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MORTALITY OF PHILADELPHIA FOR 1861.

R E P O R T

ON

METEOROLOGY AND EPIDEMICS.

READ BEFORE THE

COLLEGE OF PHYSICIANS OF PHILADELPHIA,

FEBRUARY 5, 1862.

BY

WILSON JEWELL, M.D.

Extracted from The American Journal of the Medical Sciences for April, 1862.

PHILADELPHIA:
COLLINS, PRINTER, 705 JAYNE STREET.
1862.

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METEOROLOGY.—As in former years, I have the pleasure of presenting an abstract of meteorological observations for the year 1861, made by my friend James A. Kirkpatrick, A. M., Prof. of Civil Engineering in the Philadelphia High School. These observations are taken for the Smithsonian Institution at Washington, and are authoritative. He has also at my request furnished a comparison of some of the meteorological phenomena of the year 1861 with those of 1860, and of the ten years from 1852 to 1861 inclusive, for Philadelphia, which I subjoin in his own words.

The mean temperature of the year (1861) was about six-tenths of a degree above that of the year 1860, and about four-tenths of a degree above the average for the last ten years.

The maximum temperature (95°) occurred on the 8th day of July. The minimum temperature, one degree below zero, was on the 8th of February. The range of temperature for the year was consequently 96° .

The warmest day of the year was the 8th of July, of which the mean temperature was 87.8° . The coldest day was the 13th of January, the mean for that day being 7.8° .

Of the seasons, this winter was one degree warmer, and the summer one degree and a quarter colder than the average for ten years. The spring was one-tenth of a degree colder, and the autumn six-tenths of a degree warmer than the average.

The temperature of all the months except three, fell within two degrees of their average temperature for ten years. The month of October was three degrees above the average, and was the warmest October during the ten years of observation. February was $5\frac{1}{2}^{\circ}$ above the average, and was the warmest February, for ten years, except February 1857, which was half a degree warmer.

The temperature of May was $3\frac{1}{2}^{\circ}$ below the average, and was the coldest May for ten years, except May, 1858, which was seven-hundredths of a degree colder.

The maximum pressure of the atmosphere (30.526 inches), occurred on the 23d of January; and the minimum pressure (29.096), on the 27th of May.

The force of vapor and relative humidity for the whole year were greater than for 1860, but less than the average for ten years.

The amount of rain that fell during the year was an inch and a half more than the average amount for ten years. The quantity that fell in the month of December (2.016) was less than in any December since 1851; and the number of rainy days was fewer than ever before observed for that month.

General Abstract of Meteorological Observations, made at Philadelphia, Pa., during the year 1861.
 By JAMES A. KIRKPATRICK, A. M., Prof. of Civil Engineering in the Philadelphia High School.
 (Barometer fifty feet above ordinary high water in the Delaware River.)

1861.	THERMOMETER.										BAROMETER REDUCED TO 32° F. But not corrected for altitude.					RANGE.		
	7 A. M.	2 P. M.	9 P. M.	Mean.	Max.	Min.	RANGE.		Mean of daily oscillations.	7 A. M.	2 P. M.	9 P. M.	Mean.	Max.	Min.	Monthly.	Mean daily.	
							Monthly.	Mean daily.										
January	27.67	34.34	30.90	30.97	49½	1	0	48½	5.98	11.61	29.991	29.953	29.968	29.971	30.526	29.460	1.066	.229
February	33.86	45.55	39.14	39.52	68½	-1	69½	8.90	17.27	29.954	29.912	29.951	29.939	30.455	29.308	1.177	.264	
March	37.73	48.71	41.58	42.67	78½	16	62½	8.66	18.18	29.917	29.862	29.906	29.895	30.386	29.354	1.032	.231	
April	47.18	60.55	51.10	52.94	88	33	55	5.85	19.05	29.845	29.787	29.816	29.816	30.233	29.213	1.020	.143	
May	55.40	65.74	57.00	59.38	83	36	47	5.06	19.55	29.744	29.691	29.726	29.720	30.132	29.096	1.036	.156	
June	69.30	79.27	70.83	73.13	91	51	40	5.29	18.55	29.783	29.742	29.739	29.754	30.062	29.528	.534	.104	
July	72.74	82.87	72.69	76.10	95	55	40	3.70	19.29	29.800	29.765	29.780	29.781	29.961	29.505	.456	.078	
August	68.88	79.52	71.05	73.15	94	54½	39½	3.94	16.84	29.912	29.896	29.910	29.906	30.212	29.608	.604	.098	
September	62.37	74.75	66.72	67.95	86	46	40	4.41	17.22	29.953	29.913	29.924	29.930	30.343	29.283	1.060	.144	
October	54.32	66.61	58.69	59.87	88	34	54	5.28	16.94	29.945	29.893	29.926	29.921	30.452	29.469	.983	.166	
November	39.85	48.73	43.25	43.94	63½	29	31½	4.11	13.08	29.793	29.736	29.785	29.771	30.109	29.213	.896	.179	
December	32.52	42.26	35.88	36.88	64	19	45	5.66	14.58	30.040	29.992	30.012	30.015	30.462	29.292	1.170	.213	
Annual means	50.15	60.74	53.24	54.71	95	-1	96	5.57	16.85	29.890	29.845	29.870	29.868	30.526	29.096	1.430	.167	
Winter	30.28	38.51	33.95	34.25	68½	-1	69½	6.63	13.69	29.961	29.925	29.939	29.949	30.526	29.285	1.241	.230	
Spring	46.77	58.33	49.89	51.66	88	16	72	6.52	18.93	29.835	29.780	29.816	29.810	30.386	29.096	1.290	.177	
Summer	70.31	80.55	71.52	74.13	95	51	44	4.31	18.23	29.892	29.801	29.810	29.814	30.212	29.505	.707	.093	
Autumn	52.18	63.36	56.22	57.25	88	29	59	4.60	15.75	29.897	29.847	29.878	29.874	30.452	29.213	1.239	.163	
For ten years	49.74	60.05	53.20	54.33	100½	-5½	106	5.61	15.19	29.892	29.833	29.877	29.874	30.704	28.884	1.820	.155	

Meteorological Observations—Continued.

1861.	RELATIVE HUMIDITY.				FORCE OF VAPOUR.						No. of days on which rain or snow fell.		CLOUDS. Tenths of sky covered.			WINDS. Monthly resultant; No. of times in 1000.	DEW-POINT.							
	7 A. M.	2 P. M.	9 P. M.	Min.	7 A. M.	2 P. M.	9 P. M.	Mean.	Max.	Min.	No. of days on which rain or snow fell.	7 A. M.	2 P. M.	9 P. M.	Mean.		7 A. M.	2 P. M.	9 P. M.	Mean.	Max.	Min.		
																							p. c.	p. c.
January	80	72	81	100	40	128	144	145	139	244	034	4.620	13	6.9	6.5	4.7	6.0	N. 52° 12' W., 375	22.43	25.73	29.59	24.58	39.6	-5.5
February	75	52	70	100	25	158	169	186	171	375	023	2.124	9	5.4	6.6	5.5	5.8	S. 77° 6' W., 354	26.56	27.89	29.67	28.04	51.1	-13.8
March	69	48	66	95	21	175	182	185	181	479	051	3.903	9	6.1	6.1	4.8	5.7	N. 73° 37' W., 328	28.41	28.65	30.58	29.21	57.8	3.4
April	67	42	65	95	22	231	226	259	238	520	109	4.150	9	5.0	6.1	4.7	5.3	N. 73° 20' W., 177	36.44	35.68	39.45	37.19	60.1	20.3
May	63	45	63	100	18	252	284	297	288	594	069	6.240	13	4.2	5.5	3.9	4.5	N. 72° 48' W., 257	42.15	41.78	43.47	42.47	63.9	10.3
June	66	52	70	94	19	475	512	530	505	813	142	4.485	15	6.1	6.1	3.9	5.4	S. 81° 52' W., 176	56.69	58.75	60.04	58.49	73.1	26.3
July	71	48	72	97	32	578	540	579	567	819	284	2.826	14	5.2	6.1	5.9	5.7	S. 58° 43' W., 368	62.56	60.36	62.62	61.85	73.3	43.6
August	83	60	79	92	34	602	608	612	607	841	296	2.864	12	7.0	6.4	5.0	6.1	S. 83° 55' E., 088	63.60	63.77	64.20	63.86	74.1	44.6
September	83	60	79	97	42	476	516	532	508	770	279	4.976	6	6.4	6.1	3.8	5.4	S. 75° 28' W., 181	56.94	59.15	59.90	58.66	71.4	43.2
October	81	60	76	97	33	373	415	410	399	731	123	3.597	10	7.0	6.1	4.8	6.0	N. 75° 10' W., 211	48.65	51.43	51.07	50.38	69.9	22.7
November	78	58	71	96	32	199	210	206	205	523	099	4.613	11	5.2	6.7	5.2	5.7	N. 68° 12' W., 324	33.48	33.90	34.04	33.81	60.3	18.1
December	80	62	78	95	23	155	175	173	168	390	069	2.016	4	6.0	5.6	3.3	5.0	N. 74° 3' W., 353	26.90	29.49	29.80	28.73	52.1	10.4
Annual means	75	55	72	100	18	319	332	343	331	841	023	46.414	125	5.9	6.2	4.6	5.5	N. 81° 41' W., 289	42.07	43.05	44.20	43.11	74.1	-13.8
Winter	78	63	74	100	25	139	151	155	148	375	023	10.043	30	6.2	6.7	5.0	6.0	N. 65° 37' W., 334	24.22	26.20	26.42	25.61	51.1	-13.8
Spring	66	45	65	100	18	229	231	247	236	594	051	14.293	31	5.1	5.9	4.4	5.1	N. 73° 18' W., 254	35.67	35.37	37.83	36.29	63.9	3.4
Summer	74	53	74	97	19	552	553	574	560	841	142	10.175	41	6.1	6.2	4.9	5.7	S. 61° 23' W., 156	60.95	60.96	62.29	61.40	74.1	26.3
Autumn	81	59	75	97	32	349	380	383	371	770	099	13.186	27	6.2	6.3	4.6	5.7	N. 70° 25' W., 204	46.36	48.16	48.34	47.62	71.4	18.1
For ten years.	76	58	72	100	13	326	343	347	339	1,059	013	44.861	126	5.9	6.0	4.4	5.4	N. 75° 37' W., 217	43.67				79.7	-16.5

A Comparison of some of the Meteorological Phenomena of the year 1861 with those of 1860, and of the ten years from 1852 to 1861 inclusive, at Philadelphia, Pa.

Lat. 39° 57½' N. Long. 75° 10½' W. from Greenwich. Height of barometer, 50 feet.

	1861.	1860.	10 YEARS.
THERMOMETER.			
Highest	95° on July 8	95.5° on July 20	100.5° on July 21, 1854
Mean of warmest day	87.8 " " 8	87.7 " " 20	91.3 " " 21, 1854
Lowest	-1.0 " Feb. 8	1.0 " Feb. 2	-5.5 " Jan. 23, 1857
Mean of coldest day	+7.8 " Jan. 13	9.2 " " 2	-1.0 " " 9, 1856
Mean daily oscillat'n	16.85	17.12	15.19
" range	5.57	5.65	5.61
Means at 7 A. M.	50.15	49.39	49.74
" 2 P. M.	60.74	60.35	60.05
" 9 P. M.	53.24	52.61	53.20
" for the year	54.71	54.12	54.33
BAROMETER.			
Highest	30.526 ins. Jan. 23	30.418 ins. Dec. 14	30.704 ins. Jan. 28, 1853
Lowest	29.096 May 27	29.099 Feb. 18	98.884 Apr. 21, 1852
Mean daily range . . . . .	.167	.143	.155
Means at 7 A. M.	29.890	29.882	29.892
" 2 P. M.	29.845	29.833	29.853
" 9 P. M.	29.870	29.862	29.877
" for the year	29.868	29.859	29.874
FORCE OF VAPOUR.			
Means at 7 A. M. . . . .	.319 inch	.311 inch	.326 inch.
" 2 P. M. . . . .	.332	.321	.343
" 9 P. M. . . . .	.343	.329	.347
" for the year	.331	.320	.339
RELATIVE HUMIDITY.			
Means at 7 A. M.	74.8 per cent.	74.7 per cent.	76.2 per cent.
" 2 P. M.	54.9	54.0	57.6
" 9 P. M.	72.5	70.7	72.5
" for the year	67.4	66.5	68.8
Rain and melted snow, amount	46.414 inches	45.400 inches	44.864 inches
No. of days on which rain or snow fell	125 days	131 days	126 days
Prevailing winds	N. 81° 41' W. .239	N. 79° 43' W. .219	N. 75° 37' W. .217

BIRTHS, MARRIAGES, AND DEATHS.—The present report comprises the tabulated returns of the births, marriages, and deaths for Philadelphia during 1861, and the first, for an entire year, under the registration law of July, 1860.

