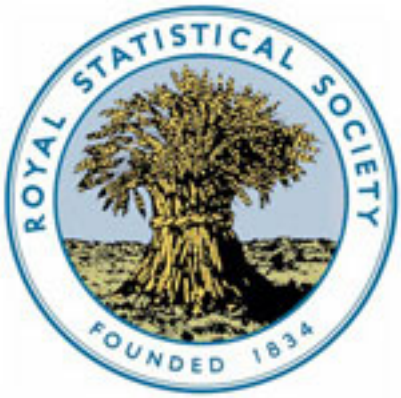

empire of man progressively over external matter, and continue to increase his happiness and dignity.

It is assuredly to be regretted that the share of every individual in the good things of this world is not larger, and that in the midst of the most flourishing societies such great misery and affliction should exist; but let us look back at the point from whence we started—let us recall the denuded state of the first generations of the world, and we shall admit, that if civilization, in its progress, distributes unequally the wealth which it produces and multiplies, it is without taking anything from those she least favours. The day labourer even (where civilization has bestowed her gifts) is better off than the most favoured individuals in communities yet uncivilized; and where the wisdom of the laws properly guarantees the safety of person and property, the continual progress of the arts and industry ensures to their toil a recompence which, continually increasing, frees them more and more from the attacks of indigence. Their number, then, becomes of little consequence; for if it augment, wealth increases still more rapidly, and its accumulation brings to them new and larger means of advantage.

Such is the march of events in all prosperous countries. The population has increased in France in the last 13 years 8 per cent., wealth more than 16 per cent. If the classes of proprietors have seen their fortunes augment, the classes which live by their daily labour have seen the fund which remunerates their toil increase yet more rapidly than the hands which divide it.

Nothing in these observations is dictated by an inconsiderate optimism. They would act in opposition to my object, if they tended to diminish that anxiety which ought to be felt for the poorer classes, or contract the exertions and sacrifices destined to secure for them, through the blessings of education, new sources of comfort and of moral and intellectual improvement. But there are facts operating on society, directed by a higher wisdom than that of man; and when the laws of inheritance in a country give no exclusive privileges – when they leave every one free to advance to the utmost limit of his faculties—when they allow no other claims of right than degrees of relationship,—we may presume that they are not to be found fault with, and that the results emanating from them are, at the time even that they are produced, the most conformable to the real interests of all.

Contributions to a Knowledge of the Influence of Employments upon Health. By WILLIAM AUGUSTUS GUY, M. B. Cantab. Professor of Forensic Medicine, King's College, and Physician to King's College Hospital. Hon. Sec.

[*Read before the Statistical Society of London, 19th June,* 1843.]

IT is extremely difficult to determine the real influence of employments upon health; for, on the one hand, employments closely resembling each other in character may be associated with very dissimilar habits of life; and, on the other, employments having nothing in common may be combined with some one bad habit which may be sufficiently powerful to render all of them unhealthy. Again, occupations, in themselves rather unhealthy than otherwise, may appear free from injurious results,

in consequence of the temperate and regular habits of those who pursue them.

Another difficulty, connected with this subject, and not easy of removal, is the want of opportunities of collecting a sufficient number of facts for the purpose of comparison. Even where such opportunities are not wholly wanting, the labour of collecting these facts is so great as to deter most men from entering on so laborious a work.

For these reasons, perhaps, it has happened that one of the most interesting subjects connected with the public health has been greatly neglected, and few works of real merit have been published upon it.

In the absence of more accurate data such contributions as the present may not be without their use. They may serve, at least, to correct some prevailing error, or to stimulate further inquiries.

The materials which have been employed are obtained from the registers of the out-patients of King's College Hospital, of which the precise value has been stated in a former essay.*

The first contribution consists of two tables, which exhibit, for females, the proportion which cases of pulmonary consumption bear to the other less severe affections entered upon the out-patient books of a public hospital. The employments of the females are thrown into four classes: sedentary occupations, laborious out-door occupations, mixed domestic employments, and employments leading to irregular habits of life. In the second table the single are distinguished from the married (including widows), not so much on account of any marked difference in the social position of the two classes, as for the sake of accuracy, and because the single consist of a younger class of females than the married.

TABLE I.—*Showing the Diseases occurring in* 3,319 *Females, classed according to their occupations; also the proportion of cases of Pulmonary Consumption to those of all other Diseases.*

Nature of Occupation.	Febrile Affections.	Catarrhal Affections.	Gout.	Struma.	Rheumatic Affections.	Nervous Disorders.	Mental Disorders.	Delirium Tremens.	Cerebral Affections.	Diseases of the Air-Passages and Lungs.	Phthisis Pulmonalis.	Disorders of the Circulating System.	Disorders of the Alimentary Canal.	Disorders of the Urinary Organs.	Skin Diseases.	Diseases of Females.	Other Diseases.	Pulmonary Consumption.	Other Diseases.	Proportion of Cases of Pulmonary Consumption to those of all other Diseases.
Sedentary*	6	44	1	3	45	58	..	..	29	74	46	7	227	13	27	71	22	46	627	1·13·63
In-door,† not sedentary	19	254	6	1	227	164	5	..	115	304	128	16	742	12	129	301	92	8	2,387	1·18·65
Out-door‡.	1	17	..	..	20	3	..	..	5	23	5	..	28	..	5	5	3	5	110	1·22
Prostitutes	2	3	..	..	3	2	..	1	1	2	4	1	6	..	4	4	3	4	32	1·8
Total. .	28	318	7	4	295	227	5	1	150	403	183	24	1,003	25	165	381	100	183	3,136	1·17·14

* Including book and envelope folders, bonnet cleaners, brush and button makers, burnishers, embroiderers, fringe and lace makers, artificial florists, map colourers, seamstresses, shoebinders and closers, straw bonnet makers, weavers, &c. &c.

