

one had better be let die in peace, than have its agonies increased by the superaddition of what will then become an irritant poison. In the hopeful cases of congenital syphilis, mercurial inunction by Brodie's stocking seems the mildest and most effectual mode of treatment. In suitable cases I have never seen it fail, either alone or with small doses of grey powder every night. Assimilation and elimination are rapid processes with the child; and to this is due the comparative facility of administering mercury beneficially in congenital syphilis.

ART. II.—*A Statistical Inquiry into the Prevalence of Numerous Conditions affecting the Constitution, in 1,000 Phthisical Persons, when in health.* By EDWARD SMITH, M.D., LL.B., F.R.S., Assist.-Physician to the Hospital for Consumption and Diseases of the Chest, Brompton, &c.

THE following inquiry has occupied a large part of seven years, and is intended to show, at one view, the prevalence of a large number of conditions which are believed to modify the constitution, or which are evidences of modified constitutions in consumptive families. It is, therefore, primarily, an investigation limited to a particular class of persons—a class the largest which could be selected upon the basis of disease; but I have thought that whilst such information could not but be of value to life assurance offices and others in reference to this class, it would form a point of comparison with which similar inquiries in other classes, and indeed of the general community, might be compared, if any inquirer should think proper to extend it. The extent is much greater than any heretofore recorded, and, so far as I am aware, its aim has not been previously anticipated.

The conditions under which the inquiry has been made may be thus briefly stated:—

The cases were exclusively such as presented well marked signs of consumption. The diagnosis was, in every instance, made either by myself or by my colleagues at the Hospital for Consumption; and, as the cases had been under observation for a period, I venture to hope that no reasonable exception can be taken to it.

The inquiry was most carefully restricted to the period of health, except in reference to spitting of blood, the first occurrence of which, at whatever period, was recorded.

The patients were questioned alone, or in small parties of two or more at a time. The nature of the inquiry, and the limitation to the period of health, were carefully explained, and no person was included who was deficient in ready intelligence. As some of the questions required thought before the answer could be given, there was an advantage in asking them in parties, since time was given for consideration, and the example of each quickened the apprehension of the others. When any carelessness was evinced, the patient was removed; and when a similarity in the answers of two or more occurred, care was taken to repeat the inquiry and prevent routine answers. In every case each patient gave a separate answer.

The question of ages often presented a difficulty; many persons, and particularly the Irish patients, did not know their own age, and, it might be inferred, did not know the ages of their parents—and such were excluded. The periods of the occurrence of the diseases of infancy were determined approximately, or actually, as the case might be, so that they could be arranged under short periods—as under age 2, 2 to 5, 5 to 7 years, &c. The only difficulty arose in the cases in which the disease had occurred before their present recollection; but careful attention sufficed to arrange the ages under the above headings. When the patient was not sure that the disease had occurred, the answer was separately recorded, so that in the general returns the headings were—"Had the disease," "Had not the disease," "Does not know." The ages of the parents at the time of their death, and at the birth of the patient, were commonly known. The latter was ascertained by deducting the patients' from the parents' age at the time of this inquiry; and if the parent were dead, and the time of death known, the age at death and the subsequent period were added, and the same process was adopted. These calculations were always made by myself. In a few instances it was impossible to learn the age of the parent at either of the two periods, and such were classed as "Not known."

Questions which were of a private nature, as immorality in reference to intemperance, sexual abuse, masturbation, syphilis, and gonorrhea, were asked privately and carefully of each person alone, and they were, of course, restricted to male patients. Each case was identified by the initials of the name, the name of the physician, and the number in the hospital books.

In reference to the trustworthiness and value of the answers, I remark:—

1. That I believe them to have been given in good faith, and with care. In a very few instances, in females, there appeared to be a little confusion in the patient's mind upon some minute questions—as, for example, the age when the menses first appeared—but that was soon discovered in the course of so minute an inquiry.

2. The part of the inquiry the most liable to error is that of the diseases to which the parents, and brothers, and sisters, had been subjected; but it must be borne in mind that the questions asked were of diseases which would fix themselves upon the mind—as insanity, cancer, diseased bones and joints, scrofulous sores and scars, &c. The occurrence of consumption was limited to the relatives who had died from it; and by inquiry as to the age at death, and many other circumstances, erroneous opinions were corrected.

The state of the general health of the parents, both before and after the birth of the patient, was sought in only a general manner, such that any person would be able to supply. That of the health before the patient's birth must, of course, have been derived from hearsay; but in the degree in which it was recorded there can be no doubt but the patient must have been sufficiently informed.

3. There must be liability to error in all inquiries in which we depend for our information upon others, but the errors are, for the most part, those of omission. In such inquiries as the present the information, whether obtained for the case-book or the assurance office, must be derived from the patients alone; and hence I venture to claim for this inquiry as near an approach to truth as the case admits of. None of the patients included in this list belonged to the lowest class of the community, but nearly all were of the respectable working middle classes. No pains were spared in arranging the scheme of inquiry, the selection of the cases, the mode in which the questions were asked, and the sifting of the answers; and it may be fairly hoped that so long an inquiry, conducted upon a uniform plan throughout, would supply that tact and experience which would tend to accuracy. The whole record and the whole analysis have been made by myself.

4. Such questions as those of age, sex, residence, and occupation, can have value only as indicating the character of the persons who were submitted to inquiry. They are not adapted to show the prevalence of phthisis in the community under these various conditions. It is also a circumstance to be desired that similar details should exist in reference to the whole community including this

PREVIOUS HEALTH AND DISEASES.	TEMPERAMENT AND TIMBRE IN HEALTH	Colour	49	PREVIOUS HEALTH AND DISEASES— <i>con.</i>	UNDER ÆT. 21	Spat blood first, æt.	97
		" Iris	50			Bleeding nose, Piles, &c.	98
		" Complexion	51			Scrof. glands, sores, joints	99
		Frame	52			Phthisis, æt.	100
		" rounded	53			Syphilis, Gonorrh., æt.	101
		" spare	54			Insanity, Fits—what	102
		" height	55			Rheu. Gout, Canc. Diab.	103
		" weight (in health)	56			Ague, or other Fever	104
		Susceptible and variable	57			Infl. of lungs, Asthma	105
		Firm. Languid	58			Other diseases	106
		Cold hands or feet	59			Appetite, B. M. G.	107
		Temperam. S. N. Ly. Bil.	60			General health, " " "	108
	PARENTS, F. M. ALSO B. S.	Nourished	61	PREVIOUS HEALTH AND DISEASES— <i>con.</i>	OVER ÆT. 21 (STATE THE AGE)	Spat blood first, æt.	109
		Unsteady habits—F. M.	62			Drains of blood	110
		General health—F. M.	63			Scrof. glands, sores, joints	111
		Æt. at death—F. M.	64			Phthisis, æt.	112
		Æt. at patient's birth—F. M.	65			Syphilis, Gonorrh.	113
		Health before do.—F. M.	66			Insanity, Fits—what	114
		No. of child. now liv. & dd.	67			Rheu. Gout. Canc. Diab.	115
		Scrof. Sores. Scars. Glands	68			Liver, kidney, or brain	116
		" Eyes, joints, &c.	69			Ague, or other Fevers	117
		Consumption, Asthma	70			Freq. Dysent. or Diarrh.	118
		Insanity	71			Great perspiration	119
		Rheu. Gout, Canc. Diab.	72			Much mercury, Bled	120
		Liver, kidney or brain	73			Appetite, B. M. G.	121
		Ague, or other fevers	74			General health, " " "	122
		Other diseases	75				
	UNDER ÆT. 3	Development at birth	76			Menses, 1st, æt.	123
		Marasm. Sores	77			" little, much	124
		Bones, joints	78			" frequent, seldom	125
		Rickets, deform. of chest	79			Leucorrhœa much	126
		Inflam. of lungs	80			Great loss in labour	127
		Fits—what	81			Long nursing	128
		Appetite, B. M. G.	82				
		General health " " "	83				
	UNDER ÆT. 14	Measles and Sequelæ, æt.	84	FOOD (CHIEFLY FAT)		Liked, under æt. 14	129
		Scarlatina and " "	85			Disliked, " "	130
		Smallpox " "	86			Liked, " 21	131
		Whooping cough " "	87			Disliked, " "	132
		Scrof. eyes, joints, bones	88			Liked, over æt. 21	133
		" Cerv. Ax. Ing. glands	89			Disliked, " "	134
		Phthisis, æt.	90				
		Spat blood first, æt.	91			Parents related	135
		Inflam. of lung	92			Order of birth in family,	
		Other disease of ditto	93			as 1st, 2nd, &c.	136
		Delicacy of lung	94				
		Appetite, B. M. G.	95			Cause of attack	137
		General health " " "	96			When it began	138