This law having been in operation only eighteen months, no very important results can as yet be expected; still, enough has been accomplished to warrant the declaration, not only of its popularity, but of its permanent success as a statute second to none other in interest, where the great and vital questions of health, life, happiness, and prosperity of a community are involved.

It is not, however, to be disguised, that this benign law, like many other well-designed plans to promote the public welfare, has, to a limited extent,

met with opposition, while its terms by others have been acknowledged with a bad grace.

Among the clergy may be found those, who, by their delinquency in the observance of its provisions, show their utter disregard for a wholesome sanitary law, and their want of reflection as to the inestimable value of a system of vital statistics, which, in accordance with the opinion of those who have realized its benefits, "is looked upon as the greatest boon that an enlightened government could confer upon the people."¹

Several clergymen absolutely declined to conform to the law, until threatened with prosecution, and others, again, evinced their indifference to its provisions by neglecting to furnish the items of information called for in the blank schedules sent them.

Nor is our own profession altogether exempt from the charge of opposition and unwillingness to comply with the provisions of the law.

It would be almost a work of supererogation to expatiate upon the importance of registration. When full and complete returns shall be secured, and the field of observation extended, then will its value be better appreciated.

The Hon. John R. Bartlett, Esq., Secretary of State for Rhode Island, in presenting his report to the legislature, makes the following appropriate remarks.

"The importance of a complete registration is now greater than ever. When the present war is over, and the widows and children of those who have laid down their lives in defence of their country apply for pensions and bounty lands, the registration returns must be resorted to for the evidence required by the government, of marriages and births. So in the distribution of property of deceased persons, these returns are of the utmost importance. Had our present admirable system of registration of births, marriages, and deaths, been in operation during the war of the revolution, and that of 1812, some hundreds of thousands of dollars would have been saved to the people of this State, and hundreds of families, which for years struggled in adversity, would have been made comfortable during their lives. Already these records have been resorted to, to prove marriages, where parties have been killed in the existing rebellion, whose families have applied for pensions."² With equal propriety these remarks will apply to our own registration law. Already have applications been made at the office, for transcripts from the registry to prove the marriage of deceased soldiers as well as to prove their death.

BIRTHS.—The number of births returned and registered for the year according to the above table has been seventeen thousand two hundred and seventy-one (17,271). This is the largest annual return ever made for Philadelphia, and is no doubt a closer approximation to accuracy than hitherto obtained.

The deaths for the year have been 14,468. The excess of births, therefore, over the deaths, has been 2803. This excess, amounting to 19 per cent., is considered to be the natural annual increase of the population.

The births averaged for each day throughout the year forty-seven and one-third ($47\frac{1}{3}$).

The male births were 9008, the female births 8263, an excess of male births equal to 9 per cent., or as 109.7 males to 100 females.

¹ Speech of Lord Elcho, House of Commons, 1854.

² Rhode Island Register Report, 1860. Submitted to legislature December, 1861.

TABLE I.—Table of Births under the new Law of Registration, for the year ending December 31, 1861, with the Wards, Sexes, and Colour designated, together with the Percentage of Births to Total Births, and Ratio of Births to Population of each Ward.

MONTHS.	WARDS.												Twins.	Triplets.	SPILLBORN.		BLACK.		BIRTHS.		M.		F.		Total.
	1	2	3	4	5	6	7	8	9	10	11	M.			F.	M.	F.	M.	F.	M.	F.				
	93	87	66	69	36	36	58	29	83	45	72	39			27	17	9	844	658	844	658	844	658		
January	85	78	54	61	40	40	61	32	35	50	63	29	27	12	16	795	679	844	724	844	724	844	724		
February	94	80	56	59	37	36	52	39	34	49	46	26	24	24	24	844	724	844	724	844	724	844	724		
March	114	54	44	63	33	25	52	20	25	40	48	39	26	9	11	728	595	728	634	728	634	728	634		
April	89	48	32	43	24	27	49	32	40	43	47	27	16	7	7	652	634	652	634	652	634	652	634		
May	88	68	38	48	40	33	60	47	43	41	37	26	20	8	14	662	683	662	683	662	683	662	683		
June	100	68	57	56	35	35	72	39	33	49	36	38	20	17	13	792	703	792	703	792	703	792	703		
July	116	58	37	48	45	43	70	31	51	41	56	31	26	20	13	761	728	761	711	761	711	761	711		
August	97	62	42	51	51	41	60	38	50	43	46	33	17	10	10	726	711	726	711	726	711	726	711		
September	109	65	42	64	27	29	80	36	36	49	40	31	24	12	11	702	716	702	716	702	716	702	716		
October	114	59	45	49	36	31	78	45	48	57	45	23	18	16	9	737	686	737	686	737	686	737	686		
November	112	62	39	66	43	43	80	48	42	41	61	22	20	18	12	742	736	742	736	742	736	742	736		
December	789	432	677	482	419	772	426	470	548	587	364	266	162	147	9008	8263	9008	8263	9008	8263	9008	8263			
Total	30,886	29,123	19,929	23,461	24,792	14,882	31,267	27,770	21,849	16,681	6,443	4,366	2,550	36,110	30,886	29,123	30,886	29,123	30,886	29,123	30,886	29,123	30,886	29,123	
Population of each ward	6,443	4,366	3,131	3,911	2,500	2,446	4,466	2,940	3,110	3,339	4,366	3,131	2,550	36,110	6,443	4,366	6,443	4,366	6,443	4,366	6,443	4,366	6,443	4,366	
Percentage of births to total births	25.50	36.30	36.10	31.65	57.36	35.51	40.50	63.19	39.58	28.41	36.30	25.50	36.10	31.65	25.50	36.30	25.50	36.30	25.50	36.30	25.50	36.30	25.50	36.30	
Ratio of births to population	3.99	8.35	11.53	7.82	22.94	14.59	16.23	22.34	12.74	8.53	5.65	5.86	14.53	8.75	3.99	8.35	3.99	8.35	3.99	8.35	3.99	8.35	3.99	8.35	

MONTHS.	WARDS.												Wards not given.	Total.	
	12	13	14	15	16	17	18	19	20	21	22	23			24
	41	36	61	70	73	80	50	95	95	30	49	51			97
January	58	42	64	91	56	88	46	114	94	37	39	50	60		
February	37	51	69	97	59	85	54	113	106	36	58	48	80		
March	39	35	50	73	50	73	43	93	84	36	39	48	63		
April	48	40	61	80	46	57	45	108	85	35	42	47	71		
May	47	45	55	85	55	75	45	100	91	33	25	41 <th>61</th>	61		
June	34	43	65	94	41	73	65	132	84	40	56	66	88		
July	54	48	67	98	60	77	65	132	70	37	53	58	77		
August	43	43	74	79	46	77	54	85	94	40	50	70	58		
September	47	40	59	103	70	76	43	105	68	45	44	54 <th>52</th>	52		
October	38	61	63	90	60	88	45	84	74	33	36	62	81		
November	49	38	63	93	48	104	50	112	98	41	39 <th>42</th> <th>53</th>	42	53		
December	535	522	754	1068	664	933	599	1229	1043	465	524	637	844		
Total	16,681	20,045	21,238	32,001	20,067	23,264	20,446	38,828	29,963	17,159	17,173	23,985	23,738		
Population of each ward	3,099	3,022	3,356	6,183	3,841	5,511	3,461	7,111	6,052	2,639	3,063	3,683	4,888		
Percentage of births to total births	31.17	38.40	32.17	30.01	30.22	24.41	34.12	31.59	28.72	36.90	32.76	37.65	28.12		
Ratio of births to population	12.74	12.74	9.59	4.85	7.82	4.40	4.75	4.53	4.75	14.59	11.53	11.53	11.53		

The ratio of births to population, fixing the population at the census returns for 1860, which is 565,529, would be one in every 33 persons living.

This ratio is greater than that of Massachusetts or Rhode Island for 1859, and something less than that of Boston for the same year.

The births for each month arranged according to the different seasons of the year will give the following result :—

Months.	Births.	Months.	Births.	Months.	Births.	Months.	Births.
December . . .	1478	March	1568	June	1345	September . .	1440
January . . .	1502	April	1323	July	1495	October . . .	1418
February . . .	1474	May	1286	August	1489	November . .	1453
	<u>4454</u>		<u>4177</u>		<u>4329</u>		<u>4311</u>

According to this arrangement the winter season gave the greatest number of births, while the three spring months gave the least, but were the most prolific in conceptions.

The greatest number of births occurred in March, the least in May.

The highest number of births returned for any one ward was 1229, from the 19th, which has the largest population, numbering 38,828. The next highest was from the 1st ward, returning 1211 out of a population of 30,886. The 15th ward with a population of 32,091 gave 1068 births.

The lowest number of births recorded for any one ward, was 419, from the 6th, having the smallest population, viz. 14,482.

The following table gives the proportion of births by percentage in each ward, to the whole number of births as compared with the proportion of deaths in each ward to the whole mortality.

WARDS.	Per cent. of births.	Per cent. of deaths.	WARDS.	Per cent. of births.	Per cent. of deaths.	WARDS.	Per cent. of births.	Per cent. of deaths.
1	6.43	6.05	9	2.72	2.47	17	5.51	5.72
2	4.56	5.24	10	3.10	2.92	18	3.46	4.12
3	3.13	2.77	11	3.39	3.13	19	7.11	7.50
4	3.91	4.70	12	3.09	2.51	20	6.05	5.59
5	2.50	3.38	13	3.02	2.74	21	2.69	2.29
6	2.43	1.98	14	4.35	2.94	22	3.03	1.71
7	4.46	5.07	15	6.18	5.31	23	3.68	3.00
8	2.40	2.96	16	3.84	3.66	24	4.88	3.38

The proportions as given in this table of comparisons between the percentage of births and the percentage of deaths, present a very different variation in some instances to what should be expected. In the 8th ward, which I have in this report designated as the healthiest, the percentage of deaths exceeds that of the births, while in the 17th ward, the most unhealthy, the percentage of births is nearly equal to that of the deaths. A like variation prevails in the 19th ward.

The 24th, 22d and 14th, present the greatest contrast between the births and deaths, in favour of the former.

In the remainder of the wards the percentages do not vary to any great extent, the preponderance, however, being on the side of the births. Births are said to indicate the material prosperity of a community, as known by its numerical growth; according to the above table, there is an indication of diminution of material prosperity in eight of the wards.

It would be altogether conjectural, in the present incipient state of our returns, to assign any special reason for what might be looked upon as

contrary variations in the figures of some of the healthy wards, or to attempt an explanation for the limited births in these wards. It is satisfactory, however, to know that, in the aggregate, the increase of our population over the deaths by births has been 19 per cent.

The number of births of children of colour amounted to 309. The sexes were, 147 males, and 162 females, an excess of 10.30 per cent. of the latter; a higher rate than among the white births.

In the births returned, there were 551, in which the location or name of the wards was not given.

There were returned 162 cases of twins and two cases of triplets.