† Comprising barmaids, charwomen, cooks, and kitchen-maids, women employed in housework, laundresses, maids of all work, nurses, housemaids, housekeepers, shopwomen, schoolmistresses, washerwomen, &c.

‡ Including fruitsellers, hawkers, street singers, &c.

* An Attempt to Determine the Influence of the Seasons and Weather on Sickness and Mortality.—*Statistical Journal, May,* 1843; Vol. vi. Part ii. p. 133.

TABLE II.—*Showing the proportion of Cases of Pulmonary Consumption to those of all other Diseases, distinguishing the Married from the Single.*

Occupations.	Married.			Single.			Married and Single.		
	Pulmonary Consumption.	Other Diseases.	Proportion.	Pulmonary Consumption.	Other Diseases.	Proportion.	Pulmonary Consumption.	Other Diseases.	Proportion.
Sedentary . .	28	416	1·14·86	18	211	1·11·72	46	627	1·13·63
In-door, not Sedentary . .	115	1,909	1·16·60	13	478	1·36·77	128	2,387	1·18·65
Out-door . .	4	95	1·23·75	1	15	1·15	5	110	1·22
Prostitutes . .	..	..	..	4	32	1·8	..	..	..

The facts in the foregoing table are not sufficiently numerous to determine with certainty the relative influence of different occupations on health; and this observation applies particularly to single women following their employments in the open air as hawkers, milkmaids, &c., and to the class of prostitutes. Though the facts employed amount to upwards of 3000, comparatively few were entered as belonging to these two classes. If, however, we limit our observations to the married females, and to the two first classes of occupation in the single, the facts, though far from sufficiently numerous to determine the exact proportions, may be admitted as fair approximations to the truth. The several classes of occupation are placed in the order of their healthiness; the sedentary employments being the most injurious, then the non-sedentary domestic employments, while the out-door occupations are the most wholesome. In single females a sedentary life seems to be still more strikingly injurious to health, for the cases of pulmonary consumption, compared with those of all other diseases, are three times as numerous among those leading a sedentary life as among those who are engaged in domestic occupations. This increased unhealthiness of sedentary habits among unmarried females is easily accounted for by the circumstance of the married who pursue similar employments being obliged to vary them by the more active exertions which the care of a family necessarily occasions. It is worthy of remark, moreover, that of those following domestic employments, the married are nearly twice as subject to pulmonary consumption as the single. This is accounted for by a greater number of the married class being of the age at which consumption is most likely to occur, and by the excess of other disorders in young unmarried females.

When the married and single are thrown together, the three classes are still found to follow in the same order, the sedentary occupations being most unhealthy, and the out-door employments least so.

The general result, then, of the foregoing tables is to place the several occupations, in respect to their influence in promoting pulmonary consumption, in the following order, beginning with the most unhealthy—sedentary employments, in-door employments, out-door employments. The value of this result, however, must depend upon the sufficiency of

the test which has been employed, viz. the ratio of consumptive cases to those of the less important and less severe disorders, which are always entered in great excess on the out-patient books of an hospital. How far this test may be depended upon is a question of much difficulty. It is obviously within the bounds of possibility that the number of consumptive cases being the same in the three classes of occupation, might bear a high or a low ratio to the total of other disorders, in consequence of those disorders being either very few or very numerous. But though this is possible, it does not seem by any means likely, and the above ratios may probably be employed as at least approximations to the truth. It is as such that they are now given. They are intended to be used in confirmation of other probabilities of a similar kind, and not as absolute or self-dependent truths.

The several occupations which have been thus thrown into groups admit of being still further subdivided; but as the employments of females are not separated from each other by such strong lines of demarcation as those of men, these subdivisions have not been resorted to in the case of the female.

The occupations of men are both more numerous and more varied than those of females, and their influence upon health requires to be examined at greater length. As a preparatory step to this examination, the following table has been prepared, (III.) in which the several employments are arranged alphabetically. This arrangement is adopted in preference to any classification founded upon the resemblance which different occupations bear to each other; and it has the advantage of supplying materials for any arrangement which may be thought desirable.

Many occupations named in the hospital books are omitted in the table, on account of the small number of cases entered under them. The cases thus entered have been added to those belonging to the occupations which most closely resemble them, or they form part of the mixed groups which conclude the table. It has not seemed necessary to specify all the employments which have been thus merged in others; suffice it to state, that much time and attention have been bestowed upon the arrangement of the table.

The most natural and useful division of which these employments are susceptible is, that into in-door and out-door employments. This has been adopted in forming the succeeding table, (IV.) in which employments carried on partly in the open air and partly within doors, as carpenters, painters, coach-builders, &c. are classed with in-door occupations, by which means the influence of in-door employments upon health may be fairly presumed to be placed in its most favourable light.

The proportion of cases of pulmonary consumption appears from this table to be exactly the same in persons following in-door and out-door occupations. As this result is in opposition to that obtained in the case of females, and to the generally received opinion, which attributes to in-door occupations a marked effect in promoting pulmonary consumption, it is necessary to examine the question of the influence of these two classes of employment a little more closely.