The returns are divisible into two large classes, viz., those which refer to the parents, and those which belong to the patients; and I propose to consider them in their order, after stating the indicating questions of the age, place of birth, and place of residence of the patients.

GENERAL QUESTIONS.

II.

1. *The Age of the Patient at the period of the Inquiry.*

This was recorded to the precise year; but for this analysis I have collated them into periods of under 20 years, and of each subsequent five years,

Age, . . .	to 20	20 to	25	30	35	40	45	50	55	60
Females, per cent.,	15·8	20·8	25·5	15·8	10·	8·	2·	1·	·26	·52
Males, „	11·5	24·8	19·1	18·5	10·	6·6	5·1	2·5	1·1	·16
Average, „	13·	22·9	21·3	17·3	10·	7·1	3·9	1·9	·8	·3

The greater proportion were from 20 to 25, and from 25 to 30 years of age, in nearly equal proportions, and they comprehended 44 per cent. of the whole. About $\frac{1}{3}$ were under 20 years, and 3 per cent. were more than 50 years of age. 57 per cent. were under 30 years of age. The number of females under 20 years, and from 25 to 30 years, was greater than that of males. The average age of the whole was 29·66 years males, and 27·5 years females.

III.

2. *Place of Birth.*

Per cent.	London and denser Suburbs	Country	Ireland	Scotland	Channel Islands and Foreign
Females, per cent.,	26·5	66·	4·	·75	2·5
Males, „	25·5	64·5	6·8	1·66	1·5
Both, „	25·9	65·1	5·7	1·3	1·9

30 per cent. were born in London and its denser suburbs, and 65 per cent. in other parts of England, so that but few were born in the other parts of the kingdom and in foreign countries. There was great equality in the sexes.

IV.

3. *Place of Residence.*

	Greater part of Life						The last Three Years				
	London	Country	Ireland	Scotland	Foreign	Various	London	Country	Scotland	Foreign	Various
Females,	36.2	52.5	2.75	.25	1.	7.	55.7	39.5	.25	.25	4.2
Males,	36.6	50.	3.83	.66	2.	6.8	52.1	40.6	-	1.8	5.3
Both,	36.6	50.9	3.4	.5	1.6	6.9	53.6	40.2	-	1.2	4.9

36 per cent. had lived in London during the greater part of their lives, 51 per cent. in the country, and 7 per cent. in various places; but, during the last three years, 53 per cent. had lived in London, and 40 per cent. in the country.

Hence it appears that the conditions under which the patients had lived were very diverse, so that no class peculiarities could attach to them, except that of their condition in life. The majority had been born and brought up in the country, but one-half had recently lived in London.

In reference to the condition in life it may be added that, with the exception of 8.8 per cent., all could both read and write, and in only 14.3 per cent. had they been badly nourished at any period of their lives. In both of these respects the females were a little less fortunate than the males.

V.

Education.

Nourishment.

Could not both Read and Write		Not well Nourished at same period	
Females, per cent.,	9.7		13.5
Males, ,,	8.1		14.8

Hence it is probable that no number of persons could have been taken who would more fairly represent the active population of this island in reference to the conditions upon which health depends.

We will now proceed to cite the results of the inquiry; and in doing so shall divide them into two classes, viz., those affecting the parents and those affecting the individual.

QUESTIONS RELATING TO THE PARENTS.

VI.

Mortality per cent.

	Dead			Living
	Fathers only	Mothers only	Both	Both
Females, . .	53·2	47·5	28·5	25·7
Males, . .	55·1	45·5	27·8	25·3
Average, . .	54·4	45·9	28·1	25·5

We have already stated that the average age of the patients was 28·8 years, and it was seen that 54 per cent. had lost the father, 46 per cent. the mother, and 28 per cent. had lost both parents. In 25 per cent. both parents were living. There was singular uniformity in the two sexes.

VII.

Age of the Parents at their Death.

In the original returns we have noted the precise age at death, but for the purpose of this analysis we have thought it would suffice to collate them into quinquennial periods. The per centage is obviously not calculated upon the whole number of patients, but upon only the number of patients who had died.

Age of Patient,	20 to		25		30		35		40		45		50		55		60		65		70		75		80		85	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Sex of Patient,																												
Mothers, .	2·3	·58	5·5	6·8	3·5	8·1	11·5	13·5	12·6	17·	15·1	9·8	16·6	13·3	5·5	7·5	12·	5·1	5·2	6·3	5·5	6·8	2·	11·	2·	2·9	8·8	7·5
Fathers, .	-	1·	1·6	5·5	6·	4·5	7·	8·1	13·1	13·7	15·3	12·2	14·4	9·1	6·7	10·7	13·1	11·2	6·4	8·6	8·	2·5	3·2	1·	3·2	5·6	7·6	9·1
Average, .	1·1	·79	3·4	6·2	5·	6·2	9·1	10·8	13·1	15·3	15·4	11·	15·6	11·	6·3	11·8	12·7	8·3	5·9	7·8	6·7	4·5	2·6	1·	2·6	4·3	8·2	8·3
<i>Average of the Two Sexes of the Patients Combined.</i>																												
Mothers, .	1·44		6·1		5·8		12·5		14·8		12·4		1·5		6·5		8·5		5·7		6·1		1·5		2·4		8·1	
Fathers, .	·5		3·5		5·2		7·5		13·4		13·7		11·7		8·7		12·1		7·5		5·2		2·1		3·8		8·3	
Average, .	·9		4·8		5·5		10·		14·1		13·1		13·3		7·1		10·3		6·1		5·6		1·8		3·4		8·2	

8 per cent. were unable to answer the questions as to the age at death; of the remainder the largest quinquennial proportion died in the period from 40 to 45 years, but the true prevalent period was from 35 to 55 years, which alone included half of the whole deaths. 11 per cent. died under 35 years, and 27·0 per cent. lived to upwards of 60 years of age. Of the sexes of the parents there was the greatest mortality amongst the mothers up to æt. 55, but particularly in the period under æt. 30; and, in reference to the sexes of the patients, the mortality amongst the parents of the females was greater under æt. 30, and less than that of the males under æt. 55.

The average duration of life of the parents who had died was—mothers 48·2 years, fathers 52·9 years, both 50·8 years.

VIII.

	Females		Males	
	No.	Average Years	No.	Average Years
Mothers, . .	167	48·5	255	49·9
Fathers, . .	193	51·6	305	53·7
Both, . .	360	50·1	560	51·9

Health of the Parents.