The still-births amounted to 630. The excess of males over females, which was 98, equal to 36.84 per cent., is as remarkable as it will be unaccountable.

MARRIAGES.—In Table II. will be found the marriages registered during the year, with the ages of the parties.

TABLE II.—*Ages of Parties Married in the City of Philadelphia and Registered for the year ending Dec. 31, 1861.*

		AGES OF WOMEN.								TOTAL OF THE MEN.	PERCENTAGE OF GROOMS.	
		Under 20.	20 to 25.	25 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.			Age not given.
AGES OF THE MEN.	Under 20	15	1	..	..	..	..	..	..	..	16	0.36
	20 to 25	659	826	98	19	..	..	..	..	8	1610	36.47
	25 to 30	208	680	349	79	5	1	..	..	11	1333	30.17
	30 to 40	60	258	261	178	29	1	..	..	2	789	17.86
	40 to 50	8	36	62	94	45	..	..	..	2	247	5.59
	50 to 60	1	6	6	28	30	4	1	..	..	76	1.74
	60 to 70	..	1	3	6	4	7	..	..	..	21	0.47
	70 to 80	..	..	..	..	2	..	2	..	..	4	.09
	Age not given	2	4	2	..	..	..	..	..	313	321	...
	TOTAL OF WOMEN	953	1812	781	404	115	13	3	..	336	4417	...
PERCENTAGE OF BRIDES	21.34	41.04	17.67	9.14	2.60	0.29	.06	..	..	..	...

This table is arranged in order to show the number of marriages where the parties are of the same or different quinquennial periods of life.

The number of marriages solemnized for 1861 have been 4417.

Of these, 953 or 21.34 per cent. of the brides were under twenty years of age, and only 16 or .36 per cent. of the grooms were under age.

Of the brides between twenty and twenty-five, there were 1812 or 41.04 per cent., and of the grooms at the same period there were 1610 or 36.47 per cent.

Between twenty-five and thirty, there were 781 or 17.67 per cent. marriages of brides, and 1333 or 30.17 per cent. of grooms.

Between thirty and forty, there were marriages of 404 brides and 789 grooms.

There were four grooms between the ages of seventy and eighty, and three brides between sixty and seventy.

The most frequent age for marriage in both sexes was between twenty and twenty-five. There were 41 per cent. of females and 36.47 per cent. of males.

Nearly two-thirds of all the females when married were under twenty-five years of age, and 80 in each hundred were under thirty.

The ages of 336 of the females and 321 of the males have been omitted in the returns.

This omission on the part of clergymen may be from carelessness (it can hardly be attributed to ignorance), but I am more disposed to charge it to indifference. If all clergymen would reflect upon the injustice that a neglect of a proper registration of marriages may entail upon the parties themselves, or upon their posterity, they would be more careful to comply with the provisions of the law and more ready to make their returns.

In Table III. will be found a record of the nativity of the brides and grooms, whether American or foreign.

TABLE III.—*Number of Marriages in the City of Philadelphia Registered for the year ending Dec. 31, 1861, with Nativity of the Brides and Grooms.*

NATIVITIES.		BIRTHPLACE OF BRIDES.			TOTAL OF GROOMS.
		United States.	Foreign.	Not given.	
BIRTHPLACE OF GROOMS.	United States . . .	2200	256	17	2473
	Foreign	380	1326	17	1723
	Not given	28	10	183	221
TOTAL OF BRIDES		2608	1592	217	4417

Of the whole number of persons married 5081 were born in the United States, equal to 57.51 per cent. and 3315 were born in foreign countries, equal to 37.52 per cent. The birth places not named occurred in the case of 438 persons that entered into wedlock.

Of the brides 2608 or 59 per cent. were born in the United States, and 1592 or 36 per cent. were of foreign birth, while of 217 the birth places were not given.

Of the grooms 2473 or 55 per cent. were American born, while 1723 or 39 per cent. were born abroad. The place of birth was not given for 221.

The record shows, that in 2200 or 49 per cent. of the marriages both parties were Americans, and in 1326 or 30 per cent. both parties were foreigners.

In 380 instances, equal to 8 per cent., American women married foreigners, and in only 256 instances, equal to 5 per cent., did American men marry women born abroad.

DEATHS.—The following is a general summary of the mortality for the year as found in Table 4, and is arranged to present the deaths of the white and coloured population; the males and females; the adults and minors; the sexes, together with the number of deaths from disease, still deaths, old age, unknown, and external, or accidental causes.

General Summary of Deaths for 1861.

White	13,754	
Coloured	714	
	<hr/>	
Total		14,468
Males	7,582	
Females	6,886	
	<hr/>	
Total		14,468
Male minors or children	4,800	
Female " "	4,217	
	<hr/>	
Total minors		9,017
Male adults	2,782	
Female adults	2,669	
	<hr/>	
Total adults		5,451
	<hr/>	
Total		14,468
Deaths from registered diseases	13,063	
Deaths from stillborn	630	
Deaths from old age	203	
Deaths from unknown external and accidental causes	572	
	<hr/>	
Annual total of deaths from all causes		14,468

Under an act of the legislature of March 8th, 1860, for the registration of births, marriages, and deaths, for the city of Philadelphia exclusively, and which was initiated according to its provisions, July 1st, of the same year (1860), the number of deaths registered for 1861 have amounted to fourteen thousand four hundred and sixty-eight (14,468).

This is the highest number of deaths ever returned for our city during a single year, and I have every reason to believe is a more accurate record of our mortality than has before been presented.

In my report for 1858, I referred to the incompleteness of our tables of mortality, arising from defective returns under the health law, as it then existed, and suggested that proper allowance should be made for this imperfection. At the same time I stated the impracticability of obtaining more accurate returns, until a better system of registration should be established through legislative enactment. This desirable improvement has now

been secured, and I trust that hereafter the returns made through the registration department of the Board of Health, will be full and reliable.

By a comparison with the death returns for 1860, viz., eleven thousand five hundred and sixty-eight (11,568), it will be seen that there has been an unusual augmentation during 1861. The increase for the year amounts to twenty-nine hundred (2900), and is equivalent to 25 per cent. over those of the former year.

This large increase in the number of reported deaths in our city, very naturally suggests the inquiry, to what cause or causes is it to be attributed?

It is due, in the first place, to the operation of the registration law, which enables us to secure more correct returns. One evidence in proof of this opinion may be gathered from the fact, that since the initiation of the registration law, death returns have been received weekly at the health office, from upwards of forty places of interment, located principally in the more distant suburbs, from which no returns had hitherto been received.

Another reason is, that formerly the dead taken out of the city for burial were not included in our bills of mortality. Under the present law, undertakers are required to furnish a certificate of death for registration, and receive in return from the health office a certified transcript from the record of said death, which certificate accompanies the body as the voucher, for the cause of death.

In addition, there has existed another, and a far more unmistakable cause for the large addition of deaths during the year. This will be found in the remarkable and protracted prevalence of no less than three epidemics simultaneously, to wit, scarlet-fever, smallpox and diphtheria.

For the entire year, and to an extent hitherto unknown in this city, throughout every section, from the most healthy and most pleasant rural districts, through every transition of location down to the very extremes of filthy and wretched homes in the more crowded and unhealthy wards, were these diseases to be found committing their deadly ravages. In some neighbourhoods they extended from house to house, carrying off two and three children of a family. They appeared to be uninfluenced by the seasons of the year, or the extremes of temperature.

Presenting distinct features in their symptoms, and unlike in their pathological conditions, yet in their origin they were, no doubt, connected by a mysterious bond of union. This union springing from and dependent upon some unknown distempered influence, familiarly known as an epidemic influence, either meteorological or terrene, or both, forming poisons which, through the intervention of a secret power, develops their peculiar effects upon systems already predisposed to disease; imparting to the blood, in one, smallpox, in another scarlet-fever, and in a third diphtheria.

"It has been a subject of frequent observation," remarks Dr. Wood, "that a certain epidemic tendency after continuing for several years, will be followed by another of a different kind, which in its turn will give way to the former tendency, or to a third different from either."¹ In the present instance, however, the prevailing epidemic influence has, in some respects, observed a modified course from the peculiarity noticed above. Three destructive epidemic diseases have simultaneously pervaded the same neighbourhoods, and even the same families.

It becomes an interesting question for pathological investigation into the laws governing the inception and progress of epidemics, whether these

¹ Wood's Practice, vol. i. p. 163.

several diseases owe their origin to the influence of specific poisons, in conformity with the prevailing sentiment of authors, or whether, according to a theory originating, I believe, with the late Dr. E. S. Barton, as to the origin of certain zymotic diseases, they too have no dependence upon special poisons, but are the result of certain combinations varying in their several definite proportions, of the two conditions, aerial and terrene, which constitute the epidemic influence that has been in active existence for several consecutive years in our city.

Dr. Wood remarks on this point, "Whether the epidemic influence is alone sufficient to produce smallpox, scarlatina and other contagious eruptive affections, which sometimes become epidemic, without the co-operation of the specific contagion is perhaps questionable. It is highly probable that it may be so; as these diseases occasionally occur epidemically without any known communication between the individuals first attacked, and others previously affected." Again, he says, "Sometimes the epidemic influence predisposes to some one, especially of the exanthemata, as to smallpox on one occasion, measles on another, &c.; sometimes the tendency seems to be towards eruptive diseases in general."

This opinion is by no means at variance with the views of Dr. Barton, and concedes, in part, his theory.

It may prove of some degree of interest at the present time, when the aggregate mortality for the year has so far exceeded that of any former one to compare the death rate of one year with another for the past few years. For this purpose I have prepared the following statistical table of mortality; including the population, the deaths to population, and the deaths in each one thousand living, for eight consecutive years, commencing with eighteen hundred and fifty-four, when the city was consolidated, and embraced in its area the entire county.

To arrive at the aggregate population for each year, I have taken as a basis the 7th census return of the city and county, for 1850, which was set down as four hundred and eight thousand seven hundred and sixty-two (408,762). Computing the annual increase of our population to be $3\frac{1}{2}$ per cent., which is a fraction over the average, as furnished by the 8th census of 1860, but, in my estimation, rather below than above the actual standard, I have calculated the average increase on that apportionment for each successive year, including 1861.

Year.	Deaths.	Population.	Deaths to population.	Deaths to each 1000 living.
1854	11,815	469,059	1 in 39	25
1855	10,457	485,475	1 in 46	21
1856	12,334	502,466	1 in 40	24
1857	10,895	520,051	1 in 47	20
1858	10,697	538,252	1 in 50	20
1859	9,742	557,090	1 in 57	17
1860	11,568	576,587	1 in 49	20
1861	14,468	596,766	1 in 41	24
Aggregate	91,976	4,245,746	1 in 369	21
Average	11,497	530,718	1 in 43	21

This octuple calculation gives a mean of 11,497 deaths annually in an average population of 530,718.

It also makes the average of deaths to population during a period of eight years as 1 in every 46; while the average deaths for each thousand living, were twenty-one (21).

By exhibiting this table, I am able to demonstrate that while our returns of deaths for 1861, in point of numbers, certainly have been far above those of any former year, yet in proportion to population, they indicate rather a decline than an increase of mortality, when compared with two of the eight years, viz., 1854 and '56; the former giving 1 in 39, and the latter 1 in 40 of the population, whereas 1861 gave 1 in 41, although the aggregate number of death-returns rates the highest.

The average deaths in each thousand living of the population, as furnished by this table is 21, and during these eight years the deaths ranged from 17 to 25. This, therefore, should be viewed as a fair average of our city mortality, provided the record is reliable.¹

In the 20th report of the Registrar-General of England, seventeen in each thousand living has been assumed as the natural proportion of deaths, and "all deaths exceeding that number are to be considered as unnecessary." To some extent this standard may be viewed as correct, provided the calculation is made from salubrious districts, which do not embrace within their limits large cities or numerous towns, as were the 64 districts selected from various parts of England, from which the above calculation was made.