TABLE III.—*Showing the Diseases occurring in 2,884 Males, classed according to their Occupations: also the Proportion of Cases of Pulmonary Consumption to those of all other Diseases.*

Occupation.	Pyrexic Affections.	Cerebral Affections.	Coma.	Spasm.	Rheumatic Affections.	Nervous Disorders.	Mental Disorders.	Delirium Tremens.	General Affections.	Diseases of the Air-passages and Lungs.	Phthisis Pulmonalis.	Disorders of the Circulating System.	Disorders of the Alimentary Canal.	Disorders of the Urinary Organs.	Skin Diseases.	Other Diseases.	Pulmonary Consumption.	Other Diseases.	Proportion of Cases of Pulmonary Consumption to those of all other Diseases.
Bakers	1	4	1	1	2	1	.	.	4	5	11	.	12	.	6	3	11	40	1 to 3·64
Bricklayers	1	6	3	.	16	.	.	.	1	10	11	1	2	.	2	1	11	43	3·91
Bookbinders	.	5	1	1	6	2	.	.	3	1	8	2	11	2	6	2	8	42	5·25
Brush-makers	.	3	.	.	2	.	.	.	2	3	4	.	3	.	2	.	4	15	3·75
Burnishers	.	1	.	.	2	.	.	.	.	3	4	.	4	.	3	1	4	14	3·50
Butchers	2	4	.	.	6	2	.	.	3	1	6	.	3	.	4	3	6	28	4·66
Cabinet-makers	.	3	.	.	5	4	2	2	1	3	14	.	15	1	13	4	14	53	3·80
Carpenters	2	15	3	1	26	4	.	1	10	9	22	.	13	2	8	1	22	95	4·32
Carvers and Gilders	.	4	.	.	2	.	1	.	2	1	2	1	9	.	3	.	2	23	11·50
Clerks	.	3	3	.	17	.	.	2	3	5	17	.	8	1	5	4	17	51	3 00
Coachmen	.	4	1	.	13	.	.	.	4	6	11	1	8	1	1	12	11	51	4·64
Coach-builders	.	3	.	.	7	.	.	.	2	4	7	1	5	.	2	2	7	26	3·71
Coal-heavers	1	8	.	.	12	1	.	.	1	3	7	1	4	2	.	3	7	36	5·14
Compositors	.	10	4	.	15	4	1	.	3	2	17	.	13	.	3	4	17	59	3·47
Coopers	.	2	.	.	1	1	.	.	1	2	3	1	.	.	.	1	3	9	3·00
Curriers	1	1	.	.	6	.	.	.	2	.	2	.	4	.	1	.	2	15	7·50
Cutlers	.	1	1	1	3	1	.	.	2	1	4	.	5	.	.	1	4	16	4·00
Engravers	.	1	.	.	1	.	.	.	.	2	4	.	3	.	.	1	4	8	2·00
Engineers	.	2	.	.	1	.	.	.	.	.	1	.	3	.	1	1	1	8	8·00
French-polishers	.	2	1	.	4	1	.	.	.	2	2	1	1	.	.	.	2	12	6·00
Footmen	1	2	3	.	11	1	.	.	.	5	19	1	7	1	4	5	19	41	2·16
Founders	.	2	.	.	5	1	.	.	1	4	4	.	4	1	1	1	4	20	5·00
Gardeners	.	2	.	.	3	1	.	.	2	2	2	.	2	.	1	.	2	13	6·50
Gas-fitters	.	.	.	.	3	1	.	.	1	2	1	.	2	.	.	1	1	10	10·00
Glass-cutters	1	3	1	.	5	2	.	.	.	4	2	.	.	1	.	.	2	17	8·50
Gold-beaters	1	2	.	.	.	1	.	.	.	1	.	1	3	1	3	.	.	13	. .
Grooms	.	9	.	.	12	1	.	.	2	6	8	.	3	.	3	1	8	37	4·63
Hair-dressers	.	2	1	.	3	.	1	1	.	3	3	.	4	.	1	2	3	18	6·00
Hawkers	1	10	.	.	32	.	.	.	1	10	18	1	22	.	5	2	18	84	4·66
Japanners	.	.	1	.	3	.	.	.	1	1	2	.	5	.	.	.	2	11	5.50
Labourers	3	18	2	.	34	6	.	2	11	35	46	2	34	1	15	10	46	173	3·76
Masons	2	2	.	.	4	.	.	.	1	3	10	.	1	.	3	1	10	17	1·70
Messengers	.	3	4	.	4	.	.	.	4	6	6	1	9	.	2	1	6	34	5·66
Modellers	.	.	.	.	.	.	.	.	.	2	4	.	.	.	.	1	4	3	0·75
Painters	1	6	3	.	25	5	1	.	5	9	27	2	36	.	5	4	27	102	3·77
Plasterers	.	3	.	.	8	1	.	.	1	5	6	.	9	.	.	1	6	28	4·66
Pressmen	.	4	.	.	8	4	.	.	2	9	8	.	11	.	1	3	8	42	5·25
Printers	1	6	2	.	9	2	.	1	5	5	10	2	8	2	2	2	10	47	4·70
Porters	1	21	5	.	39	2	.	3	12	32	44	5	25	.	6	7	44	160	3·64
Potboys	.	3	.	.	3	.	.	1	.	1	8	1	2	1	4	1	8	17	2·12
Saddlers	1	3	.	.	.	1	.	.	.	.	3	1	5	.	1	2	3	14	4·66
Sawyers	.	.	.	.	1	.	.	.	1	2	4	.	1	.	.	1	4	6	1·50
Singers	.	2	.	.	.	.	.	.	.	1	7	1	.	.	1	.	7	5	0·71
Smiths	1	8	.	1	26	.	.	.	8	22	21	.	14	.	9	4	21	93	4·43
Shoemakers	.	36	2	4	51	3	1	1	10	22	54	2	68	1	19	8	54	228	4·22
Shopmen	2	5	3	.	17	1	.	.	6	7	18	.	17	.	6	6	18	70	3·88
Stokers	.	3	.	.	3	.	.	.	2	.	.	.	.	.	.	.	.	8	. .
Tailors	2	30	.	.	51	7	1	1	13	25	66	5	56	1	13	9	66	214	3·24
Travellers	.	1	.	.	2	.	.	.	.	1	4	.	2	1	.	.	4	7	1·75
Turners	.	2	.	.	6	.	.	.	2	2	5	.	3	1	1	1	5	18	3·60
Warehousemen	.	5	.	.	1	1	.	.	2	6	3	.	1	.	3	.	3	19	6·33
Weavers	.	.	.	.	1	.	1	.	1	.	4	1	1	.	.	.	4	5	1·25
Workers in Metal	1	.	.	.	3	3	.	.	3	3	5	2	1	.	2	1	5	18	3·60
Sedentary (various)	3	2	1	.	4	.	1	.	.	5	5	1	5	.	3	.	5	25	5·00
In-door, with slight exertion	.	2	.	.	.	1	.	.	.	.	1	.	1	1	1	.	1	6	6·00
In-door, with more exertion	1	1	.	.	.	.	.	.	1	2	3	1	8	1	3	.	3	18	6·00
Out-door (various)	.	.	.	.	5	.	.	.	.	2	1	.	2	.	.	1	1	10	10·00
Total	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	589	2295	