This inquiry embraced two periods—that which preceded the birth of the patient, and that embracing the whole life; and it comprehended the whole of the 1,000 cases.

IX.

Feeble Health before Patients' Birth.

/	Fathers	Mothers	Both included in the foregoing
Females, per cent., .	9·1	14·8	2·
Males, „ .	5·9	9·	1·9
Average, „ .	7·2	11·4	1·9

3·2 per cent. of the cases could not answer the questions.

X.

Feeble General Health.

	Fathers	Mothers	Both included in the foregoing
Females, per cent., .	15·7	25·	5·2
Males, ,, .	11·1	19·	3·6
Average, ,, .	13·	21·4	4·3

In the period preceding the patients' birth, 18 per cent. of one of the parents had had feeble health; and of that number the greater proportion, viz., 11 per cent., were the mothers. Both parents were similarly affected in 2 per cent. When the whole course of life was included the proportion increased, so that it became 34 per cent., and still the mothers exhibited a preponderance of 8 per cent. over the fathers. Both parents were feeble in 4·3 per cent.

Unsteady Habits of the Parents.

The inquiry was directed to ascertain the habits of both father and mother, but no special kind of conduct was particularized. In 23·0 per cent. one or both of the parents had been generally unsteady, but the proportion of the mothers was quite insignificant. There was a large preponderance of this evil in the parents of the male patients; the latter exceeding that of the females by 9 per cent.

XI.

	Father	Mother
Females, per cent., .	17·2	·5
Males, ,, .	26·3	1·
Both, ,, .	22·7	·8

Diseases of the Parents of the Patients.

Consumption.

I shall first cite the combinations of relationships which were given by the patients, and then make a summary of the prevalence

of mortality from this disease, under the different headings. I do not quote in the summary the number of each class of relatives who had died, but it was nevertheless ascertained, and also the fact as to whether the aunts, uncles, and cousins were on the fathers or the mother's side. I may, however, state that one female patient could count 10 relatives whom she had lost.

XII.

Relatives who have died of Consumption.

G.	F.	G.	M.	F.	M.	B.	S.	U.	A.	Nos. and Sex of Patient		Per Cent.	G.	F.	G.	M.	F.	M.	B.	S.	U.	A.	Nos. and Sex of Patient		Per Cent.
										F.	M.												Aver. of both Sex.	F.	
-										2	1	·66			-									1	·22
	-									4	1	1·1												1	·22
-	-									1	1	·44			-									1	·22
-	-									1		·22			-								4		·88
-	-									1	1	·22			-								1		·22
-	-									1	1	·44											3	1	·44
-	-									1		·22			-								1		·88
-	-									1		·22			-								1	2	·66
-	-									1		·22			-								1		·22
-	-									2		·44			-								1	1	·44
-	-									2	1	·22			-								1		·22
-	-									1		·66			-								1		·22
-	-									2		·22			-								2		·44
-	-									1		·22			-								1		·22
-	-									1		·22			-								1		·22
-	-									1		·22			-								4	5	1·9
-	-									1		·22			-								1	9	2·2
										20	19	8·5											1		·22
										26	30	12·3											1		·22
										9	3	2·6												1	·22
										22	34	12·3											1		·22
										27	35	13·6											1		·22
										16	12	6·1											1		·22
										3	2	1·1											1		·22
										4		·88												2	·44
										1	1	·44											1		·22
										1		·22											1		·22
										3	1	·88											5	8	2·8
										2	2	·88											8	8	3·5
										4	1	1·1											9	2	2·4
										1		·22											1		·22
										1		·22											13	4	3·7

This table is to be read continuously down the left and then down the right side. The - to the left hand of the Nos. indicates the relative or relatives who had died of consumption, whilst the

numbers opposite to it show the number of such relatives of the female and male patients respectively, and the average of them in the two sexes of patients combined. Hence, when there are several — they indicate that several relatives, of different degrees of relationship, have died in consumption; and the number of the combinations of such relationships is indicated by the numbers opposite to them. Thus, in the first line, the — is placed under G. F., or grandfather, and the numbers to the right show that in two cases of female patients, and in one case of male patients, the grandfather was the only relative who was known by the patient to have died from consumption; while in fifth line the — show that the grandfather, grandmother, uncle, and aunt of a male patient were the relations who had died of that disease.

XIII.

Summary of the Relationships.

Sex of Patient	Grandparent Per cent.		Parents Per cent.		Br. or Sis. Per cent.		Parents, Brs. or Sis. Per cent.		Uncles or Aunts Per cent.	
	Alone	All	Alone	All	Alone	All	Alone	All	Alone	All
Females,	1·7	4·5	13·7	26·5	15·7	25·7	·25	47·	5·5	13·7
Males,	0·5	1·6	8·6	17·3	13·5	21·6	·16	28·5	3·	6·
Average,	1·	2·8	10·7	21·1	14·4	23·3	·2	35·9	4·	9·1

The proportion in which consumption appeared in one relative only was very small, except in reference to the principal relatives—the parents and the brothers and sisters. In the parents it was 11 per cent., and in the brothers and sisters 14·4 per cent., and in each of these instances the relatives of the females had the larger proportion. The total proportion in which any set of relatives had died from the disease was, of course, much greater, so that one or both parents had died in 21 per cent., brothers or sisters in 23·3 per cent.; parents, brothers, or sisters in 36 per cent.; grandparents in 2·8 per cent. In every instance the mortality amongst the relatives of females was greater than in those of males; and in reference to the immediate relatives—parents and brothers and sisters combined—the excess was 19 per cent.

XIV.

Other Diseases.

Various				Presumed Scrofulous			
	M.	F.	Both		M.	F.	Both
Rheumatism, per cent.,	25·2	20·	22·1	Eyes & Ears,	1·25	1·3	—
Gout and Rheumatic } Gout, per cent., }	7·5	7·	7·2	Joints, .	·25	·3	—
Cancer, „ .	3·5	3·	3·2	Bones, .	1·	1·1	—
Diabetes, „ .	·25	·5	4·	Spine, .	·25	—	—
Insanity, „ .	3·7	4·6	4·3	Glands, .	4·	5·	—
Liver, „ .	10·7	7·8	9·	General, .	3·	—	—
Kidneys, „ .	·7	1·8	1·4				
Brain, „ .	1·	2·1	1·7				
Ague, „ .	4·7	4·5	4·6				
Other Fevers, chiefly } Typhus, per cent., }	4·7	4·8	4·8				
Asthma, „ .	13·	13·6	13·4				

As it respects the prevalence of presumed scrofulous disease, we might almost pass it over without comment; for, with the exception of the continuance of enlarged glands in 5 per cent. of the cases, the proportion was utterly insignificant. In only 8 per cent. were there any evidences known of the existence of that class of diseases.

Rheumatism and asthma were the most prevalent diseases—the former having occurred in 22·6, and the latter in 13·3 per cent.; and of the latter 9·4 per cent. were found in one or both of the parents only. Liver diseases and gout follow next in the order of frequency, and ague and typhus fever had each occurred in nearly 5 per cent. of the cases. Insanity has been noticed in 4·3, and cancer in 3·2 per cent.; whilst brain and kidney affections and diabetes had been still less frequent. The variations in the returns of the two sexes of patients were unimportant.

XV.

Consanguinity of the Parents.

In only 6 instances, or 6 per cent., had the parents been related before their marriage; and of these an equal number belonged to each sex of the patients.

XVI.

Age of Parents at the Patients' Birth.