In Rhode Island, the average of deaths to each thousand living for the period of seven years, was but thirteen.

In 1860 the deaths in a thousand were fifteen. In Massachusetts, for 1859, they were seventeen. In Scotland the rate is nineteen, and in England twenty two in each thousand.

In cities it will be found that the proportion will always be higher than in country districts, and, from causes that are continually pressing upon the population, producing unnecessary disease and premature death. Take as an example the city of Providence, one of the best regulated and healthiest cities in this country, although not one of the largest class in point of population, and it will be seen that the annual average of deaths is 20 in each thousand living.

This I believe should be considered, under favourable circumstance, a reliable average for cities, and I am confident that if proper attention were given by our municipal corporation for the correction and removal of those existing evils which produce sickness, and swell our bills of mortality, the death rate would compare favourably with that of Providence.

In Boston, where great care is observed in carrying out the registration law, the deaths to one thousand living, during a term of nine years, ranged from 21 to 26. Our own city, therefore, in the past eight years, presents somewhat a more favourable range than Boston, being from 17 to 25 according to our mortality returns, for which, however, some allowance may have to be made for their completeness.

MONTHLY MORTALITY.—The following table furnishes the deaths for each month throughout the year. It shows the mortality of males and females, adults and children or minors (that is all under twenty), in separate columns.

¹ If the calculation be made according to the last census returns, it makes our death rate still more unfavourable, giving us 1 death in every 39 of the population.

Return of Deaths in each Month, showing the number of Deceased Males and Females, Adults and Children, for the year 1861.

1861.	Males.	Females.	Adults.	Children.	Total.
MONTHS.					
January	664	652	513	803	1,316
February	589	534	460	663	1,123
March	596	549	455	690	1,145
April	757	652	555	854	1,409
May	564	552	424	692	1,116
June	546	508	384	670	1,054
July	1,012	846	495	1,363	1,858
August	742	665	424	983	1,407
September	510	474	383	601	984
October	589	529	464	654	1,118
November	488	419	435	472	907
December	525	506	459	572	1,031
	7,582	6,886	5,451	9,017	14,468
	14,468		14,468		

July gave the highest number of deaths, 1858, or a fraction less than 13 per cent. of the entire mortality. The three summer months, June, July, and August, contributed 4,319 of the deaths, equal to nearly 30 per cent. of the annual mortality.

With two exceptions, the deaths in every month exceeded one thousand. September gave 984, while November, the lowest, gave 907.

The highest number of deaths of minors was in July, 1363. August furnished 983, and June 670. These three months contributed 33.44 per cent. of all the mortality among minors.

The excess of deaths of males over females is shown to be 696. That of children over adults, 3566.

ANNUAL MORTALITY.—Of the deaths reported for the entire year (see Table 4), seven thousand five hundred and eighty-two (7582) were males, and six thousand eight hundred and eighty-six (6886) were females: this gives, as usual, the excess to the number of males, equal in this instance to 10 per cent.

Of the deaths under twenty years of age, classed as minors, there were nine thousand and seventeen (9017); those beyond twenty, or, adults, amounted to five thousand four hundred and eighty-one (5481); showing an excess of deaths in children equal to 64.51 per cent. over those in adults.¹

The mortality in children under five years of age was seven thousand four hundred and six (7406), and when compared with the entire mortality for the year, is equivalent to fifty-one (51) per cent., while the number under ten years was eight thousand four hundred and twenty-four (8424), or 61 per cent. of the whole mortality.

This is an appalling item in the record for 1861, viz., that children under ten years of age should contribute 61 per cent., more than one-half the

¹ The still-born children, amounting to six hundred and thirty, are included in the above deaths.

amount of deaths! This excessive mortality, I apprehend, is not sufficiently appreciated by our profession, or adequately understood by our municipal authorities.

This destruction of life in helpless infancy has attained such gigantic proportions as to demand from the profession of medicine a careful and thorough investigation into the causes which are productive of such an unnecessary amount of disease and death in children of tender years; and from the civil authorities, energetic and systematic efforts in the adoption of adequate measures for the removal of the various sanitary evils detrimental to health, by the enforcement of a stringent sanitary police reform. That something more is required than is now being accomplished either by our Board of Health or corporate authorities for the prevention of disease in our city is too evident to require a single argument. The statistical fact I have presented of the fearful mortality among children is enough. Volumes of reasoning could not be more convincing.

If the inquiry is made, what is to be done? I answer, everything. The first decided movement is yet to be taken, in the direct line of sanitary reform, by our Councils. When have they ever ordered an inquiry either by a committee or commission, into the sanitary condition of our city? The City Surveyor, the Chief Engineer of the Water Department, the Commissioner of Highways, and the Board of Health, through their valuable and highly interesting annual reports to the Mayor and Councils, have adverted in emphatic language to numerous sanitary defects—while the Mayor, in a spirit befitting his office, with a prompt and cheerful devotion to all the interests of the city, has been careful to direct their attention to those recommendations which appertain to the improvement of the health of the city. How far these vital interests have received that attention which their importance deserves—let the proceedings of Councils answer.

It is deeply to be regretted that the sanitary police of cities is not or will not be understood by corporations. Nor is it less to be regretted, that the occurrence of a high rate of infant mortality, year after year, one of the direct results of sanitary neglect, should have received no attention whatever from our city corporation.

No expense should be regarded as useless or extravagant, that contemplates the preservation of the health of a community. It is no wise economy to overlook the requirements of public hygiene. The neglect of it is sure to entail a burden upon the corporation. It introduces disease, and ends in death. It retards industry, encourages idleness, induces poverty, and invites both social and moral degradation.

On the other hand, the inculcation and enforcement of a system, that will investigate sanitary evils, and correct the abuse of the laws of health and life, will not only protect the health of a community, but enhance their intelligence, increase their wealth, and add to their happiness, in a social, moral, and physical relation.

If it be regarded as expedient for the security of the peace and good order of society, to establish a well regulated and competent police force; of how much more real value is it to the interests of a community to secure and enforce systematic health police regulations, in order to guard, as far possible, the health of citizens, and to search out and cause to be arrested and removed, all nuisances of a public or private nature, that are prejudicial to health. It is high time that the distinguished philanthropy of our city, had turned its active benevolence into the long neglected channel of public hygiene.

Wise and judicious municipal laws are being enacted to promote our commerce, to protect our property, to maintain our rights, to regulate business, to preserve order, to detect dishonesty, and to secure amusement for the pleasure seeker—but how seldom has city legislation been drawn to the enactment of ordinances for the promotion and better preservation of the health of the people—a field of inquiry which underlies every other interest. To take care of the health is not only a moral obligation but a sacred duty which every corporation owes its citizens.

MORTALITY IN WARDS.—A very interesting and instructive comparison will be found in the following table of the deaths in each ward, with those of one ward with another; going to show the unhealthiness of some sections of our city, with the healthiness of other sections.

Mortality in each Ward, with the Population (according to the late Census), the ratio of Deaths to Population, the Percentage of Deaths in each Ward to the Total Mortality, and Deaths in each thousand of the Population. Also the Deaths from unknown Wards, from the Almshouse and from the Country.

WARDS.	Population last census.	Deaths.	Deaths to population.	Per cent. of deaths to total mortality.	Deaths in each thousand of population.
First	30,886	875	1 in 35	6.05	28.22
Second	29,123	758	1 " 38	5.24	26.13
Third	19,929	400	1 " 49	2.77	20.00
Fourth	23,461	681	1 " 34	4.70	29.17
Fifth	24,792	488	1 " 50	3.38	17.91
Sixth	14,882	286	1 " 52	1.98	19.06
Seventh	31,267	733	1 " 42	5.07	23.60
Eighth	27,770	427	1 " 65	2.96	15.81
Ninth	17,196	356	1 " 48	2.47	20.94
Tenth	21,849	422	1 " 51	2.92	19.18
Eleventh	16,681	452	1 " 36	3.13	26.58
Twelfth	16,681	362	1 " 46	2.51	21.29
Thirteenth	20,045	397	1 " 50	2.74	19.85
Fourteenth	24,258	426	1 " 56	2.94	17.75
Fifteenth	32,091	768	1 " 41	5.31	24.00
Sixteenth	20,067	529	1 " 37	3.66	26.45
Seventeenth	23,264	828	1 " 28	5.72	36.00
Eighteenth	20,441	596	1 " 34	4.12	29.80
Nineteenth	38,828	1,085	1 " 36	7.50	27.82
Twentieth	29,963	809	1 " 37	5.59	26.96
Twenty-first	17,159	332	1 " 51	2.29	19.53
Twenty-second	17,173	248	1 " 69	1.71	14.58
Twenty-third	23,985	434	1 " 55	3.00	18.08
Twenty-fourth	23,738	489	1 " 48	3.38	20.37
Unknown . . . .	.....	446	.....	.....	.....
Almshouse . . . .	.....	543	.....	.....	.....
From the country	.....	298	.....	.....	.....
Total for 12 mos.	.....	14,468			
Total population	565,529				
Ratio of deaths to population		.....	1 in 39		

We have here the population of the several wards as given by the census for 1860; the number of deaths, the deaths to population, and the deaths

in each thousand of the population of the ward, together with the percentage of deaths in each ward to the total population for the year.

The highest mortality registered against any single ward was 1085. This was the 19th, with a population exceeding that of any other ward, amounting to thirty-eight thousand eight hundred and twenty-eight (38,828). This is not, however, the most unhealthy ward, rating the fifth in the line of descent from the most unhealthy, the deaths being 27.82 in each thousand of its population. The most unhealthy ward was undoubtedly the seventeenth (17th). This ward contains a population of twenty-three thousand two hundred and sixty-four (23,264), supplying eight hundred and twenty-eight (828) deaths, which is equal to 36 in every thousand of its population.

The eighteenth, the fourth, and the first, in the order I have placed them with the 17th and 19th, all of them crowded and defective in sanitary improvements, are by far the unhealthiest group in the twenty-four wards of the city. They have contributed 28 per cent. of all the deaths for the year.

The seventeenth is a densely crowded ward, located in a section of the city known formerly as West Kensington. Its population is made up chiefly of the working classes. Many of these people are poor, live in rooms badly ventilated and badly located in narrow alleys and contracted courts, with barely breathing space for room; while many of the tenements are miserably constructed for a proper supply of air and light, and are mostly over-crowded. The streets and other thoroughfares in this ward are generally damp and filthy, with foul gutters, and a large portion of the inhabitants are by no means remarkable for habits of cleanliness.

By reference to the table of mortality for the year, it will be found that three hundred and thirty-seven (337) of the deaths in this ward, equal to 40.70 per cent. were from zymotic or epidemic, in other words, preventable or unnecessary diseases. Classed among these deaths were ninety-nine (99) from scarlet fever; ninety-seven (97) from smallpox; forty-four (44) from diphtheria; forty (40) from cholera infantum; thirty-three (33) from marasmus; forty-seven (47) from convulsions, and fifty-one (51) from debility.

The lowest number of deaths registered for any one ward was two hundred and forty-eight (248), in the 22d containing a population of seventeen thousand one hundred and seventy-three (17,173). It is an open country or rural district, a large territory, with a sparse population, and this population one among the smallest, making the fifth in the upward scale in numbers, and rates the healthiest from every stand point in which it may be viewed. In the table, it contributes only 1 death in every 69 of its population; 1.71 per cent. only of the entire mortality, and not more than 14.58 in every thousand of its own population. This ward embraces within its boundaries the beautiful and attractive suburban village of Germantown, with its elegant mansions and cottage residences, its handsomely embellished gardens, its rich meadows, its shaded parks and spacious pleasure grounds. Thus rendering it, connected as it is by easy and rapid railroad conveyance to the business marts of the city, a favourite and healthy rural residence.