TABLE IV.—*Showing the Number and per centage Proportion of Cases belonging to the several classes of Disease, as also the Proportion of Cases of Pulmonary Consumption, to those of all other Diseases in Males following in-door and out-door occupations.*

Nature of Occupation.	Febrile Affections.	Catarrhal Affections.	Gout.	Struma.	Rheumatic Affections.	Nervous Disorders.	Mental Disorders.	Delirium Tremens.	Cerebral Affections.	Diseases of the Air-Passages and Lungs.	Pulmonary Consumption.	Disorders of the Circulating System.	Disorders of the Alimentary Canal.	Disorders of the Urinary Organs.	Skin Diseases.	Other Diseases.	Pulmonary Consumption.	Other Diseases.	Ratio.
In-door .	20	184	31	9	312	51	10	9	97	180	389	25	367	17	129	74	389	1,516	1 to 3·89
Out-door .	11	94	15	0	197	15	0	6	45	127	193	13	131	6	46	46	193	752	3·89
In-door .	1·05	9·66	1·63	0·47	16·37	2·67	0·53	0·47	5·09	9·45	20·42	1·31	19·26	0·89	6·77	3·88	20·42	79·58	..
Out-door .	1·16	9·94	1·58	..	20·85	1·58	..	0·64	4·76	13·44	20·42	1·39	13·86	0·63	4·87	4·87	20·42	79·5	..

On inspecting the occupations classed under the two groups of in-door and out-door, there are found to be some employments in each group which, independently of their being carried on in-doors, or in the open air, may be supposed to exercise an injurious influence upon health. Such are, among both classes of employments, those exposed to the inhalation of dust; among those employed in-doors, such as are exposed to a very high temperature; and among those employed in the open air, such as are exposed to noxious effluvia. Again, of those classed with in-door occupations, there are some which, as has been already stated, are not carried on exclusively in-doors, as carpenters, painters, &c. After excluding from both classes of occupations such as for either of the reasons now stated ought to be struck out of the list, there will remain only those which may be fairly presumed to represent the influence of the two classes of employment upon health. The result of this exclusion will be seen in the following table.

TABLE V.

Nature of Occupation.	Febrile Affections.	Catarrhal Affections.	Gout.	Struma.	Rheumatic Affections.	Nervous Disorders.	Mental Disorders.	Delirium Tremens.	Cerebral Affections.	Diseases of the Air-Passages and Lungs.	Pulmonary Consumption.	Disorders of the Circulating System.	Disorders of the Alimentary Canal.	Disorders of the Urinary Organs.	Skin Diseases.	Other Diseases.	Pulmonary Consumption.	Other Diseases.	Ratio.
In-door .	14	142	23	5	215	39	9	8	63	128	293	23	276	14	99	58	293	1,116	1·3·81
Out-door .	9	89	15	..	186	14	..	5	42	119	170	12	125	5	39	42	170	702	1·4·13
In-door .	1·00	10·08	1·61	0·35	15·26	2·77	0·64	0·57	4·47	9·08	20·80	1·61	19·59	1·00	7·03	4·11	20·80	79·20	..
Out-door .	1·03	10·21	1·72	..	21·33	1·61	..	0·54	4·83	13·64	19·50	1·37	14·33	0·54	4·47	4·83	19·50	80·50	..

This table, presenting, as it does, so small a difference in the influence of the two classes of employment upon health, when taken with the foregoing table, goes far to prove that neither in-door nor out-door occupations, considered merely as such, and independent of the unwholesome influences with which they may be combined, have any peculiar effect

in promoting pulmonary consumption, the difference in favour of out-door employments being merely 1·30 per cent., or 13 in the 1000.

This result will appear the more striking, when it is stated, that some of the in-door occupations which have been excluded on account of the marked character of the influences to which they expose the frame, as, for instance, the employments which require an exposure to a high temperature, appear to be remarkably healthy, and would, if retained, have lowered the proportion of consumptive cases among the class to which they belong.

Having thus examined the influence of these two distinct classes of employments in promoting pulmonary consumption, I propose to inquire how far the liability to that disease is affected by other circumstances peculiar to the several employments.

One of the most marked differences between the several occupations next to that just specified is the amount of exertion which they require. With a view of ascertaining the effect of different degrees of muscular effort in promoting the growth of pulmonary consumption, the several occupations carried on within doors have been divided into four groups. 1. Sedentary employments, and those carried on in one posture, with slight exertion. 2. Not sedentary, but allowing of varied exercise. 3. Sedentary employments which require greater exertion; and 4. Employments requiring very considerable exertion. The out-door occupations are divided into those requiring comparatively little exertion, and those demanding a greater amount of effort. Both classes of occupations are exhibited in the following table.

TABLE VI.