Age, Sex of Patient.	15 to		20		25		30		35		40		45		50		55		60		65	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
	3.9	4.4	23.6	21.2	21.8	24.8	22.8	24.6	16.5	13.2	9.1	9.1	1.2	1.3	.9	1.	.36	-	-	-	-	-
	1.4	1.6	17.	14.	22.	24.9	23.5	24.6	16.8	15.4	11.	9.8	3.9	4.4	2.5	3.6	.9	1.1	.36	-	-	.28
Average,	2.7	3.5	20.4	17.3	22.1	25.	23.3	24.6	16.8	14.4	10.1	9.5	2.6	2.9	1.7	2.3	.6	.56	.18	-	-	.14
<i>Average of Both Sexes of Patients.</i>																						
Mothers,	4.1		22.4		23.2		23.7		14.8		9.1		1.2		.9		.18		-		-	
Fathers,	1.5		15.5		23.4		24.		16.1		10.4		4.1		3.		1.		.18		.14	
Average,	2.8		19.		23.3		23.9		15.5		9.8		2.7		2.		.59		.09		.07	

37 persons did not know the age of one parent, and 33 of both parents, and in 24 cases the record was omitted.

The most frequent age was from 25 to 35 years, and that period alone embraced 47 per cent. of the whole number. Only 2·8 per cent. were under 20 years, and in 19 instances, or about 2 per cent., the age was from 55 to 70 years. *Æt.* 20 to 40 comprehended 81 per cent. of the whole. There was singular uniformity in the returns of the two sexes of the patients; but in reference to the parents, there were nearly thrice as many mothers as fathers under *æt.* 20; and between *æt.* 20 and 25 there was an excess of one-half on the mothers' side. After *æt.* 35, the proportion of the fathers preponderated.

XVII.

Number of Children in each Family.

No. . .	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	21	23
Females, per cent.,	2.7	4.	5.7	7.	8.	11.2	9.2	10.7	7.7	8.	5.5	5.7	4.2	.2	.1	.5	.5	1.	.25	.25
Males, "	3.3	4.3	6.6	6.1	7.5	9.5	10.8	10.1	9.3	9.3	6.6	5.6	3.5	.8	1.1	1.8	.3	.5	.16	-
Average, "	3.	4.2	6.2	6.5	7.8	10.4	10.	10.4	8.5	8.7	6.1	5.7	3.8	1.4	.6	1.2	.4	.8	.2	.12

The returns are very decided and striking. Families with 6, 7, and 8 children were the most frequent, and were each about 10 per cent. of the whole, so that the three comprehended nearly one-third of all the cases. There was a progressive and steady increase from families with 1, to those with 6 children, and a similar decrease to those with 13 children. In only 3 per cent. was there but one child; and families with 3 children or less formed only 15.4 per cent. of the whole; whilst in 5.2 per cent. the number varied from 14 to 23 children per family. Families having from 5 to 10 children constituted 56 per cent. of the whole. There was not any material difference in the proportion of the two sexes of patients, but the smaller families were more numerous in the parents of the males.

The average number of children to a family was 7.5; and it was almost precisely the same in both sexes of patients.

Mortality of the Parents' Children.

40 per cent. of the parents' children had died at the time when the patients were submitted to this inquiry, and of these an equal number was found in both sexes of patients. The average age of the patients has already been stated to be 28·8 years.

XVIII.

Order of Birth of the Patients among the Parents' Children.

Order, .	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th
Females, p.c.,	18·6	17·6	14·	10·7	7·1	9·1	6·	3·2	3·	1·	2·	1·3	1·	·32	·32
Males, ,,	21·	15·4	14·2	12·5	11·1	8·	6·2	3·8	3·6	2·	2·	1·4	·24	-	·24
Average, ,,	20·	16·4	14·1	11·8	9·4	8·4	6·	3·6	3·3	1·5	2·	1·4	·5	·13	-

Nothing could be more striking than these returns: 20 per cent. of the whole were 1st children, and from that there was an unbroken line of diminution to those who were the 10th children. Those who were 1st, 2nd, and 3rd children constituted one-half of the whole number. The latest was the 15th child; but after the 12th or 13th the number was quite insignificant. There was no material variation in the sexes.

Such are the principal facts which have been elicited in reference to the parentage of the patients, and I now proceed to state those which belong to the patient only.

QUESTIONS AFFECTING THE PATIENTS ONLY.

*Questions affecting the Temperament.**Colour of the Hair.*

The following table represents the frequency with which the shades of colour appeared, arranged in the order of intensity.

XIX.

Colour, . . .	Flaxen	Light	Sandy	Light Brown	Medium Brown	Dark Brown	Chocolate	Black
Females, per cent.,	·25	15·2	1·25	2·2	34·	35·2	5·2	·25
Males, ,,	·33	27·1	6·	3·8	30·8	22·5	6·	2·1
Average, ,,	·3	22·4	4·1	3·2	32·1	27·6	5·7	1·4

The proportion of flaxen and black hair was quite insignificant, but the medium and darker shades of brown contributed more than two-thirds of the whole. If we arrange the shades into three classes, with the medium brown as the central, and the others as the extreme shades, we shall find that the three classes are constituted into nearly equal proportions, as in the next table.

XX.

Three Classes of Colour of Hair.

Colours, . . .	Medium	Dark	Light
	Medium Brown	Black Chocolate Dark Brown	Flaxen Sandy Light Light Brown
Females, per cent., .	34·	40·7	19·
Males, „ .	30·8	30·6	37·3
Average, „ .	32·1	34·7	30·

The females presented an excess in the medium and dark shades, whilst the light colours were twice as frequent in males as females. In reference to the separate colours the greatest disparity in the sexes occurred in the sandy hair, which was five times more frequent in males than females; but as the whole number was only 41, perhaps much importance should not be attached to it.

Colour of the Eyes.

For simplicity we arranged all colours under three heads, viz.:—grey, including blue; brown, including hazel; and black.

XXI.

Colour, . . .	Grey	Brown	Black
Females, per cent., .	69·2	26·2	·5
Males, „ .	77·1	20·8	·16
Average, „ .	74·	23·	·3

The proportion of black eyes was quite insignificant. The grey shades embraced 74 per cent., or three-fourths of the whole number. The brown colour was more frequent, and the grey colour less frequent in females than in males.

Colour of Complexion.

The inquiries had reference to the usual condition of the complexion, and, as already stated, in health only; and only two classes were recognized, viz., florid and pale.

XXII.

	Florid	Pale
Females, per cent., .	65·	34·2
Males, " .	53·8	44·7
Average, " .	58·8	40·7

The florid complexion was met with in 60 per cent., and the pale in 40 per cent. of the cases, and consequently the former much predominated. The florid was most frequent in the females.

Habits of Body.

The inquiry, as originally arranged, embraced four classes, viz., bony, muscular, rounded, and spare; but it was soon found that such a division was impracticable where we had to depend upon statements made in reference to an antecedent condition, and therefore the number was reduced to two—fleshy and spare.

XXIII.

	Fleshy	Spare
Females, per cent., .	61·9	38·1
Males, " .	37·	63·
Both, " .	46·7	52·9

The two classes were nearly equally divided, but the preponderance was in favour of the spare. There was, however, a very large excess of the fleshy habit in the females, and an equally large excess of the spare habit in the males, and hence the general average is unsatisfactory.

Coldness of the Extremities.

The inquiry had reference to general conditions only, and embraced both the hands and the feet.

XXIV.

