 17. Traumatism	Hospital In-patients		Mortality Returns	
	Males	Females	Males	Females
<i>Fractures (continued) :</i>				
Comp. { Femur	22	7		
{ Tibia and Fibula	90	24		
{ Tibia	12	7		
{ Fibula	2	1		
Total (all compound fractures of lower limb)	126	39		
Total (all fractures)	2,949	926		
Total (all fractures and contusions)	4,063	1,442	120,182	21,861
<i>Dislocations :—</i>				
Spine	1	2		
Upper limb :—				
Shoulder	27	26		
Clavicle	6	3		
Elbow	6	5		
Radius	2	1		
Fingers	6	2		
Total (all luxations of upper limb)	47	37		
Lower limb :—				
Hip	22	5		
Knee	3	1		
Patella	3	5		
Semilunar cartilage	4	2		
Ankle	5	2		
Foot	10	2		
Total (all luxations of lower limb)	47	17		
Total (all luxations)	95	56		
<i>Wounds :—</i>				
Head	473	133	}	
Face	134	53		
Eye	204	55		
Chest	10	1		
Neck	22	4		
Back	5	3		
Abdomen	28	7		
Ext. genitals	16	17		
Urethra	10	1		
Upper limb	409	70		
Lower limb	355	81	1,085	288
Gunshot	15	4	}	6,457
Suicidal	21	7		
Total (all wounds)	1,702	436		902

No. 17. Traumatisms	Hospital In-patients		Mortality Returns	
	Males	Females	Males	Females
<i>Sprains</i> :—				
Neck	3	5		
Back	28	8		
Knee	18	5		
Ankle	112	42		
Upper limb	2	—		
Total (all sprains)	163	60		
<i>Concussions</i> :—				
Brain	474	98		
Spine	19	6		
Total (all concussions)	493	104		
<i>Other injuries</i>	41	25	11,304	3,901
Total (all traumatisms)	6,856	2,373	178,005	62,058

The liability to fractures, dislocations, and traumatisms generally is much less in women than in men, mainly owing to the nature of their respective employments. Thus, of the hospital in-patients comprised in my table there are 6,856 males to 2,373 females, or 2·89 males to 1 female—a ratio almost identical with that shown by the Mortality Returns.

The only traumatisms to which women are more liable than men are fractures of the lower end of the radius and intracapsular ones of the neck of the femur. To both of these the female liability is more than double the male.

Of 169 fractures of the lower end of the radius tabulated by Mr. Morris, 35 were males and 114 females.¹

Of 98 intracapsular fractures of the neck of the femur included in my table, 29 were males and 69 females.

The following tables, which include *all* fractures and dislocations of the *upper extremity* under treatment at the Middlesex Hospital during the twenty-six years ending 1879,² will be found to illustrate the subject more fully than my table, which refers only to hospital in-patients :—

¹ Holmes' *System*, vol. i. p. 947.

² *Op. cit.* vol. i. pp. 946-47.

Fractures			Dislocations		
Seat	Males	Females	Seat	Males	Females
Scapula	41	17	Scapula	13	3
Clavicle	690	494	Clavicle	14	6
Humerus	378	190	Shoulder	250	143
Olecranon	87	27	Elbow	87	25
Ulna	94	58	Thumb	96	41
Radius	511	577	Fingers	49	29
Radius and Ulna	127	64			
Metacarpal	191	44			
Phalanges	157	43			
Total	2,276	1,512	Total	509	247

No. 18. Poisoning, Hanging, Drowning, &c.	Hospital In-patients		Mortality Returns	
	Males	Females	Males	Females
<i>Poisoning</i> :—				
Accidental	147	110	4,792	3,442
Suicidal				
<i>Drowning</i> :—				
Accidental	—	—	53,383	11,169
Suicidal	—	—	2,084	1,616
<i>Suffocation</i> (accidental)	—	—	19,547	11,243
<i>Hanging</i> :—				
Suicidal	—	—	6,821	1,665
Executorial	—	—	157	8
<i>Suicides</i> (unspecified)	—	—	1,199	2,378
<i>Murder, manslaughter, and other violent deaths</i>	—	—	7,475	2,696
Total	147	110	100,010	35,600

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