Nature of Occupation.	Febrile Affections	Catarrhal Affections.	Gout.	Struma.	Rheumatic Affections.	Nervous Disorders.	Mental Diseases.	Delirium Tremens.	Cerebral Affections.	Diseases of the Air-Passages and Lungs.	Pulmonary Consumption	Disorders of the Circulating System.	Disorders of the Alimentary Canal.	Diseases of the Urinary Organs.	Skin Diseases.	Other Diseases.	Pulmonary Consumption.	Other Diseases.	Ratio.
In-door:—																			
Requiring little exertion.	5	54	9	..	74	12	5	4	22	47	125	8	93	3	27	22	125	385	1·3·08
With varied exercise .	3	14	6	..	29	4	..	..	8	18	41	1	26	2	14	11	41	136	1·3·32
Requiring more exertion	7	79	10	7	116	21	4	4	39	61	142	14	167	9	63	29	142	630	1·4·44
Requiring great exertion	2	16	..	1	39	6	..	..	11	36	33	1	32	2	13	8	33	167	1·5·06
Out-door:—																			
Requiring moderate exertion	1	18	5	..	56	..	..	..	9	26	40	3	43	2	8	15	40	186	1·4·65
Requiring greater exertion	8	71	10	..	133	15	..	5	34	96	131	9	84	3	31	27	131	526	1·4·02

From this table it would appear that, as far as regards in-door occupations, strong exercise is favourable to health, and that the ratio of consumption is inversely as the amount of exercise, being greatest in those using the least muscular effort, and least in those making the greatest exertions. In the case of the out-door employments, however, the greatest liability to consumption occurs in those who use the greatest exertion. But it must be borne in mind, that the persons comprised in this class are not merely the most laborious, but also the most unfavourably circumstanced in other respects; for while the first class comprises the coachman, the traveller, the postman, the messenger, and the light

porter, the latter includes the poorer and worse paid labourer, bricklayer, and heavy porter. The class whose employments require the least exertion have the means of living in the greatest comfort; hence the comparison now instituted is not an accurate one, and the results are less satisfactory than those obtained in the case of persons following in-door occupations. At the same time, it must be admitted to be possible, that great exertion in persons employed within doors may, when compared with the comparative inactivity of the more sedentary employments, be conducive to health, while similarly great exertions in the open air have no advantage over the sufficient exercise which most out-door employments furnish.

As this question of the effect of exertion in rendering in-door employments comparatively healthy is one of much interest, it may be well to search for some means of instituting a more exact comparison. These means are at our command; for in the case of the letter-press printers, the compositor, who stands or sits in one position, making use of small and quick movements of his arms, may be contrasted with the pressman, who uses frequent and strong muscular efforts. Both of them work in rooms, of similar size, similarly heated, ventilated, and lighted, and, in many cases, they work together in the same room. The influence of their respective employments upon their health is shown in the following table.

TABLE VII.

Class of Men.	Pulmonary Consumption.	Other Diseases.	Ratio.
Compositors . .	17	59	1·3·47
Pressmen . .	8	41	1·5·12

The difference in this case is very striking, and it is rendered still more remarkable by the fact that the compositor receives higher wages than the pressman, and is less addicted than he to habits of intemperance. Those who have visited printing offices will remember how much more healthy an appearance the pressmen wear than the compositors.

From the foregoing considerations, then, it seems highly probable that occupations carried on within doors are rendered more healthy by being combined with exercise. The example of the compositor and pressman seems also to prove that strong exercise has a marked tendency to counteract the injurious influence of an unwholesome atmosphere.

Another interesting question connected with the influence of employment upon health, is the effect of a constrained posture in promoting pulmonary consumption. It is not easy to illustrate this question by any comparison free from objection. In the case of in-door occupations, the best comparison which can be instituted is between the tailor working in a constrained posture but using slight exertion, and the clerk and engraver, who also use little exertion in their employment, but whose posture is less constrained. The chief objection to the comparison is, that some tailors work in extremely unwholesome atmospheres, which is probably more rarely the case with the clerk and engraver. The following is the result of the comparison :—

TABLE VIII.

Class of Men.	Pulmonary Consumption.	Other Diseases.	Ratio.
Tailors	66	194	1·2·94
Clerks and Engravers . .	21	59	1·2·81

The difference is here too inconsiderable to justify us in attributing much influence to a constrained posture.

Another comparison suggests itself in the case of persons employed in out-door occupations, viz., between the coalheaver and porter on the one hand, and the labourer on the other. The former are obliged to assume a more constrained posture than the latter. The numbers are as follows:—

TABLE IX.

Class of Men.	Pulmonary Consumption.	Other Diseases.	Ratio.
Coal-heavers and Porters .	58	194	1·3·80
Labourers	46	173	1·3·76

Here, too, the difference is very slight, and tends to confirm the result of the foregoing comparison. It would be possible to extend this contrast to other employments; but there are few which seem more free from objection than those which have been now made use of.

In addition to the varying amount of exertion, and the more or less constrained posture of different occupations, there are other circumstances which may be supposed to exercise a marked influence upon health, such as exposure to a high temperature, to moisture, to dust, to noxious exhalations, and to intemperance.

For the purpose of illustrating the influence of exposure to a high temperature, I have thrown together into one group bakers, engineers, founders, smiths, and stokers, and have contrasted the diseases to which they are subject with those of persons following other in-door employments, from which all known injurious occupations are excluded. (See Table V.)

TABLE X.

Occupations.	Pulmonary Consumption.	Other Diseases.	Ratio.
Exposed to Heat . . .	37	169	1·4·57
Other In-door Occupations	293	1,116	1·3·81

This table places the influence of a high temperature in a favourable light; but it must be borne in mind that the employments which expose to a high temperature also require that muscular exertion which has been shown to exercise a favourable influence upon the health of persons employed within doors. The least favourable proportion of cases of consumption exists in the case of the baker, the numbers being 11 of con-

sumption for 40 of other diseases, or 1 to 3·64. This proportion is higher than that of all other in-door occupations taken together, which arises in part from the hours of work being unfavourable to health, and partly, perhaps, from exposure to dust.