The ward containing the smallest population is the sixth, which numbers only fourteen thousand eight hundred and eighty-two (14,882), is located in the old city proper, and has a Delaware front extending from Chestnut up to Vine Street. It returned two hundred and eighty-six (286) deaths,

equal to nineteen (19) in every thousand of its population. This ward in former years was densely populated and contributed its full share of deaths. The intrusion of places of business has driven many families beyond its boundaries, which accounts for its limited population and deaths; at the same time it will be observed that the proportion of deaths to population is not as favourable as some other wards centrally located. The fifth, an adjoining ward, having as deep a front on the Delaware, and containing a population of twenty-four thousand seven hundred and ninety-two (24,792), gave but 488 deaths, which is 17.91 in each thousand of its population.

The eighth ward, extending from Spruce to Chestnut Street, and from Seventh Street to the Schuylkill River, with a population of twenty-seven thousand seven hundred and seventy (27,770), supplied only four hundred and twenty-seven (427) deaths, or (15.81) for every thousand of its population. Out of all the city or built up wards, considering its location, the eighth appears to be the most favourable for health. It contributed no more than six deaths from smallpox; thirteen from scarlet fever; five from diphtheria; nine from typhoid fever; and twenty-one from cholera infantum. The sanitary condition of this ward, superior I believe to any other, is to be accounted for by its ample domiciliary conveniences, the absence of small alleys and confined courts containing crowded and filthy residents, together with the observance of care to prevent the accumulation of kitchen and other offal in the yards, gutters, and streets.

The fourteenth ward, bounded by Vine and Poplar, Tenth and Broad Streets, may also be placed with those wards which enjoy a good share of health and return only a limited number of deaths.

Enough probably has already been gathered from the statistics of this table, in order to illustrate the comparative difference in mortality between those wards enjoying the benefits arising from a more or less improved sanitary condition, and others less favoured, or, which are wanting in many of those important arrangements which exercise almost a controlling influence over the health of a neighbourhood.

A proper attention to the hygiene of our city by the civil authorities, would in my judgment not only lessen many of the moral evils prevalent in the community, but would reduce the weekly bills of mortality 25 per cent. or even more, and save hundreds of lives annually, that are now lost through the fatal influence of preventable diseases.

Table V., Class 1. ZYMOTIC DISEASES.—Those which have an epidemic, endemic or contagious character and originating from specific or local causes which are removable. Hence, the diseases named here are in a great measure preventable, are unnecessary, and are a manifest source of premature death in our community, especially with the infant population.

This class I consider to be the most important of all the classes, as affording an index to the salubrity or unhealthiness of the year. It will be the touchstone in every city of the excellency or neglect of sanitary regulations. The deaths in 1861 under this head have amounted to four thousand and sixty-four (4,064). Comparing this number with those of the same class for 1860, which were twenty-two hundred and seventy-five (2275), I find an increase of seventeen hundred and eighty-nine (1789), equivalent to 78.59 per cent.

This extraordinary increase may be covered by the prevailing epidemics, scarlet fever, smallpox, and diphtheria from which there have been recorded twenty-four hundred and fifty (2450) deaths, which are equal to 60.30 per cent. of all the deaths from zymotic diseases.

This mortality holds a relation to the total of deaths for the year of twenty-eight per cent., or, as one in every three and a half.

It is by diseases belonging to this class that the life of infants is rendered so precarious, and to them we may legitimately ascribe a large majority of the deaths among children in our city.

If I adopt the views entertained by an eminent statistician and sanitarian of New York, that convulsions, dropsy of the head, marasmus, pneumonia, phthisis, inflammation of stomach and bowels, scrofula and still-births, are due to internal domiciliary circumstances "which we can absolutely prevent," I could swell the number of deaths from diseases of the order over which we have "entire control" and which should not exist, twofold. I am not, however, thoroughly convinced as to the correctness of the opinion that the diseases above enumerated, do depend exclusively upon causes that can be eradicated. That several of them may occasionally be produced, and others, perhaps all of them, be greatly aggravated through the influence of internal domiciliary circumstances, and the entire neglect of public sanitary improvement, I am ready to concede; but I take issue to the assertion that pneumonia, phthisis, convulsions, dropsy of the head, inflammation of the stomach and bowels, and still-births may be exterminated by the enforcement of sanitary laws and ordinances.

Without the addition of these diseases, many of which are peculiar to infancy, the record reveals the startling fact that three thousand four hundred and seventy-four (3474) or 85.45 pr. ct. of the deaths from zymotic diseases were selected from that interesting and tender class of the community—the infants and children of our family circles. Of this number, three thousand three hundred and five (3305) had not reached their tenth year.

To make this class more satisfactory to the reader and to show the periods of the year when the diseases belonging to it are most prevalent, I have divided it into four quarterly tables.

By this analysis it will be seen that the third quarter, or the three months July, August, and September, have furnished the highest mortality, amounting to 1533, and that the fourth quarter, October, November, and December, gave the least, 663.

The heaviest mortality at any age was between two and five years, amounting to eleven hundred and seventy-nine (1179). That under one year reached nine hundred and twenty-two (922).

The facilities afforded by the registration law enable me to introduce the names of those several wards or localities that have suffered most severely from this class of diseases. Nor will it be considered strange that those sections which contain numerous small, contracted, badly ventilated tenements—numerous blind courts and narrow alleys—streets imperfect in paving and drainage, oftentimes reeking with mud and other filth—sections fruitful in every variety of pestilential causes and a large part of the population of which are by no means remarkable for habits of cleanliness, and are overcrowded in their dwellings—furnish the infant victims which so largely swell our bills of mortality.

The following tables will furnish at a glance the population, the mortality from zymotic diseases, and the mortality from all diseases in each of the twenty-four wards as well as a comparison of one ward with another. The first table presenting those wards which appear to be unhealthy or where the deaths have been most numerous; the second table giving those which may be considered healthy where there have been but few deaths.

TABLE A.—Wards in which Zymotic or Epidemic Diseases were prevalent and deaths over 150.

WARDS.	Population.	Total deaths.	Deaths from zymotics.
1	30,886	875	247
2	29,123	758	237
4	23,461	681	171
7	31,264	733	184
11	16,681	452	151
15	32,091	768	203
16	20,067	529	183
17	23,264	828	337
18	20,441	596	233
19	38,828	1085	347
20	29,963	809	270
	296,072	8114	2563

TABLE B.—Wards in which Zymotic or Epidemic Diseases have not prevailed extensively, and where the deaths were under 150.

WARDS.	Population.	Total deaths.	Deaths from zymotics.
3	19,929	400	99
5	24,792	489	120
6	14,882	286	58
8	27,770	427	71
9	17,196	356	66
10	21,849	422	101
12	16,681	362	125
13	20,045	397	109
14	24,258	426	110
21	17,159	332	108
22	17,173	248	58
23	23,985	434	114
24	23,738	489	114 ¹
	269,457	5067	1253

The first table A embraces eleven wards, the first, second, fourth, seventh, eleventh, fifteenth, sixteenth, seventeenth, eighteenth, nineteenth, and twentieth. In these wards, with an aggregate population of two hundred and ninety-six thousand and seventy-two (296,072) there occurred eight thousand one hundred and fourteen (8114) deaths, of which number twenty-five hundred and sixty-three (2563), or 31.58 per cent. were from zymotic or epidemic diseases.

The second table B contains the remaining thirteen wards, in which it will be seen that the death rate is much more favourable than that in the first table, particularly as regards zymotic diseases.

The population of these wards amounts to two hundred and sixty-nine thousand four hundred and fifty-seven (269,457) less than in the eleven wards of the first table, by twenty-six thousand six hundred and fifteen (26,615) or 9 per cent. while the entire mortality was only five thousand and sixty-seven (5067) less three thousand and forty-seven (3047) or 30 per cent. than in the eleven wards above enumerated, while the deaths from zymotic diseases were only twelve hundred and fifty-three (1253) or 51.10 per cent. less than those in the former eleven wards.

This shows conclusively that during the year 1861 the eleven wards of the first table have contributed the largest number of deaths from zymotic diseases, and therefore have been the *most unhealthy*.

These tables further illustrate the comparative health of the several sections of the city. Let it be remembered also that the increased mortality which I am now discussing is the unnecessary mortality alluded to by the Registrar General of England, the product of preventable diseases, the result of causes almost if not entirely within our control or removable by human agencies.

A visit for sanitary inspection through some of the eleven wards where the excess of deaths has occurred would furnish abundant evidence of their

¹ The record gives this ward 178, but 64 of these were from the almshouse, making those in the ward only 114.

relation to contagious and infectious fevers and other diseases of an epidemic and pestilential character.

Where we find imperfect sewerage and drainage, with filthy streets and gutters; domicils crowded, faulty in construction, unventilated, low; damp cellars, and basement residences swarming with an over-crowded population deficient in morality and cleanliness, living in the midst of atmospheric impurities, with a limited supply of sunlight, subsisting upon food of an inferior quality and many of them large consumers of unwholesome liquors, what less can be expected under such unfavourable circumstances, where the laws of health are daily violated and where the atmosphere is poisoned, than a large amount of zymotic disease and a heavy bill of mortality.

Unfortunately the innocent are made to suffer for the guilty. These fruitful sources of disease too frequently confine their influence to helpless infants and children, who are thus made the innocent victims of the faults and follies, or, the vices of indifferent and degraded parents. It is in such poisoned vicinities that death invariably reaps an abundant harvest.

I would not, however, be thought to convey the impression that the infant mortality of our city is confined wholly to the indigent, thriftless, degraded, and vicious families located in our crowded and more unhealthy wards. While this class of our population from circumstances incident to their manner of living furnish a heavy proportion of infant mortality, it is a sad reflection that there are errors committed in high places in regard to diet, clothing and exercise; that amongst the better provided for in the community, even where wealth abounds and where there is neither want of education nor intelligence or other favourable surroundings, the ratio of infantile mortality is far higher than it should be. Indiscretion in nursing, in feeding, in dressing, and in airing infants and children, too often prepare the way for the inception of disease and its fatal termination.

It is well known to those who have been familiar with the prevailing diseases for the past several years that we have been passing through a scarlet fever cycle. Without any interval of exemption from this epidemic, or any mitigation of its malignant character, but on the other hand a marked increased fatality of it, diphtheria made its appearance in our midst about February, 1860, and, according to the opinion of some, assumed the livery or was modified by the then prevailing epidemic; according to others, it was a form of scarlet fever itself unaccompanied by the eruption.

Dissenting, however, from these views, I have only to say, that diphtheria invaded our city in a highly malignant form, exhibiting the most distinctive and violent constitutional symptoms. In a very few months following the outbreak of this fatal disease, and before it or scarlet fever had reached their culminating points of fatality, smallpox, in October, 1860, was superadded. The year 1861 opened with these three prevailing epidemics; nor has there been any material mitigation of either disease throughout the entire year. On the other hand, there has been observed an occasional increase of the mortality, scarlet fever maintaining the ascendancy in the number of fatal cases.

The total of deaths assigned to these three diseases, for the year, has amounted to 2450, as follows: Scarlet fever, 1190; smallpox, 758; and diphtheria, 502; constituting altogether nearly four-fifths of the increase of deaths over those for 1860, and falling with peculiar violence and fatality upon our infant population.

DIPHTHERIA made its appearance in an epidemic form in the month of February, 1860, and from that time until the close of 1861 it prevailed to a greater or less extent in all parts of our city. Although sporadic cases had occasionally been met with since 1857, some of which proved fatal, yet there is no public record of a death from diphtheria until the month of February, 1860, when there were fourteen registered. An examination of the record for that month shows that the deaths from zymotic diseases had run up from seventy-six in January to one hundred and seven. Scarlet fever deaths were nearly doubled. What were the particular climatic changes which heralded this increase of epidemic influence I am at a loss to determine, there being nothing special in the meteorological data for that month.

In the month of March of that year the deaths from diphtheria were twenty-two (22); April, seventeen (17); May, twenty-three (23); June, seventeen (17); July, fourteen (14); August, thirty-five (35); September, twenty-six (26). In October they went up to sixty (60) and in November and December they averaged thirty-nine (39). January, 1861, opened with sixty-three (63) deaths; the following five months averaged thirty-seven (37), varying but little in each month until July, when they suddenly rose to sixty-three (63). The remaining five months of the year averaging thirty-seven (37) with only a slight variation.