	Hands alone	Feet alone	Both	Total
Females, per cent.,	1·5	23·7	37·7	63·
Males, „	7·	16·	25·1	48·1
Both, „	4·8	19·1	30·2	54·1

In 55 per cent. of the cases, coldness of the extremities had been habitual, 30 per cent. of which embraced both extremities, and 20 per cent. the feet only. It was much more common in females, except in reference to the hands only. The proportion in the two sexes was 63 per cent. of females, and 48 per cent. of males.

Temperament.

The information sought under this general heading had reference to the degrees of susceptibility or excitability, and the answer was derived partly from the answers of the patients, and partly from my own observation of the foregoing facts, and the aspect of the patients. The susceptible temperament largely prevailed, since it was found in 72·5 per cent. of the cases. It was well marked in both sexes, but somewhat more so in the females, since it was found in 74·5 per cent. of the females, and 68·5 per cent. of the males.

XXV.

Age of the Menstrual Epoch.

In 4 per cent. of the cases the menses had never appeared.

Aged years, 7, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 24.
Per cent., ·26 ·53 4·5 6·2 11·4 18·2 18·2 15·1 8· 6· 3·9 1·3 ·26 ·26.

The information obtained under this head is very decided. The predominating periods were aged 14 and 15, at both of which the per centage was 36·4 of the whole. At 7, 10, 21, and 24 years the numbers were insignificant, but from 11 to 20 there is an unbroken line of increase and decrease, with the central periods just pointed out. 63 per cent. of the whole had the menstrual epoch at 13, 14, 15, or 16 years of age.

Irregularity of the Menses.

This was recorded under four heads, viz., much, frequent, little, seldom, and in their four combinations.

XXVI.

	Much	Frequent	Little	Seldom	Much & Frequent	Little & Seldom	Much & Seldom	Little & Frequent
Per cent.,	6·	2·5	29·	16·7	1·2	15·2	·5	·25

40 per cent. of those who had menstruated complained of some irregularity having occurred. The most frequent condition was a defect in the function, so that 29 per cent. found it deficient in quantity, and 16·7 per cent. too infrequent in time. In only 6 per cent. was the quantity excessive.

Leucorrhœa.

This condition had been persistent in 42·2 per cent. of the whole cases.

Discharges of Blood.

The two conditions sought for were hemorrhoids and epistaxis.

XXVII.

Source, . . .	Nose	Piles	Both
Females, per cent., .	9·7	2·2	·5
Males, ,, .	12·	2·	·5

Epistaxis had been somewhat frequent, viz., in 11 per cent. of the sexes combined, and with an excess in males over females. The other source was found in only 2 per cent. of the cases.

XXVIII.

Married and Childless.

	Married	Childless
Females, per cent., .	41·5	12·8
Males, ,, .	45·6	13·1
Average, ,, .	43·5	13·0

43·5 per cent. were married, with a difference of 4 per cent. in favour of the male patients. Of these 13 per cent. were childless, and there was no appreciable difference in the sexes.

XXIX.

Age when the First Child was Born.

Aged, .	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	42	43	45
Per cent. Females, .	-	4.5	6.7	6.7	6.7	10.	10.6	14.4	7.5	3.7	3.7	6.7	4.5	.7	3.	3.7	1.5	1.5	-	.7	.7	-	-	.7	-	-	-
Males, .	.4	.4	.4	2.2	4.4	5.8	11.6	8.1	7.6	8.1	12.6	8.6	6.7	4.4	4.	2.2	.9	.9	.45	1.3	-	.9	.45	-	.45	.45	-
Average, .	.28	2.	2.8	3.9	5.3	7.3	11.2	13.3	7.5	6.4	9.3	7.9	8.7	3.	3.6	2.8	1.1	1.1	.28	1.1	.28	.56	.28	.28	.28	.28	-

The most frequent age was 23, at which period 13.3 per cent. occurred. In the period including 20 and 25 years of age, 51 per cent. of the whole cases were recorded. The extreme ages were 16 and 45 years; but under age 20 only 9, and over 30 only 11.8 per cent. occurred, so that four-fifths of the whole had their first child when between 20 and 30 years of age.

There was a marked difference in reference to the sexes, so that it occurred in the females at an earlier age than in males. 18 per cent. of females had their first child under age 20, and 67 per cent. under age 25, but only 3.4 and 48.7 per cent. of males were recorded at the same periods. The excess in favour of females was thus 14.6 per cent. under age 20, and 18.3 per cent. under age 25.

XXX.

Number of Children in each Family.

Number,	1	2	3	4	5	6	7	8	9	10	11	12	13	14	19
Females, per ct.,	19·3	18·	9·6	9·6	7·5	6·2	7·5	3·4	3·4	2·	1·3	1·3	-	1·3	1·3
Males, ,,	16·3	23·1	10·9	10·9	7·5	8·8	5·4	4·6	4·6	2·1	·4	·8	1·2	-	-
Average, ,,	23·4	21·	10·4	10·4	7·8	7·8	6·2	4·7	4·7	2·	·78	1·	·78	·5	·5

The per centage is reckoned only upon those patients who were married and had had children. The number of one and two children in a family so greatly preponderated as to constitute 44 per cent. of the whole, and to cause a marked line of division between the numbers of two and three. The number of families with three children was not the half of those with two children; but from that number the frequency gradually declined, until ten children were found in a family. There were two families with nineteen children in each; but families with more than ten children were found in only $3\frac{1}{2}$ per cent. of the cases. Families with three or fewer children were met with in 55 per cent. of the whole. The average age of the persons included in this list was 28·8 years. The greatest number of families with one child was found in the females.

XXXI.

Number of Children now Dead.

	Now Dead
Females, per cent., .	43·7
Males, ,, .	31·7
Both, ,, .	38·

The number of children born in each family gave an average of 4·0, and it was precisely the same in each of the sexes. The division of the children into those then living and dead was not made in the early part of the inquiry, so that we have been compelled to exclude 7 per cent. from this analysis. Of the remaining number, 38 per cent. had died at the period of inquiry, and the excess on the part of the children of females was no less than 12 per cent.—43·7 per cent. of the children of females, and 31·7 per cent. of those of males having died.

General Health of the Children.

This inquiry was one of a general nature only, and such as any patient would be prepared at once to answer. In 43 per cent. of the cases the general health was feeble, and chiefly on the female side, for the precise per centage in the two sexes was 48.7 in females, and 37 in males.

XXXII.

Frequency and Number of Abortions.

Number of Abortions, . . .	1	2	3	4	6	8
Per cent. of those who had miscarried, . . . }	44.7	37.3	3.4	2.	1.	.5

Abortion had occurred in 46.2 per cent. of the child-bearing married women; the number of abortions which each of such patients had suffered varied from 1 to 8. Of these, one abortion was found in 44.7 per cent., and one and two abortions comprehended 84 per cent. of the cases included in this list.

XXXIII.

Smoking and Immoral Conduct in Male Patients.

	Smoke	Drank	Bad life for a period	Syphilis		Gonorrhea			Both Syphilis and Gonorrhea included in the foregoing
				Once	More	Once	Twice	More	
Per cent.,	48.	24.5	29.6	14.	2.	29.5	5.	4.	11.5

Nearly one half of the cases had smoked tobacco for various periods; one fourth of the cases had drunk to excess; and 29.6 per cent. had led a bad life, in various ways, at some period; but usually for two or three years before twenty years of age.

Syphilis and *Gonorrhea* had occurred in 27.5 and 50 per cent. of the cases, of which 11.5 per cent. had both been found in the same person. The diseases had been contracted more than once in 11 per cent. of the cases; and, in a few, they had occurred five times and upwards.