The effect of exposure to moisture cannot be satisfactorily determined for want of a sufficient number of facts. Of 19 glass-cutters, whose hands are almost constantly in water and the atmosphere around them saturated with moisture, 2 only were cases of consumption, being in the proportion of 1 to 8·50. The facts, however, as has been just stated, are not sufficient to determine the influence of this agent on health.

The inhalation of dust seems to have a most fatal effect in promoting pulmonary consumption. This will appear from the following table, which places the deleterious effects of this influence in a very striking light:—

TABLE XI.

Class of Men.	Pulmonary Consumption.	Other Diseases.	Ratio.
Modellers . .	4	3	1·0·75
Masons . . .	10	17	1·1·70
Sawyers . . .	4	6	1·1·50
Total . .	18	26	1·1·44

Though the number of facts is inconsiderable, the ratio of consumptive cases to all other diseases is so high as to leave little doubt of the highly injurious effect of this mechanical irritation of the lungs.

The influence of noxious exhalations, like the effect of moisture, does not admit of being clearly exhibited, on account of the want of facts. Under the head of gas-fitters there is 1 case of pulmonary consumption to 10 of other diseases. Among butchers, who are exposed to animal exhalations, there are 6 cases of consumption to 28 of other diseases, giving the proportion of 1 to 4·66, and of grooms who inhale ammonia in excess, 8 cases of consumption to 37 of other diseases, or 1 in 4·63.

In illustration of the effects of intemperance, it may be stated that of potboys, who are peculiarly exposed to the temptation of drinking, 8 out of 25, or 1 in 2·50, were cases of consumption. How far intemperate habits may have contributed to the unhealthiness of other occupations it is impossible to ascertain.

In the course of collecting the facts on which the foregoing observations are founded, another means of illustrating the influence of employment upon health suggested itself. It seemed highly probable that those occupations which were most injurious to health would evince their deleterious effects not only by raising the ratio of consumptive cases, but by claiming their victims at an earlier age. This supposition turns out to be well founded, and the result of the inquiry as to this point goes far to confirm the most important conclusions already established in the former part of this essay.

The following table, deduced from the facts which have been made use of in Table IV., exhibits the ages at which the cases of pulmonary consumption occurred in men following in-door and out-door occupations. The per centage proportion for the several ages is also stated:—

TABLE XII.

Em-ployed.	Under 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 80
In door.	2	52	75	96	78	68	32	22	15	16	2	..	..
Out-door	2	10	31	39	31	29	33	28	13	5	3	1	1
In door.	0·44	11·48	16·56	21·19	16·12	15·01	7·06	4·86	3·31	3·53	0·44	..	..
Out-door	0·88	4·44	13·72	17·25	13·72	12·83	14·60	12·40	5·75	2·22	1·33	0·44	0·44

On comparing this table with Table IV., it will be seen that though the ratio of pulmonary consumption to all other diseases is precisely the same for in-door and out-door employments, that fatal disease occurs much earlier in life in those following the former class of occupations. This interesting result will be best seen in the following table, which contrasts the per centage proportion of cases occurring under 40 years with the proportion occurring above 40 :—

TABLE XIII.

Employed.	Under 40.	Above 40.
In-door . . .	80·80	19·20
Out-door . . .	62·84	37·16

A still more marked result is obtained by employing the facts already used in constructing Table V. The following table exhibits the per centage proportion of consumptive cases at the several ages specified in men following in-door and out-door employments, from which all acknowledgedly injurious occupations have been excluded :—

TABLE XIV.

Em . ployed.	Under 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 80
In-door.	2	43	61	76	59	56	23	18	9	8	2	..	..
Out-door	2	9	30	33	26	27	30	26	12	4	3	1	1
In-door.	0·56	12·05	17·09	21·28	16·53	15·70	6·43	5·04	2·52	2·24	0·56	..	..
Out-door	0·98	4·42	14·71	16·19	12·74	13·26	14·71	12·74	5·88	1·96	1·47	0·47	0·47

The following table exhibits, as before, the per centage proportion of cases of pulmonary consumption occurring before and after 40 years of age in persons following both classes of employments :—

TABLE XV.

Employed.	Under 40.	Above 40.
In-door . . .	83·21	16·79
Out-door . . .	62·30	37·70

In both the foregoing tables (XIII. and XV.) the earlier prevalence of pulmonary consumption among persons following in-door occupations is strikingly displayed, and in the last table this earlier attack of consumption corresponds with the more unhealthy character of in-door employments, as shown in Table V. It would be interesting to inquire how far this correspondence between an unhealthy occupation, as shown by the

higher proportion of consumptive cases, extends to the other classification adopted in the first part of this essay. The results of this inquiry are shown in the following table, which answers to Table VI.:—

TABLE XVI.

Employments.	Under 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 80
In-door :—													
1. Requiring little exertion.	2	19	24	29	25	19	12	7	4	4	..	..	..
2. With varied exercise. .	..	8	5	13	14	8	3	1	2	1	..	..	..
3. Requiring more exertion	..	15	29	34	18	22	7	8	6	6	1	..	..
4. Requiring great exertion.	..	5	6	7	5	2	3	4	3	2	..	..	..
Out-door :—													
1. Requiring moderate exertion	2	1	9	7	4	8	7	5	10	3	1	..	1
2. Requiring greater exertion	..	6	20	22	19	20	21	17	7	5	3	1	1
In-door :—													
1	1·38	13·10	16·55	20·00	17·24	13·10	8·28	4·83	2·76	2·76	..	..	..
2	..	14 55	9·09	23·64	25·44	14·55	5·45	1·82	3·64	1·82	..	..	..
3	..	10·27	19·86	23·28	12·33	15·07	4·80	5·48	4·11	4·11	0·69	..	..
4	..	13·51	16·21	18·91	13·51	5·41	8·11	10·82	8·11	5·41	..	..	..
Out-door :—													
1	3·45	1·72	15·52	12·07	6·90	13·80	12·07	8·62	17·24	5·17	1·72	..	1·72
2	..	4·23	14·09	15·49	13.38	14·09	14·78	11·97	4·93	3·52	2·12	0·70	0·70

The per centage proportion before and after 40 years of age, are shown in the following table:—

TABLE XVII.