The remarkable uniformity in the mortality for each of the ten months will not escape notice, much less the fact that during January, the coldest, and July, the warmest month of the year, the deaths from diphtheria doubled themselves, both months furnishing a like number of deaths.

It was not until July, 1860, when the registration law went into operation that any correct account could be presented of the location of particular diseases; but as I have already in a former report given the names of the wards where diphtheria was most active and proved most fatal during the last half of 1860, and as they differ in nowise from those recorded for 1861, I shall proceed to speak of the disease, the number of deaths from it, and its location and character, as it appeared in the latter year.

The whole number of deaths from diphtheria for the year 1861 were five hundred and two (502). Two hundred and fifty-four (254) males, and two hundred and forty-eight (248) females; these proportions do not favour the idea of its being more prevalent among females than males.

Four hundred and eighty-nine (489), or 95 per cent. of the deaths were minors, or, under twenty, and only thirteen (13) were adults; characterizing the disease as one peculiar to childhood. Of these deaths, four hundred and sixty-one (461), or 91 per cent., were under ten years, and three hundred and twenty-four were between two and ten years of age; coinciding with observations made elsewhere, of the particular period of infantile life most liable to an attack from this disease. Nine of the thirteen deaths in adults were under thirty, one was between sixty and seventy, and one was over seventy.

The disease has not been prevalent among children of colour; only seventeen (17), or 3.38 per cent., are charged to them.

The 1st, 17th, and 20th wards bear the heaviest mortality, averaging forty-four (44) each. The 6th, 8th, 10th, 21st, and 22d gave the least, the mean being six (6). From the remaining wards there was an approximate representation of deaths, as well in those which I have enumerated as healthy as in the more unhealthy wards. For example, in the 23d there were twenty-seven (27) deaths, and in the 14th, twenty-five (25) deaths,

these wards (the first named rural in the greater part) are rated as healthy, while in the 19th there were only twenty-nine (29), and in the 2d only twenty-two (22), whereas both of these wards contributed a heavy mortality from other zymotic diseases, and are among the most unhealthy in the list.

While I am of the opinion that diphtheria, like other epidemics, always shows a preference for those localities surrounded by unfavourable hygienic conditions, I am obliged to acknowledge that it has not been exclusively confined to similar localities since its appearance in our city.

As the above statistics prove, and as I have been an eye witness, this terrible disease was to be seen in some of our healthiest sections and in the abodes of refinement and wealth; in rural districts, remarkable for their salubrity, and under circumstances, and in families, where it would be difficult to discover tangible indications of an existing antihygienic condition of any kind whatever; and, as already shown, it has not been confined to any particular season of the year.

These peculiarities, however, are neither new nor confined to our city. In confirmation of this remark, I quote from Hart on Diphtheria as found in Slade's dissertation published in the *Am. Journ. of the Med. Sciences*, vol. xli. p. 306. Alluding to its appearance in England and France, he says:—

“It did not obey any known climatic or meteorological laws. It visited alternately the open hamlets of the rural departments, and the crowded courts of the great cities. It appeared to be equally independent of all atmospheric conditions. Was a theory formed that its intensity depended upon the solar influence, and that the heat of the summer months lent fresh force to its destructive attacks—soon it raged with greater violence in the winter months, and during the cold season—yet moderate temperature has not greatly abated its influence, and it has struck a blow here and there through all seasons.”

The same writer attempts to account for its prevalence in healthy localities, amongst the upper classes of society, and of these especially, the more luxurious in their habits, that, being zymotic in its nature, it tends to fasten upon those who are debilitated from previous disease, or whose constitutions are enfeebled by the depressing influences of luxury, indolence, and inactivity, together with the violation of physical and hygienic laws consequent upon the habits of fashionable life. It is among such, he says, that “diphtheria finds its victims pale and anæmic, or grossly sanguineous and unhealthily excited.”

The non-identity of diphtheria with scarlet fever, is, I apprehend, no longer a debatable question. The widely different character of the sequelæ of the two diseases, together with the “almost universal experience, that diphtheria does not protect from scarlet fever, nor, on the other hand, does scarlet fever form any defence against diphtheria,” are of themselves convincing arguments in favour of the distinctive characters of these two fearful epidemics. Again, that there prevails a striking similarity between diphtheria and scarlet fever, in many of their symptoms, is indisputable, and that diphtheria frequently prevails in conjunction with scarlet fever is also universally admitted. Nevertheless, every impartial and careful observer who has encountered both affections, must arrive at the conclusion that diphtheria is a specific disease.

Without any intention of entering into the history or treatment of diphtheria, in this report, I cannot avoid a brief allusion to the after effects, or

the sequelæ of this severe disease, particularly those which exert their power upon the nervous vitality. The peculiarity of the symptoms, is a form of paralysis, attacking especially, and almost invariably, the soft palate, the muscles adjacent thereto, extending frequently to other and more distant parts of the system.

The most graphic and truthful account of the sequence of diphtheria which I have seen, is that given by M. Faure, and quoted by Slade in his valuable prize essay, to which I would refer as a complete monograph on this disease.

Two cases of diphtheria in my own practice, both of them female children, five and seven years of age, after having passed through the immediate effects of a violent attack of pharyngeal diphtheria, and considered well, presented many of the secondary symptoms in an exceedingly well-marked form; insomuch that had a doubt existed as to the true nature of the primary affection, the peculiar phenomena observed would have identified diphtheria.

The first of these cases I saw in consultation in the spring of 1861. The patient had apparently recovered from the disease, and she was believed both by the physician and parents to be approaching some form of cerebro-spinal affection. There was extreme debility of the entire muscular system, irascibility and mental dulness. The *velum palati*, the pharynx and muscles of the glottis were so far paralyzed as not only to give an unpleasant nasal twang to the voice, but for some time to prevent the power of speech altogether, and the act of deglutition was so much interfered with that solids could not be swallowed and fluids would frequently be regurgitated through the nostrils. The joints, especially those of the vertebræ and of the limbs, participated in the general weakness and the movements of the child in walking were tottering and uncertain, similar to those in chorea, while the features appeared to have lost in a measure the power of volition.

Great difficulty was experienced in this case in the administration of medicine, and a general hygienic course was advised. The shower bath, exercise, change of air, and a generous diet, with the addition of stimulating frictions to the spinal column and extremities were persisted in for months with only partial relief; at length a visit of several weeks to the ocean in season, with daily sea-bathing completed her entire restoration to health.

The other case is at present under treatment. The child, five years old, was stricken suddenly with diphtheria, about the middle of December, 1861, in a severe form, confining itself to the *velum* and pharynx, and unattended with laryngeal symptoms. I discontinued my attendance about the 1st of January, my patient having to all appearances recovered. A few days afterwards, the father called my attention to the peculiar nasal tone of his daughter's voice, and remarked that she did not gain her strength. I recognized at once the peculiar nervous effects resulting from an attack of diphtheria. For several days there will be a remission of her symptoms, affording encouragement of an improvement, again, there will be a rapid increase of her nervous debility. Her powers of speech suffer materially, owing to the relaxation and partial paralysis of the soft parts of the palate and fauces. At times, it is difficult to understand her words, while the process of swallowing food is imperfectly performed, and oftentimes, in the act of drinking, the fluid will be thrown back through the nostrils. The muscles of the face and mouth are so far paralyzed as occasionally to produce an involuntary smile, accompanied by singular contortions of the

facial muscles. There is also considerable loss of power over the muscles of the neck, preventing a steady upright position. The whole system is involved, general debility prevailing, the child has lost her vivacity, her appetite has failed, her skin pallid, her countenance dull and sunken, having lost its former lively expression.

I am treating her with nerve tonics, perchloride of iron, quinia and valerianate of ammonia, with stimulating frictions to the back and extremities; a nutritious diet, and exercise when the weather is favourable.

SMALLPOX.—The deaths from this epidemic for the year have reached the high mortality of seven hundred and fifty-eight (758). It exceeds by far the mortality of any former epidemic, and is equal to five per cent. of the aggregate of deaths for the year from all causes.

The following table gives the deaths in Philadelphia from smallpox for a series of fifty-four (54) years from 1807, the first year in which the deaths and their causes were tabulated and published by the Board of Health.

Years.	Deaths from smallpox.	Years.	Deaths from smallpox.	Years.	Deaths from smallpox.	Years.	Deaths from smallpox.
1807	32	1821	...	1835	106	1849	152
1808	145	1822	...	1836	86	1850	40
1809	101	1823	160	1837	81	1851	216
1810	33	1824	325	1838	45	1852	427
1811	117	1825	6	1839	5	1853	57
1812	...	1826	3	1840	63	1854	40
1813	...	1827	188	1841	259	1855	275
1814	...	1828	107	1842	156	1856	390
1815	...	1829	87	1843	36	1857	65
1816	97	1830	86	1844	17	1858	7
1817	52	1831	18	1845	190	1859	2
1818	8	1832	43	1846	251	1860	57
1819	1	1833	168	1847	9	1861	758
1820	...	1834	212	1848	100		
						Total	6279

This table presents the indication of what Prof. Jackson some years since pronounced an epidemic law of periodicity of smallpox. It is evident that from two to five years during this consecutive period the disease appears to have reached its maximum, and then either gradually or rapidly declined to its lowest ratio.

The aggregate of deaths for these fifty-four years has amounted to six thousand two hundred and seventy-nine (6,279). The mean number annually has been one hundred and sixteen (116).

The years which produced the heaviest mortality were 1824, which gave three hundred and twenty-five (325) deaths; 1852, which gave four hundred and twenty-seven (427) deaths; 1856, which furnished three hundred and ninety (390) deaths; and 1861, which gave seven hundred and fifty-eight (758) deaths.

Of the deaths for 1861, the proportion of the sexes was equal, viz., three hundred and seventy-nine (379).

Of these deaths, six hundred and sixty-five (665), or 81 per cent. were minors, or under twenty years of age.

Of the minors, five hundred and seventy-two (572), or 75.46 per cent. of the mortality was among children under ten years of age. The deaths under two years amounted to two hundred and sixty-four (264), or 33.36 per cent.

The inference to be drawn from these statistical facts is, that notwithstanding the ordinance for public vaccination has been so far carried out that the names of more than 10,000 persons have been returned as successfully vaccinated within the year, there must yet remain, according to the above returns of deaths from smallpox among children, many families unprotected. It is evident that these families have not been reached, either through neglect or want of proper canvassing by the collectors of cases for vaccination, or vaccination has been imperfectly performed; or else the parents or guardians or friends, through prejudice or other causes, have refused to have their children vaccinated.

That the ordinance has not been successful in protecting our city from the ravages of this loathsome disease, is a truth which cannot be disputed with the fact before us, of 758 deaths from smallpox on record for the year, of which number 75 per cent. were children, who perished prematurely, in consequence of the ignorance or misguided views of their parents.

In a former report I have alluded to the inadequacy of this voluntary provision to secure us from the ravages of smallpox, and I have elsewhere asserted my belief that nothing less than a compulsory law, with a penalty attached for its violation, would prove an effectual barrier to its introduction. No municipal ordinance can be an efficient system; and from my limited experience on this subject, I am quite prepared to adopt the sentiment of an English writer,¹ that "the absence of an efficient system of public vaccination I cannot but consider a national disgrace. I had almost said a national crime." Nothing less than legislative power applied to the whole State will prove an efficient system, or eradicate smallpox.

Another fact gathered from the mortality tables, and bearing intimately upon the importance of some legal enactment, in order to control smallpox, is, that by far the greater number of deaths have occurred in those wards where the population and the tenements are crowded, where will be found wretchedness and filth, with physical and moral depravity, and where defective sanitary arrangements abound.