Careful and private inquiries were instituted to determine the frequency of sexual abuse in early life, masturbation, and seminal emissions; and it was found that *sexual abuse* had occurred in 11.6

per cent., *masturbation* in 18·2 per cent., and presumed *seminal emissions* in 22 per cent. The two former were, for the most part, found before age 20, but the latter prevailed chiefly at a later period. The age at which these occurred was recorded in the inquiries.

Late Hours and Anxiety.

The occurrence of late hours was partly due to necessity, and partly to vicious habits. It occurred in 19·3 per cent. of the whole cases, but it was four times more frequent in men than women. The per centage was 7, and 27·5 in the two sexes. Anxiety was experienced in a degree fitted to injure the system by 22·2 per cent.; and of these, 32·5 were women, and 15·3 per cent. men; showing a very large preponderance in females.

Evils of Occupations.

70 per cent. complained of some injury inflicted by their occupation. This was made chiefly by the males, of whom 85 per cent. had suffered; but 49 per cent. of the females also attributed much importance to it. The causes assigned were very various; but certain were specifically inquired into, and others were included under one general heading.

XXXIV.

Cause, . . .	Dust and Fumes	Long Hours	Bending Posture	Close and hot room	Exposure	Great application	Other Causes
Females, per cent.	2·2	20·5	13·5	19·	16·7	6·5	3·5
Males, „	24·8	34·	24·3	28·	42·3	6·1	8·3
Average, „	15·8	28·6	20·	24·4	32·1	6·3	6·4

The most frequent source of injury was exposure, which occurred in 32 per cent.; after which came closely long hours and close and hot rooms. Bending and dust were injurious in 20 and 15·8 per cent. respectively. In only 6·3 per cent. had there been unusually close attention to business; and an equal proportion complained of a miscellaneous list of evils, as standing, carrying weights, ascending steps, talking, bad odours, damp climate, steam, hot lime, pressure on the chest, and rowing. Several of this list of causes occurred to the same individual in a large number of the cases. These ill effects fell with very different degrees of frequency upon the two sexes. It has been already stated, that as a whole, they were much more frequent in men; but the exceptions in favour

of women were the most striking in reference to dust and exposure, in which the per centage in women was 2·2 and 16·7, whilst in men it was 24·8 and 43·2. The frequency of intense application was the same in the two sexes.

XXXV.

Inhaled or Imbibed much Mercury; Bled at the Arm.

	Mercury	Bleeding											
		How often,	1	2	3	4	5	6	7	8	9	10	12
Females, per cent.,	5·5	Per cent. of those who had been bled, .	57·	21	10	5·	5	2·	-	-	-	-	-
Males, ,,	11·3		53·	20	15	4·7	1·9	·9	·9	·9	·9	1·9	1·9
Average, ,,	9·		54·4	20	13	4·7	2·7	1·3	·6	·6	·6	1·3	1·3

In nearly all the cases in which mercury had been largely taken there had been salivation; but in some instances the mercury was known to have exerted an injurious influence, although short of this by its employment in their occupation. In 9 per cent. this evil had occurred, but the per centage was twice as great in males as in females. General bleeding had been practised in 15 per cent. of the cases; and this also was much more frequent in males. The number of occasions on which the same patient had submitted to the operation varied from one to twelve, but in both sexes more than 50 per cent. of those who had been bled had only had one bleeding.

Perspired Very Readily. Not Worn Flannel Shirts.

In 25·4 per cent. the patients had evinced an unusual readiness to perspire throughout life, and the proportion was only slightly greater in males than females.

The inquiries in reference to the use of flannel were made under two heads, and included a period of six months; for, as the inquiries were not necessarily made on the day on which the patient first presented himself at the hospital, it was probable that the disease might have existed when the use of flannel had been so recently adopted. In 14·4 per cent. flannel had never been worn next to the skin, and the omission of it was more than four times more frequent in women than in men. 10·5 per cent. had only worn it six months or less: so that if we add the numbers together it may be stated that 25 per cent. had not usually worn flannel on the skin.

Feeble at Birth. Drynursed.

A few persons were unable to answer the first question, but in

nearly all the information was sufficiently exact. In 24 per cent. the patients had been born of feeble habit, and females had experienced it in the proportion of 5 per cent. higher than males. The proportion of cases which had been drynursed was insignificant, viz., 2·5 per cent.: and it was the same in both sexes.

General State of the Health.

This inquiry embraced the periods of childhood, puberty, and adolescence.

XXXVI.

	Good always	Not Good			
		To age 3	To age 14	To age 21	All the Life
Females, per cent.,	66·5	14·7	17·5	21·5	11·5
Males, „ „	86·5	7·8	7·6	8·8	4·8
Both, „ „	78·5	10·6	11·6	13·8	7·5

78·5 per cent. had always experienced ordinarily good general health, whilst 7·5 had never enjoyed it. Good health was 20 per cent. more common in males, and unbroken feeble health 7 per cent. more frequent in females. In reference to the periods of life when feeble general health prevailed, it may be seen from the table that it was nearly equally distributed over the three periods, but exhibited a tendency to increase in frequency as life advanced. At the period above, aged 21, it was recorded in 13·8 per cent. of the cases.

The General Appetite for Food.

This inquiry was made in the same manner as that just recorded.

XXXVII.

	Good always	Not Good			
		To age 3	To 14	To 21	All Life
Females, per cent.,	72·2	11·7	15·	19·7	10·7
Males, „ „	90·	5·6	6·	5·8	4·3
Average, „ „	82·9	8·1	9·6	11·4	6·9

The appetite had been generally good in 83 per cent. of the cases, with an excess in favour of the males of 18 per cent. It had never been good in 7 per cent., with a large excess on the part of the

females. The occurrence of defective appetite at the three ages of life varied from 8·1 to 11·4 per cent., and increased in frequency with advancing age. It was at all periods from two to four times more frequent in females than in males.

Understood Natural Delicacy of the Lungs.

This fact was recorded to have existed in 12·6 per cent. of the cases, with an increased per centage on the side of women, viz., 17 in women, and 9·6 in men.

Hemoptysis.

This question included the whole life, up to the period of inquiry, when the disease existed in the stage of consolidation or destruction, and the smallest streak was regarded as evidence of hemoptysis. In 32·7 per cent. this sign had never occurred, and it was so uniform in the two sexes as 32·2 per cent. in women, and 33 per cent. in men.

XXXVIII.

PREVIOUS DISEASES.

1.—*Sporadic.*

Age, . .	MEASLES										Not had
	To 2	2 to 5	5	7	10	15	20	25	30	35	
Females, per cent.	10·1	28·4	22·1	20·3	14·2	2·6	1·1	-	-	-	12·
Males, ,,	6·6	33·6	24·	22·6	10·1	1·7	-	·56	-	·29	18·5
Average, ,,	8·1	31·2	24·3	21·5	9·9	2·1	·48	·33	-	·16	15·9
SCARLET FEVER											
Females, per cent.	3·5	15·3	14·4	22·1	29·7	6·8	4·2	·85	-	·7	57·5
Males, ,,	3·2	23·3	17·6	17·	17·6	3·2	6·4	·81	·16	-	70·6
Average, ,,	3·3	22·3	16·4	19·8	24·	5·	5·4	·8	·8	1·3	65·4
SMALL-POX											
Females, per cent.	10·3	22·5	18·8	16·	14·1	9·4	1·8	·94	-	2·8	63·5
Males, ,,	9·7	26·	17·3	20·4	12·7	8·1	4·	·51	1·5	1·5	57·5
Average, ,,	9·9	24·7	17·8	18·8	13·2	8·3	3·3	·66	1·	1·	59·9
HOOPING COUGH											
Females, per cent.	14·	34·	26·	16·	9·5	·5	1·	·5	·5	-	30·7
Males, ,,	10·	42·4	26·5	13·8	5·	1·2	·84	-	-	-	48·
Average, ,,	11·9	38·8	26·4	15·	7·1	·92	-	·23	·23	-	41·1

16 per cent. of the cases had not had measles; 65·4 per cent. had not had scarlet fever; 60 per cent. had not had small-pox; and 41 per cent. had not had hooping cough. Hence, of these diseases, measles was by far the most prevalent, and small-pox had been nearly as infrequent as scarlet fever. Measles, scarlet fever, and particularly hooping cough, were more frequent in males than females. The age at which these diseases occurred was not sought for in the early inquiries, but there are records of 1,587 instances applicable to our purpose.