Employments.		Under 40.	Above 40.
In-door .	1 .	81·37	18·63
	2 .	87·27	12·73
	3 .	80·81	19·19
	4 .	67·55	32.45
Out-door.	1 .	53·46	46·54
	2 .	61·28	38·72

If we omit the in-door employments, accompanied with varied exercise, (a class which includes the footman, waiter, &c.,) the others will be found to correspond closely with the results of Table VI., the proportion of consumptive cases before 40 years of age being relatively in excess, when the proportion of consumptive cases to other diseases is large. In the six classes of occupation, then, there is but one exception to the rule that where the proportion of consumptive cases is large, there also the disease makes its attack at an earlier age, and *vice versâ*.

The comparison instituted above between compositors and pressmen (Table VII.) leads to the same result; for whereas the proportion of consumptive cases in the two employments is represented by 3·47 and 5·12, the number of cases of pulmonary consumption occurring before 40 compared with those occurring after 40, is, in the case of the compositor, 19 to 4, and in that of the pressman 6 to 3, being in the one case nearly 5 to 1, and in the other 2 to 1.

Occupation.	Under 15 Years.	From 15 to 20.	From 20 to 25.	From 25 to 30.	From 30 to 35.	From 35 to 40.	From 40 to 45.	From 45 to 50.	From 50 to 55.	From 55 to 60.	From 60 to 65.	From 65 to 70.	From 70 to 80.	From 80 upwards.
Bakers	.	1	2	1	2	1	2	1	.	.	.	.	.	.
Bricklayers	.	.	.	2	.	1	2	5	1	1	.	.	.	.
Bookbinders	.	1	.	.	2	3	2	1	.	1	.	.	.	.
Brush-makers	.	.	.	4	.	.	.	.	.	1	.	.	.	.
Burnishers	.	1	.	4	.	.	.	.	.	.	.	.	.	.
Butchers	.	1	.	1	1	1	.	.	1	.	.	.	.	.
Cabinet-makers	.	.	1	4	5	2	3	.	.	1	.	.	.	.
Carpenters	.	1	2	3	3	6	2	.	.	5	.	.	.	.
Carvers and Gilders	.	1	1	.	1	.	.	.	.	.	.	.	.	.
Clerks	.	2	1	2	5	.	2	1	.	.	.	.	.	.
Coach-builders	.	.	.	.	.	.	.	1	1	1	.	.	.	.
Coachmen	.	.	2	2	1	3	2	1	.	.	.	1	.	.
Coal-heavers	.	1	.	2	3	1	.	.	1	.	.	.	.	.
Compositors	.	2	4	3	4	6	4	.	.	.	.	.	.	.
Coopers	.	.	.	1	.	2	.	.	.	.	.	.	.	.
Curriers	.	.	.	1	.	.	.	.	.	.	.	.	.	.
Cutlers	.	1	.	.	1	.	.	.	2	.	.	.	.	.
Engravers	2	1	1	.	.	.	2	.	.	.	.	.	.	.
French-polishers	.	1	.	1	.	.	.	.	.	1	.	.	.	.
Footmen	.	5	1	4	9	5	.	1	1	.	1	.	.	.
Founders	.	1	.	.	1	.	.	.	1	.	.	.	.	.
Gardeners	.	.	.	.	1	.	1	.	.	.	.	.	.	.
Gas-fitters	.	.	.	.	.	.	.	.	.	1	.	.	.	.
Glass-cutters	.	.	.	.	.	.	1	.	1	.	.	.	.	.
Gold-beaters	.	.	2	1	.	1	.	.	.	.	.	.	.	.
Grooms	.	.	2	.	3	2	.	1	.	1	.	.	.	.
Hair-dressers	.	.	.	1	1	1	.	.	.	.	.	.	.	.
Hawkers	.	.	6	4	4	3	4	9	3	1	.	.	.	.
Japanners	.	2	1	.	.	.	.	.	.	.	.	.	.	.
Labourers	.	2	9	7	6	8	9	5	2	1	2	.	.	.
Masons	.	1	.	4	1	2	2	1	.	.	.	.	.	.
Messengers	2	1	.	.	3	.	2	.	1	.	.	.	.	.
Modellers	.	.	.	.	2	1	.	1	.	1	.	.	.	.
Painters	.	3	7	8	6	2	3	.	2	.	.	.	.	.
Plasterers	.	.	2	.	1	1	.	1	.	.	.	.	.	.
Porters	.	2	7	1	4	6	9	5	2	1	1	1	1	.
Potboys	.	.	1	2	4	.	.	.	2	.	.	.	.	.
Pressmen	.	1	3	.	2	.	1	2	.	.	.	.	.	.
Printers	.	2	3	5	.	1	.	1	1	.	.	.	.	.
Saddlers	.	.	2	1	.	.	.	.	.	.	1	.	.	.
Sawyers	.	.	.	.	.	.	1	1	.	.	.	.	.	.
Singers	.	.	1	4	1	1	.	.	.	.	.	.	.	.
Shoemakers	.	5	15	15	8	10	.	5	1	2	.	.	.	.
Shopmen	.	1	4	8	4	3	1	.	1	.	.	.	.	.
Smiths	.	3	2	7	2	2	2	2	2	2	.	.	.	.
Stokers	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Tailors	.	7	14	18	12	9	2	4	3	2	.	.	.	.
Travellers	.	.	1	1	.	1	.	.	.	.	.	.	.	.
Turners	.	.	2	1	1	1	.	.	.	.	.	.	.	.
Warehousemen	.	2	.	1	1	.	1	.	.	.	.	.	.	.
Weavers	.	4	1	.	.	2	2	1	.	.	.	.	.	.
Workers in Metal	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sedentary (various)	.	6	5	2	2	2	4	2	1	2	.	.	.	.
In-door, with slight exercise	.	.	.	1	1	1	.	.	.	.	.	.	.	.
In-door, with more exertion	.	1	2	2	.	1	.	.	.	.	.	.	1	.
Out-door (various)	.	.	3	1	.	2	.	.	.	.	.	.	.	.