In five of the lower wards, bordering on the Delaware River, and embracing within their limits locations answering the above description, there were two hundred and seventy-nine (279) deaths, equal to 36.80 per cent. of the whole number; and, again, in those wards from the 16th to the 20th, inclusive, there were two hundred and eighty-nine (289) deaths, or 38.12 per cent. of the whole. Whereas, in the ten wards from the 6th to the 15th, inclusive, embracing a population in the centre of the city, and living under somewhat more favourable circumstances, both as regards numbers, dwellings, ventilation and other sanitary advantages, there are recorded only one hundred and four (104) deaths, or 13.72 per cent. of the entire mortality.

Consequently, we have ten wards of the city, embracing a population of 222,720 souls, returning less than 14 per cent. of the deaths from smallpox, whilst other ten wards, five in the southeastern section, and five in the northeastern section of the built up portions of the city, with a combined population of two hundred and sixty thousand seven hundred and fifty-four (260,754), numbering only thirty-eight thousand and thirty-four (38,034) more than the former ten wards, returning five hundred and sixty-eight (568) deaths, equivalent to 74.92 per cent.

Nor can any more reliable information be produced, to prove that smallpox, while it does not spare any class of citizens, or pass by favourable

¹ E. C. Seaton, M. D., Trans. National Assoc., 1857, p. 460.

localities, manifests a decided preference for the more unhealthy districts, and wherever can be found a wretched, depraved and crowded population.

Smallpox has been prevailing in our city, as an epidemic, for the past eighteen months. It broke out in the 17th ward, in the month of October, 1860, and before the close of that year was found in the 1st and in the 4th wards at the southeastern extremity of the city. During October, the deaths were eleven; in November, thirteen, and in December nineteen. In all forty-three deaths. Fifteen of these occurred in the 17th ward, five in the 1st, and six in the 4th ward.

During the entire year of 1861, as the record will show, this disease prevailed in those and the adjoining wards with defiant obstinacy. The first five wards returning two hundred and seventy-nine (279) deaths, and the four from the 16th to the 20th, inclusive, in the upper part of the city returning two hundred and eighty-nine (289).

SCARLET FEVER.—The heaviest mortality from any one of the diseases in the zymotic class is affixed to scarlet fever, amounting in the aggregate to eleven hundred and ninety (1190), a higher death rate than on any former year, and equal to 8.22 per cent. of the entire annual mortality.

Of the deaths, five hundred and eighty-two (582) were males, and six hundred and eight (608) females. The proportion, according to sexes, being nearly equal.

From the adult population there is recorded only six deaths, the remainder, eleven hundred and eighty-four (1184) being minors, or those under twenty years, of whom eleven hundred and fifty-six (1156) were within ten years of age. The greatest mortality during any one period of childhood was between two and five years, at which age, six hundred and eight (608) children perished.

Not a death is recorded from this disease in the Almshouse Hospital, and only three from the coloured population.

The deaths throughout the several wards differed very materially according to the location of the ward, as in smallpox; the more crowded and insalubrious wards suffered the most, while those favoured with sanitary improvements shared far less in the destructive mortality from this fatal epidemic.

The disease must have prevailed in a very malignant form in the 15th, 16th, 17th, 18th, 19th and 20th wards, as five hundred and forty-five (545) of the deaths, equal to 48 per cent., came from that cluster, all of which contain neighbourhoods highly favourable to the generation of pestilential diseases, to some of which I have already referred.

In the 20th ward there were one hundred and three (103) deaths, and the seventeenth, which I look upon as the most unhealthy of all, gave ninety-nine (99) deaths, while the 19th, the largest in population, furnished ninety-six (96) deaths.

The rural wards, embracing the 21st, 22d, 23d and 24th, contributed one hundred and twenty-nine (129) of the deaths. The five wards, viz., the 6th, 7th, 8th, 9th and 10th, furnished one hundred and forty (140); and of these the 7th, a section somewhat inimical to health, produced sixty (60).

The 1st and 2d wards gave together, one hundred and two (102) deaths. The 3d, 4th and 5th wards gave only sixty (60) deaths. The 11th, 12th, 13th and 14th wards furnishing one hundred and sixty-nine (169) deaths.

CHOLERA INFANTUM.—This endemic, confined almost entirely to cities, and prevailing during the warm season, contributed 618 deaths. Of this

number 538, or 85 per cent. occurred in the third quarter, July, August and September.

Whilst peculiar to children, it is particularly so to those under two years. In the present instance, 572 or 92 per cent. of the deaths were within that term of existence which embraces the "second summer," a season so much dreaded by mothers, and not without cause, for its destructive tendency to infant life.

Every ward in our city suffered from this disease; even the rural districts were not exempt. The 19th, 7th and 17th wards, however, contributed the highest mortality; while the 1st, 2d, 15th and 20th shared next in extent. These are among the worst wards for health in our city. The 9th, 6th and 14th wards returned the least number of deaths.

Typhoid fever caused 281 deaths.

Whooping cough is represented by 93 deaths. All of these deaths were in children under ten years of age, and 51 or 55 per cent. were within the first year.

The location of these deaths was chiefly in those wards peculiarly liable to infectious diseases, viz., the 1st, 2d, 4th, 7th, 15th, 17th, 18th and 19th, producing 61 deaths, equal to 65 per cent. of the whole. The 6th, 8th, 9th and 22d yielded none. The remaining twelve averaged $2\frac{1}{2}$ deaths.

Measles was quite prevalent during the year, but caused only 74 deaths. With the exception of 7 deaths, in the 7th ward, the force of the disease appeared to have spent itself in the upper wards of the city.

Table V., Class 2. GENERAL SEAT OR SPORADIC DISEASES.—The deaths placed in this class have amounted to 2,304, of which number the minors exceed the adults by 61 per cent. The deaths in this class constitute about 16 per cent. of the entire mortality.

The heaviest mortality from any one disease has been from debility, amounting to 826. More than 50 per cent. of these deaths were in children, of which number 341, or 80 per cent. had not reached the first year of life.

Marasmus foots up 533 deaths. Of these, 319, or 60 per cent. were within the first year of life.

Dropsy furnished 284 deaths, and inanition 124. These diseases have been very general throughout the city, the deaths having been impartially distributed.

Table V., Class 3. The NERVOUS SYSTEM furnished 2,094 deaths, or 14.47 per cent. of the entire mortality.

Convulsions contributed 636 or 30.37 per cent. of these deaths. This disease (?) was peculiarly fatal among children. The deaths under twenty were 606, and those under one year included in this number were 345, or 54.24 per cent. of the whole.

Inflammation of the brain caused 305 deaths. This disease was also fatal among children, as 266 were under 20 years of age, and of these, 223, or 73 per cent. were under five years.

Congestion of the brain contributed 275 deaths, and dropsy of the brain 222. Of this latter disease there were only 4 adult deaths.

Of these three last diseases, the excess of deaths in male children was equal to 48.89 per cent.

Table V., Class 4. The RESPIRATORY SYSTEM.—This class of diseases, very generally make up a large share of the deaths. They number 3232 or 22.33 per cent. of the entire mortality. Three of the causes of death under this head, viz., consumption of the lungs, inflammation of the lungs,

and croup, amounting to 2802, have produced 86 per cent. of the mortality from diseases of this class.

Consumption of the lungs furnished 1817 deaths. This is an excess over those of last year of 12 per cent., and is the highest annual mortality ever recorded for this city.

The deaths of the sexes were nearly equalized. The two decennial periods between 20 and 40, furnished 898 of the deaths equal to 49 per cent.

There were 139 deaths recorded from people of colour, an increase over all former years. The increase may be the result of more accurate reports.

The deaths in persons of foreign birth amounted to 613 or 33.73 per cent. Those of American birth numbered 1008, and 196 were recorded as unknown.

Inflammation of the lungs numbered 681 victims, of which 484 or 71 per cent. were in children. During the first year of life 236 died from this fatal disease.

Croup, another infantile disease, produced 304 deaths, of these, 303 were among minors. The period of childhood most liable to croup, is between 2 and 5 years. During this ternary period there were 159 deaths equal to 52 per cent.

The sexes were nearly equalized.

Table V., Class 5. THE ORGANS OF CIRCULATION.—Under this head I find 368 deaths. The term disease of the heart, which is too general to afford any information as to the precise character of the malady, furnishes 265, or 72 per cent., of the deaths.

The 8th, one of our healthy wards, returned 20 deaths from disease of the heart. The 7th, an unhealthy one, gave 19. Other causes than those involving a good or bad sanitary condition of the city are productive of these diseases.

There was a small increase over the deaths in this class for 1860, but a decline in those returned "disease of the heart."

Table V., Class 6. DISEASES OF THE DIGESTIVE ORGANS.—Those diseases coming under this class and confined to the organs of nutrition have furnished 686 deaths, or 4.74 per cent., of the mortality. Inflammation of the stomach and bowels caused 238 deaths. Inflammation of the peritoneum 67, and cancer of the stomach 64 deaths.

Table V., Class 7. DISEASES OF THE URINARY ORGANS.—The deaths under this head amounted to 109. The proportion of adults to minors was as 92 to 17. The disproportion of deaths in the sexes was very great, 78 males to 31 females.

Albuminuria, or Bright's disease of the kidneys, yielded 20 deaths, and of these 16 were males and only 4 females, a similar disproportion in the sexes I have noticed before.

Diabetes gave 12 deaths. Disease of the kidneys 29, and inflammation of the bladder 28 deaths.

Table V., Class 8. ORGANS OF GENERATION.—The deaths from diseases of the generative system amounted to 95, with the exception of four, and those between 15 and 20—the deaths were in females over 20 years of age.

Cancer of the uterus caused 30 deaths. Sixteen of these were in women over fifty.

Puerperal fever gave 15, while puerperal convulsions contributed 25 deaths.

Table V., Class 9. ORGANS OF LOCOMOTION.—From this class there were 56 deaths. Rheumatism furnished the largest quota of deaths,

amounting to 23. Diseases of the spine under several distinct heads gave also 23 deaths.

Table V., Class 10. DISEASES OF THE INTEGUMENTARY SYSTEM.—Under this head I find but 6 deaths.

Table V., Class 11. OLD AGE contributed 203 deaths, males 66, and females 137. All vital statistics agree that females are the longest lived. This record gives 67 per cent., in favour of females. This term "Old Age" is not, I imagine, always applied in the strictest sense, as I find in the present instance one death from this cause, located between 50 and 60 years of age, and 11 between 60 and 70 years. They may have been premature.

Table V., Class 12. EXTERNAL CAUSES.—From this class, embracing accidents and violent causes, there have been returned 468 deaths, or 3.30 per cent. of the entire mortality.

Casualties, or accidents not specified, has the credit of 122 deaths. Drowned, 99. Burns and scalds, 81. Suicide, 31, and gunshot-wounds, 21. These two last causes for death have greatly increased over any former year. The latter may be readily accounted for, in consequence of the war and the increased use of firearms. Of the fifty-two deaths from these causes, there were only five females.

A very large proportion of the deaths under this class were among persons born in foreign countries, viz., 124 equal to 26.49 per cent. whilst the deaths from the different wards give the heaviest number in those, where there are located extensive manufactories with their numerous workmen.

The deaths from intemperance were 29—15 females and 14 males.

Table V., Class 13. UNKNOWN, makes up 104 deaths. As usual, under this obscure title, many of the deaths occurring in this and even in other cities, are recorded. With a careful attention to diagnosis, the number could, no doubt, be materially lessened. In the Boston mortality report for 1859, complaint is made that in 69 instances no attempt was made to specify the disease. Dr. Snow, of Providence, R. I., in his report for that city for 1860, makes the following terse remarks in relation to the proper certification of deaths. "A correct public sentiment upon this subject should demand a more strict and accurate inquiry into the cause of every death. As it is," he says, "it is better for statistical purposes that deaths should be reported as from unknown causes, than that they should be incorrectly reported." This hint may probably stir up some of the profession to do better in future.