In each of the four diseases the greatest number of cases occurred between two and five years of age, and the proportion was: hooping cough, 38·8; measles, 31·2; small-pox, 24·7; and scarlet fever, 22·3 per cent. The earlier period was more frequent in hooping cough, small-pox, measles, and scarlet fever, in their order; and the per centage varied from 12 to 3·3. Cases occurred of each of the diseases so late as from 25 to 30 years, and from 30 to 35 of measles; whilst cases of scarlet fever occurred up to five years later. 85 per cent. of the cases of measles, 61·8 per cent. of scarlet fever, 71·2 per cent. of small pox, and 92·1 per cent. of hooping cough occurred under age ten years. Four cases of measles, three of scarlet fever, and two of hooping cough were known to have occurred twice. Four cases had been inoculated for small-pox. In each of the diseases the number occurring under age two was greater in females than in males.

Especial attention was given to ascertain what ill effects had followed the occurrence of these diseases, and the returns are as follows:—

XXXIX.

	Measles	Scarlet Fever	Small- pox	Hooping Cough	Total
Number of Cases, . . .	741	404	354	531	2,030
Disease of the Eyes, per cent.,	·8	—	1·1	—	—
" Ears, "	·26	—	—	—	—
Cough & Dis. of Lungs, "	·93	·71	—	1·1	—
General Debility, "	·4	·71	·84	·19	—
Had them severely, "	·4	·24	·28	·38	—
Disease of the Heart, "	—	·24	—	—	—
Dropsy, "	—	·49	—	—	—
Enlarged Glands, "	—	·24	—	—	—

In but one instance did any recognized ill effect follow in 1 per cent. of the cases, and, therefore, the returns are quite unimportant.

II.—PRESUMED SCROFULOUS AND ALLIED DISEASES.

XI.

	Females	Males	Total
Long continued dis- cases of the Eyes, per cent.,	4·2	4·6	4·5
„ Ears, „	·25	·16	·2
„ Bones, „	·5	·8	·7
„ Joints, „	1·	·5	·7
„ Glands, „	14·7	11·5	12·8
Marasmus, . . „	·25	1·	·7
Rickets, . . „	·5	—	·2
Peaked Chest, . „	1·	1·1	1·1

In 21 per cent. there had been some member of this class of diseases; and of that 12·8 per cent. alone were enlargement of the glands, and 4·5 per cent. long-continued disease of the eyes; and hence the affections of the ears, bones, and joints, marasmus, rickets, and peaked chest were too infrequent to assume any importance. The affections of the glands were about 3 per cent. more frequent in females than in males, whilst those of the eyes were equally prevalent in the two sexes. No case of rickets was found in the 600 male patients.

XLI.

III.—OTHER DISEASES.

	Females, Per cent.	Males, Per cent.	Average
Inflammation of Lungs, . . .	20·2	14·3	16·7
Rheumatism, or Rheumatic Fever, . .	14·	15·3	14·8
Fever, chiefly Typhus, . . .	10·	6·6	8·0
Diarrhea,	8·5	8·	8·2
Liver Disease,	4·5	4·1	4·3
Ague,	3·7	6·8	5·6
Fits (nearly all in infancy), . . .	3·5	2·3	2·8
Brain Disease,	1·0	·16	·5
Kidney „	·5	1·5	1·1
Dysentery,	·7	1·1	1·
Cancer,	·25	—	·1

No instance of insanity or diabetes was found in the 1,000 persons, but some one or more in the list of diseases now recorded

was found in 63·8 per cent. of the cases. The most prevalent diseases were inflammation of the lungs and rheumatism, or rheumatic fever; the former of which had occurred at some period of life in 16·7, and the latter in 14·8 per cent. The former was 6 per cent. more frequent in females, and the latter was a little more frequent in males. After these came fever—chiefly typhus—and frequent diarrhœa, each of which occurred in about 8 per cent., with an excess of 3·4 per cent. of fever cases in the females. Ague had occurred in 5·6, and liver affections in 4·3 per cent., with an excess of ague cases in the males. Fits were recorded in 2·8 per cent. As dysentery, kidney affections, brain disease, gout, and cancer had occurred in 1, or less than 1 per cent., we need not enter into any detail respecting them.

Such is a summary of the facts which have been elicited in reference to the second part of the inquiry; and we will proceed to state, in a few words, the leading truths which this extended investigation suggests.

The first question which arises is that of hereditary transmission, either in the sense of absolute transfer of the elements of the particular disease from the parent to the child, or the communication of a state of the system in which disease in general, and this disease in particular, may probably originate. There is a wide difference in these two ideas, and yet it cannot be doubted that they both exist in the minds of various professional men at this day. The former is the older one, and that which the increasing knowledge of our day has rendered less tenable than was formerly believed, since the idea of the transmission of the germs of disease *in utero* is now more strictly limited to such specific diseases as syphilis. Yet it must be admitted, that whilst the growing feeling of the day is in favour of a theory which only implies a defective constitution, there is an under current of belief that this assumes a specific direction in the production of this particular class of disease. Hence, whilst there is a clear distinction in the two theories in statement, there is far more oneness in belief. We will look at them in both aspects.

Feebleness of the general health of the parents existed before the birth of the patient in one-fifth, and throughout life in one-third of all the cases. It is quite certain that the former statement would be under the truth, since the child would only know of such marked deficiency of health as would, in after years, have been

matter of frequent conversation. It is also necessary to consider the two periods together; for although it may be objected that the condition of the health of the parent, after the birth of the child, in no way concerned the health of that child, there is strong presumptive evidence that general feeble health throughout life indicated a condition of the constitution below that of health, and hence would have existed, although it might not have demonstrated itself before the birth of the child. We shall, therefore, more nearly approach the truth if we take the larger per centage to represent the true state of the system, and affirm that one-third of the parents had feeble general health.

The mortality of the parents was such, that one-half of one, and more than one-fourth of both, were dead at the period of the inquiry. Hence, in three-fourths of the cases, one or both parents had died. In the same manner it is shown that in only one-fourth of the cases were both parents living. The value of these facts can only be estimated by considering the age of the child at the period of inquiry, and the age of the parent at the period of death; for it is evident that, as the child was younger or older, so would the parents, in the natural order of things, be living or dead. The average age of the patients, at the period of the inquiry, was 28·8 years. The age of the parents at their death, as ascertained by direct inquiry, was such that one-half of them died between 35 and 55 years of age—that is to say, in middle life; but still a larger proportion died after than before the period, so that some lived to upwards of 90 years, and more than one-third of the whole lived to above the period when the majority died. The proportion of earlier deaths was about one-third of the latter number, and was therefore inconsiderable.