In the instances of other occupations of an unhealthy nature, as the mason, potboy, &c., the facts are too few to be of much importance. In the instance of the mason, the cases of consumption occurring before 40 are to those occurring after 40 as 8 to 3. Among potboys, again, 7 cases were registered as occurring before 35, and only 1 after that age.

From what has been stated, there can be little doubt that unhealthy occupations, or modes of life, will exhibit their effects not merely in giving rise to a large proportion of consumptive cases, but also by hastening the advent of that disease.

The principle here laid down is one of so much interest and importance, that I am induced to add a table (see p. 209) embodying the facts, which I have collected, and so arranged as to admit of additions at the hands of other observers who may wish to prosecute this inquiry.

The following summary embodies the results of the foregoing tables and reasonings:—

1. In females the ratio of cases of pulmonary consumption to those of all other diseases is highest in those following sedentary employments, less in those having mixed in-door occupations, and least of all in those employed out of doors. The highest ratio occurs in the case of females whose habits of life are irregular.

2. In men the ratio of cases of pulmonary consumption to those of all other diseases is somewhat higher in those following in-door occupations than in those working in the open air.

3. The ratio of cases of pulmonary consumption to those of all other diseases, in the case of men following in-door employments, varies inversely as the amount of exertion, being highest where there is least exertion, and lowest in employments requiring strong exercise.

4. Neither a constrained posture, nor exposure to a high temperature, nor a moist atmosphere, appears to have any marked effect in promoting pulmonary consumption.

5. The ratio of cases of pulmonary consumption to those of all other diseases is highest in the case of men whose employments expose them to the inhalation of dust, there being in persons so employed 2 cases of consumption for less than 3 of all other diseases.

6. The ratio is also high in the case of persons exposed to habits of intemperance, there being 2 cases of pulmonary consumption to 5 of all other diseases.

7. The age at which pulmonary consumption makes its attack varies with the employment, being earlier in those occupations characterised by a high ratio of consumptive cases. Thus it is earlier in those following in-door occupations than in those employed in the open air, and in those using little exertion than in those using much. It also occurs very early in those exposed to the temptation of intemperance, and in those whose occupations lead to the inhalation of dust.

It has been already stated that the ratio of cases of pulmonary consumption to those of all other diseases occurring among the out-patients of an hospital, is not employed as a certain test of the tendency of different occupations to promote consumption, but merely as affording a probability to be used in conjunction with others, derived from analogous sources. Such a confirmation is certainly afforded by the facts showing the age at which consumption makes its attack, though these facts are not themselves altogether free from objection, inasmuch as there is some difference in the ages at which men commence their several employ-

ments, and consequently in the time during which they are exposed to their influence. The fallacy arising from this cause, however, is, in all probability, very slight, and certainly not sufficient to account for the great difference in the age at which consumption occurs in the several kinds of employment. The coincidence of the probabilities established by the two classes of facts, gives the strongest reason for believing that the conclusions which have been arrived at are in accordance with the true state of the case.

The practical rule to be deduced from the preceding observations is, that those persons who have an hereditary tendency to consumption should make choice of occupations which are carried on in the open air; that if they are obliged to choose some in-door employment, it should be one requiring strong exercise, and that they, more than others, should avoid exposure to dust and habits of intemperance.

Fifth Report and Summary of the Education Committee of the Statistical Society of London.

[*Read before the Statistical Society of London, 19th June,* 1843.]

YOUR Committee appointed to inquire into the state of education in the metropolis have completed their census of schools and scholars in the cities of London and Westminster, in the boroughs of Marylebone and Finsbury, and in the lower parts of the Tower Hamlets. The survey of the parishes of Bethnal Green, Spitalfields, and Shoreditch, is postponed in consideration of the changes which are taking place in the ecclesiastical divisions, and consequently in the educational statistics, of those parishes.

When the above-mentioned parishes are included, the districts visited by the Committee and its agents, from the commencement of their labours, will comprise a population of about 1,000,000 souls. The population of those at present visited is as follows, according to the census of 1841 :—

In the City of London	129,251
In the City of Westminster	229,647
In the Borough of Finsbury, exclusive of the parts north of the Regent's Canal	200,661
In the Borough of Marylebone, exclusive of the parts north of the New Road	150,000
In Whitechapel, Shadwell, Wapping, &c. (about). .	91,000
	800,559

This number forms but a portion of the entire population of the metropolis; nevertheless it is sufficiently large to serve as a specimen or example of the whole; and being a larger number of souls than are elsewhere found collected in the same space, it possesses an interest even on that account alone.

Within the limits above described, there are 280 charity schools for the education of the poor (exclusive of Sunday schools), and 1,154 private schools. The scholars are 58,861 (35,928 in charity schools, and 22,933 in the private schools). There have also been visited 163 Sunday schools, containing 28,891 scholars; but the census of these