Table V., Class 14. STILL-BORN.—The still-births, or, the deaths in intra-uterine life, or those which took place during the process of labour, have numbered 630. Of these, 364 were males, and 266 females. The former outnumbering the latter by 98, or 37 per cent.

This mortality was less than the previous year by 11 per cent.

The record does not make any distinction between premature births and still-born, nor does the registration law require it.

An examination into the causes which are so productive of the death of infants before birth, and just at the moment when they are to be ushered into a new existence, would form an interesting and important, yet in some degree at least it might be considered a revolting chapter of vital statistics.

In connection with the subject of infant mortality in this city, I would express the hope that the College might find in this question also a new incentive for scientific investigation.

TABLE IV.—Interments in the City of Philadelphia from December 29, 1860, to December 28, 1861.
Division 1. Mortality classified according to Sex and Age.

DISEASES.	SEX.				AGES.												ADULTS.	MINORS.	TOTAL.						
	Males.		Females.		Under 1 Year.	1 to 2.	2 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.				80 to 90.	90 to 100.	100 to 110.	110 to 120.		
	Males.	Females.	Boys.	Girls.																					
Abscess	26	21	7	7	5	3	1	2	1	2	7	10	3	4	6	1	2	..	..	..	..	33	14	47
Abortion	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	2
Adynamia or debility
Albuminuria	16	4	2	1	..	..	2	..	..	..	4	5	..	7	..	..	..	..	..	..	..	17	3	20
Anemia	10	8	7	6	7	1	1	2	1	1	1	1	2	1	2	1	1	..	..	..	..	5	13	18
Anerism	6	3	1	1	2	..	..	..	..	..	..	2	..	2	2	1	1	..	..	..	..	7	2	9
Anthrax or carbuncle	2	4	..	..	1	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	4	2	6
Apoplexy	83	79	6	5	5	..	1	2	..	3	8	11	23	28	36	33	12	..	..	..	..	151	11	162
Apthae	2	4	2	4	4	2	1	..	..	..	..	..	4	3	3	2	1	..	..	..	..	14	3	17
Asthma	5	12	..	3	1	1	1	..	..	..	1	..	4	3	2	1	1	..	..	..	..	3	3	44
Asphyxia	80	17	29	15	41	3	..	..	..	..	11	4	1	..	2	1	1	..	..	..	..	20	61	81
Burns and scalds	27	64	24	37	6	13	24	11	3	4	3	9	9	13	12	7	1	1	1	1	1	54	1	55	
Cancer	21	34	1	..	..	1	..	..	..	..	3	3	3	3	1	..	1	..	..	..	..	9	..	9
of the breast	..	0	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	2	..	2
" " bladder	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	1	..	1
" " eye	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	4	..	4
" " face	..	3	1	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	4	..	4
" " heart	..	1
" " liver	..	4	5	..	..	..	..	..	..	..	1	1	3	2	1	1	..	..	..	..	..	0	..	0
" " lungs	..	2	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	2	..	2
" " nose	..	3	1	..	..	..	..	..	..	..	1	..	2	1	1	1	..	..	..	..	..	4	..	4
" " rectum	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	4	..	4
" " spleen	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	1
" " stomach	27	37	3	2	..	2	3	..	..	..	1	11	13	12	14	8	..	..	..	..	..	59	5	64
" " skin	..	1	..	..	..	..	..	..	..	..	..	..	..	1	1	1	..	..	..	..	..	3	..	3
" " throat	..	2	..	..	..	..	..	..	..	..	..	..	..	1	1	1	..	..	..	..	..	3	..	3
" " testicles	..	1	..	..	..	..	1	..	..	..	..	..	..	1	1	1	..	..	..	..	..	3	..	3
" " uterus	..	30	1	..	..	..	..	..	..	..	2	6	6	8	7	..	..	..	..	..	..	30	1	31
" " vesophagus	103	19	40	11	5	8	12	11	9	6	24	18	11	8	6	3	1	..	..	..	..	71	51	122
Casualties	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
Caries	..	1	1	1	..	1	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	1	3	3
of the spine	2	1	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	3	..	3
Congestion	161	114	93	79	63	30	41	22	7	9	20	23	18	16	13	9	3	..	..	..	..	103	172	275
of the brain	2	3	..	..	..	..	2	..	..	..	1	1	..	..	..	..	..	..	..	..	..	3	2	5
" " bowels	7	5	5	2	6	1	2	..	..	..	1	1	..	..	..	..	..	..	..	..	..	5	7	12
" " liver	59	51	38	31	33	12	13	7	1	3	4	7	2	7	7	8	6	..	..	..	..	41	69	110
" " lungs

TABLE IV.—*Interments in the City of Philadelphia during 1861—Continued.*
 Division 1. *Mortality classified according to Sex and Age.*

DISEASES.	SEX.				AGES.													ADULTS.	MINORS.	TOTAL.			
	Males.	Females.	Boys.	Girls.	Under 1 year.	1 to 2.	2 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.				90 to 100.	100 to 110.	110 to 120.
						1	2	3	4	5	6	7	8	9	10	11	12				13	14	15	16	17	18	19	20
Convulsions	336	300	325	281	345	111	105	38	3	4	7	8	7	3	3	1	1	1	1	1	1	30	606
" puerpera	..	25	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	25
Consumption of lungs	910	907	136	166	54	34	37	26	24	127	475	423	277	169	115	44	12	..	..	..	..	222	302
" stomach and bowels	7	8	4	2	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9	15
Compression of the brain	3	1	1	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	4
Concussion of the brain	7	4	2	3	2	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	11
" " spine	1	1	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Collapsus	..	1	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
" of the lungs	1	1	1	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Coup de soleil	2	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2
Chicken-pox	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Chlorosis	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Constipation	3	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Cirrhotis	14	7	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	4
Coxalgia	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Croup	154	150	153	150	37	51	159	50	5	1	..	..	..	..	..	..	..	..	..	..	..	63	304
Cyanosis	38	26	38	25	62	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Golic	3	3	2	2	3	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	4
Coma	..	1	..	1	10	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Cramps	2	5	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Cholera	316	302	316	302	400	172	40	6	1	..	..	..	..	..	..	..	..	..	..	..	..	7	18
" infantum	11	7	7	4	8	1	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1
" morbus	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
" asphyxia	11	1	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Diabetes	254	248	248	241	56	81	212	112	21	7	5	4	1	1	1	1	1	1	1	1	1	13	502
Diphtheria	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Duresis	1	384	244	181	341	29	33	15	4	3	30	44	47	59	63	94	46	14	4	..	..	401	826
Debility	..	82	75	40	39	27	15	9	..	1	11	11	9	11	9	12	2	1	..	..	..	66	157
Dysentery	..	63	6	32	3	..	..	15	9	6	31	14	9	5	3	2	..	..	..	..	..	64	89
Drowned	..	103	80	66	48	70	27	13	2	..	6	11	7	11	5	11	8	..	..	..	..	69	183
Diarrhoea	..	3	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7	1
Dyspepsia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Dropsey	..	143	141	59	43	10	4	27	8	7	11	30	27	46	27	31	8	1	1	1	..	182	284
Debauch	..	4	4	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	2
" abdominal	134	88	182	86	94	66	43	15	..	..	..	..	..	..	..	..	..	..	..	..	..	4	218
" of the brain	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
" " chest	34	29	25	12	5	3	13	12	2	..	1	1	1	7	6	10	..	..	..	..	..	26	37

TABLE V.—Classified Mortality for the year 1861—Continued.
Division 1. Showing Sex and Age.

DISEASES.	SEX.				AGES.													ADULTS.	MISRS.	TOTAL.			
	Males.	Females.	Boys.	Girls.	Under 1	1 to 2.	2 to 3.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.				90 to 100.	100 to 110.	110 to 120.
					year.	year.	year.	year.	year.	year.	year.	year.	year.	year.	year.	year.	year.				year.	year.	year.
CLASS VI.—DIGESTIVE ORGANS—continued.																							
Colic	3	2	2	2	3	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	2	4	
Congestion of the bowels	2	3	2	2	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	
“ “ liver	7	5	5	3	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	
Disease of the liver	19	26	6	3	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	6	
“ “ stomach and bowels	12	5	4	2	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	
Dropsy of the abdomen	4	4	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Dyspepsia	3	5	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	
Enlargement of the liver	0	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Hæmorrhage of the stomach and bowels	7	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Hernia	0	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Inflammation of the stomach and bowels	107	131	63	67	53	23	26	15	15	6	7	21	17	13	19	9	2	2	2	2	2	130	
“ “ peritonæum	24	43	9	8	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	17	
“ “ liver	20	20	4	2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6	
Itens	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Intussusception	4	4	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	
Jaundice	13	11	5	3	6	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	16	
Obstruction of the bowels	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	
Stricture of the œsophagus	2	17	13	17	17	12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	30	
Teething	13	17	17	17	17	12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	30	
Ulceration of the stomach and bowels	10	8	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	16	
Worms	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	
Total	323	363	132	117	112	42	42	31	31	10	12	66	83	80	65	50	8	8	8	8	8	437	
CLASS VII.—DISEASES OF THE URINARY SYSTEM.																							
Albuminuria	16	4	2	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	3	
Cancer of the bladder	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
“ “ testicles	11	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10	
Diabetes	22	7	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	23	
Disease of the kidneys	2	7	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6	
“ “ bladder	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	
“ “ prostatic gland	2	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	
Inflammation of the kidneys	6	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	8	
“ “ bladder	13	15	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	26	
“ “ prostatic gland	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	
Stone in bladder	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Uremia	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	
Total	78	31	13	4	2	1	7	3	2	2	17	17	17	9	16	15	11	6	1	1	1	92	

TABLE V.—Classified Mortality for the year 1861—Concluded.
Division 2. Showing Location, Colour, Nativity, and Wards.

DISEASES.	ALMSHOUSE.	PEOPLE OF COLOUR.	COUNTRY.	NATIVITY.			WARDS.																							
				United States.	Foreign.	Unknown.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	33	24
				UNK	KNOWN	WARDS																								
CLASS XI.—Old Age	2	13	6	95	97	11	10	11	10	12	8	4	8	13	12	7	6	7	6	8	5	2	15	10	8	2	3	9	9	4
CLASS XII.—EXTERNAL CAUSES.																														
Asphyxia	1	47	6	5	1	2	3	1	4	4	2	1	1	3	2	1	1	1	2	2	1	1	2	3
Burns and scalds . . . . .	..	1	3	70	10	1	2	4	3	10	2	3	3	4	7	1	..	4	1	4	4	3	2	8	2	1	3	4	3
Casualties . . . . .	..	1	2	4	70	46	6	8	11	2	3	3	8	3	1	2	4	4	1	4	9	2	4	1	11	13	4	2	6
Drowned . . . . .	..	1	5	..	30	24	6	3	3	6	1	4	2	6	2	4	3	1	..	..	4	1	2	3	6	..	5	1	1
Debauch . . . . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Exposure and want	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Fracture	1	1	1	3	10	16	2	1	1	1	4	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Intemperance . . . . .	..	..	..	1	3	6	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Neglect . . . . .	..	..	..	4	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Poisoning . . . . .	..	..	..	12	13	6	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Suicide . . . . .	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Suspension by the neck . . . . .	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Strangulation . . . . .	..	..	..	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Suffocation . . . . .	..	1	1	4	6	3	1	1	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Violence . . . . .	..	..	..	1	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Wounds . . . . .	..	..	..	6	15	3	3	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
" gunshot . . . . .	..	..	..	6	15	3	3	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	5	7	20	293	130	67	30	30	30	28	11	11	22	21	10	9	18	8	8	10	30	10	14	9	36	21	14	12	18	24
CLASS XIII.—UNKNOWN	26	6	5	60	13	31	2	4	1	2	3	2	6	5	2	2	1	2	..	2	2	7	1	8	2	3	..	5	31	
CLASS XIV.—STILLBORN . . . . .	..	39	3	629	..	1	45	23	22	28	24	19	43	16	18	17	33	23	15	13	43	29	30	20	49	30	4	8	7