The influence of the acquired causes of disease in the parents has not been inquired into beyond the comprehensive question of unsteadiness of life; and the frequent occurrence of this cause has considerable importance. Of the diseases which had occurred, other than phthisis, we may remark that only rheumatism and asthma were sufficiently frequent to attract attention; and it cannot be presumed that they had any very direct bearing upon the general health of the children. Such diseases as gout, cancer, and various kinds of fevers, were unfrequent; and, with the exception of liver disease, the others were not worthy of attention. Hence, we do not think that these diseases of the parents had either an indicative or causative value in reference to production of phthisis in the child.

It is of interest to remark how prolific were the parents of phthisical patients, for an average of $7\frac{1}{2}$ children to each family is much greater than that of the general community; and also that, in so large a proportion, the patient was the first or second child.

The importance of the first fact, therefore, extends chiefly to the early period of life, and does not show that it had produced a feeble state of the vital powers, such as might have been inferred if the patients were chiefly the last children born. Neither are we entitled to affirm that the powers of the parents were immature when the patients were born; for the age of the parents, at the birth of these children, shows that they were not largely the product of very early marriages, but they were born at a period of life when, in this country, the body is presumed to have approached maturity. It is true that we have shown that a large proportion of the parents had feeble general health, and therefore it might occur that their period of maturity had been deferred beyond the ordinary period; but if debility of system of the parent be presumed to be a predisposing cause of phthisis in the child, and that debility had existed throughout life, it would be more probable that its effect would increase as life advanced, and be more evident in the children of later years.

Hence, whilst these facts have great interest, I do not think that they help us to any affirmative views of the hereditary nature of phthisis.

The mortality of the children was considerable; since, when the average age of the parents was 28 years, 40 per cent. of the children had died, and that fact would imply the existence of a feeble state of the system.

We may now turn to the other aspect of the question, and show how far a direct transmission of disease might have occurred in the cases in question. It is evident that the solution of this question must rest alone upon the occurrence of phthisis in the parents, since from them alone could the disease have been transmitted. To introduce the occurrence of the disease in the next relatives, viz., the brothers and sisters, would be valueless and superfluous; for, if the proposition were thus—because the brothers and sisters of the patient, as well as the patient, had phthisis, there is a presumption that they had derived it in common from their parents, it would prove nothing beyond what could be derived from the parents alone, by ascertaining their mortality from phthisis, unless we are at liberty to infer that phthisis is a disease which may be

communicated through the parent to the child, without the parent having suffered from it—an inference which, although supported by a few facts, has hitherto found no place in the idea of the hereditary transmission of the disease. So, in like manner, we may discard inquiries into the occurrence of phthisis in the uncles, aunts, and cousins, since we have direct testimony as to the parents themselves.

In only one-fifth of the cases has either of the parents died of phthisis, although they had all lived until middle life; and hence we may support the statement of Professor Walshe, derived from fewer facts, that “phthisis, in the adult hospital population of this country, is, to a slight amount only, a disease demonstrably derived from the parents.” The proportion of deaths from phthisis in these 1,000 cases was, however, somewhat higher than that which is found in the community as a whole.

As a general result of the inquiry under this head, we may affirm that phthisis is not necessarily nor usually a disease directly transmitted from the parent to the offspring, but that in a large proportion of phthisical patients the parents and brothers and sisters had experienced feeble health, and a somewhat lessened duration of life. There was not, however, a majority of the cases so connected.

The next question of interest is the liability of females over males to many of the conditions which have been embraced by this inquiry. There is a singular unanimity in this respect with regard to the most important subjects. Thus, in reference to the parents, more mothers than fathers had children early, had feeble general health both before and after the birth of the patient, and had died early. Of the patients, more females than males had mothers who died early; had most parents, brothers, sisters, and other relatives who had died of phthisis; had parents with one child only; had experienced feeble health and defective appetite throughout life; had been believed to have delicacy of the lungs; were young when their first child was born; had children of feeble health; and had lost most children. Of the less important questions it may be added, that more females than males had suffered from anxiety; had had measles, scarlatina, and whooping cough; had not worn flannel upon the skin; had a very defective education; were of a susceptible temperament; had brown eyes, florid complexion, and fleshy habit; and had experienced coldness of the extremities. Such a preponderance of evils in one sex is most striking, and is

not paralleled by any observation hitherto recorded. It also shows how great is the mother's influence upon the health of the children, and how much greater watchfulness should be exercised over the female part of the population.

3rd.—Of the group of questions which have a direct bearing upon the health of the patients, it may be remarked:—

1. That debility of the general system, both at birth and in later life, was not a marked feature, since two-thirds had enjoyed good health and appetite through life; but the remaining proportion of one-fourth had been feeble from birth. Of the periods during growth, that from *æt.* 14 to 21 had a preponderance of cases in feeble health, but only to a moderate degree. Known delicacy of the lungs was found in only one-twelfth of the cases; coldness of the extremities was experienced in one-half of the cases; and there was a well-marked tendency to free perspiration. Leucorrhea was prevalent.

2. The menses did not appear too early on the average, neither were they in excess either in time or quantity. Early marriages were not common, but the health of the children was bad and the mortality great in one-half the cases. Abortions were frequent, and the patients were prolific beyond that of the general community. Sterility was found in one-eighth of the married cases.

3. Immorality of life in the males, for a limited period, was frequent. Syphilis and gonorrhea had occurred and recurred frequently. Masturbation and seminal emissions had been common. The evils attending occupation were very considerable and important, since in two-thirds of the cases they were complained of. Of these, long and late hours, close and hot rooms, and exposure, were the most frequent. Anxiety was prevalent.

4. Of the sporadic diseases of infancy, by far the most frequent was measles; and neither scarlatina nor small-pox had occurred in one-half of the cases. The occurrence of each of the diseases in adult life was recorded, but it was very unfrequent. Evils resulting from these diseases were very insignificant.

5. The occurrence of the evidence of scrofulous disease was very rare, except in the instance of enlarged glands; but it is possible that a different result might be obtained from inquiries made at the children's hospital and in institutions where scrofulous cases are congregated. At the Hospital for Consumption there is shown to be no general or necessary connexion whatever between marked scrofulous diseases and phthisis.

6. Of general diseases, those only which were frequent were inflammation of the lungs and rheumatism.

7. The occurrence of consanguinity in the parents, and of dry-nursing was scarcely found. Asthma was found in one of the parents, and chiefly the mother, somewhat frequently.

I have not, in this summary, entered into a minute analysis of the results obtained in this inquiry, but have selected only those which occupy a prominent place, or may be grouped together. The results obtained will bear, it is hoped, an importance beyond that to which I have applied them, and will be of greater value when similar inquiries shall have been made upon other large sections of the community. Whilst it has been shown that many conditions have less importance in connexion with phthisis than has heretofore been believed, there is much evidence to show that the disease is frequently allied with a state of system defective in vital power and resistance, both of the patient, and his parents, and his children. The large proportion in which none of those states of health could be discovered, is, however, sound proof that phthisical patients are a mixed class, and that the disease arises under very diverse conditions. As to the bearing of this inquiry upon life assurance, I think it may be inferred that there is no such oneness of type of constitution that the most minute historical research could be a sufficient guide as to the future probability of the occurrence of consumption. There is clearly great diversity of causes leading to that issue, and hereditary influence can only be regarded as one of them. If the inquiry could have determined the proportion of persons derived from consumptive parents who would themselves become consumptive, it would have been more to this purpose; but such an inquiry is manifestly impossible. The only safeguard to life offices is, I believe, the estimation, by careful examination, of the degree of health of the proposed assurer; and, above all, the careful examination of the chest by those whose duties make them especially familiar with the subject, and particularly with the early conditions which precede the ordinary manifestations of lung disease.