

months is unknown. 1,492 persons died from diseases of the brain (which vary considerably from year to year), 288 persons died of apoplexy, 238 of paralysis, 118 (40 above the usual number) from epilepsy. 517 deaths were referred to diseases of the heart and blood-vessels, 2,359 to diseases of the lungs and other organs of respiration. Bronchitis was the cause of 1,006 deaths; pneumonia of 1,036 deaths. Hernia, ileus, intussusception, and stricture of the intestinal canal were fatal in 109 instances, a number one-fourth above the average. 115 mothers died in childbirth, 46 by metritis (or puerperal fever), and 69 by other diseases incidental to that state. The births in London during the quarter were about 20,482, consequently one mother died to every 178 children born alive. The deaths from carbuncle and phlegmon (23), though not considerable, are more numerous than in the autumn quarter of 1851, and twice as numerous as in the previous autumns (1848-50). 20 deaths were referred directly to intemperance; 27 to delirium tremens; 54 to the want of breast-milk; 2 to privation; 1 to cold; 26 to poison; 66 to burns and scalds. 93 deaths were referred to hanging, strangling, and suffocation; and the numbers from these causes have rapidly increased, of late from 22 in the autumn of 1848 to 41, 54, 55, and 93 in the autumns succeeding. 108 deaths by drowning have also been registered in the quarter, or 50 more than the average of the corresponding quarters.

The mortality in Surrey, Sussex and Hampshire was below the average; in Kent about, in Berkshire above, the average. The mortality was below the average in several districts of the south midland counties, and in all the south-western counties except Wiltshire. In the Sixth Division the deaths in Herefordshire and Staffordshire are above, while the deaths in the other counties are below, the average. In the North Midland Division the mortality in the counties of Leicester, Nottingham, and Derby is above, in Lincoln below, the average. In Cheshire and Lancashire the mortality is above the average. Yorkshire experienced the average rate of mortality. The northern counties have been less healthy than usual. In Wales 6,005 persons died. Cardiganshire and the other high districts of Wales have been as healthy as usual.

Deaths in the Autumn Quarters.

	1842	1843	1844	1845	1846	1847	1848	1849	1850	1851	Total. 1842-51	1852
In 117 Districts, comprising the chief towns	39663	42608	44080	39293	53055	57925	46124	47685	45245	49282	464959	49507
In 507 Districts, com- prising chiefly small towns and country parishes	44686	44895	46784	41388	55882	45554	46312	49909	46778	49966	473124	50439
Total.....	84328	87493	90864	80681	108937	103479	92436	97594	92023	99248	937083	99946

*Population, Deaths, and Mortality per cent. in the Autumn Quarters,
1842-52.*

	Population Enumerated.		Deaths in 10 Autumn Quarters, 1842-51.	Annual Rate of Mortality of 10 Autumn Quarters, 1842-51.	Annual Rate of Mortality in the Autumn Quarter 1852.
	June 6-7th, 1841.	March 31st, 1851.			
In 117 Districts, com- prising the chief towns	6,612,958	7,795,882	464,959	2.579	2.514
In 506 Districts, com- prising chiefly small towns and country parishes	9,301,190	10,126,886	472,124	1.941	1.982
All England	15,914,148	17,922,768	937,083	2.174	2.197

MORTALITY OF THE METROPOLIS.

A Table of the Deaths in London from all Causes, Registered in the September Quarters of the Four Years, 1849-52.

CAUSES OF DEATH.	Quarters ended Dec.				CAUSES OF DEATH.	Quarters ended Dec.			
	1849.	1850.	1851.	1852.		1849.	1850.	1851.	1852.
ALL CAUSES.....	12,877	12,544	13,964	13,448	III. Scrofula.....	88	76	84	86
SPECIFIED CAUSES.....	12,818	12,443	13,880	13,302	Tabes Mesenterica.....	165	183	196	167
I. Zymotic Diseases.....	3,227	2,706	3,137	2,851	Phthisis or Consumption.....	1,478	1,455	1,787	1,662
SPORADIC DISEASES.					IV. Hydrocephalus.....	314	296	378	304
II. Dropsy, Cancer, and other Diseases of uncertain or variable Seat.....	598	564	574	598	Cephalitis.....	120	122	113	111
III. Tubercular Diseases.....	2,085	2,012	2,390	2,219	Apoplexy.....	324	332	330	289
IV. Diseases of the Brain, Spinal Marrow, Nerves, and Senses.....	1,454	1,476	1,495	1,492	Paralysis.....	257	280	277	238
V. Diseases of the Heart and Blood-Vessels.....	466	525	582	517	Delirium Tremens.....	29	38	33	27
VI. Diseases of the Lungs and of the other Organs of Respiration.....	2,183	2,262	2,510	2,359	Chorea.....	1	1	..	1
VII. Diseases of the Stomach, Liver, and other Organs of Digestion.....	703	734	781	807	Epilepsy.....	73	79	75	118
VIII. Diseases of the Kidneys, &c.....	142	153	160	168	Tetanus.....	5	4	4	4
IX. Childbirth, Diseases of the Uterus, &c.....	124	107	114	121	Insanity.....	26	24	27	23
X. Rheumatism, Diseases of the Bones, Joints, &c.....	98	108	99	112	Convulsions.....	473	441	497	508
XI. Diseases of the Skin, Cellular Tissue, &c.....	25	20	24	34	Disease of Brain, &c.....	146	155	139	174
XII. Malformations.....	39	47	50	58	Pericarditis.....	34	39	32	26
XIII. Premature Birth & Debility.....	293	340	399	385	Aneurism.....	20	21	25	17
XIV. Atrophy.....	339	269	297	323	Disease of Heart.....	412	465	525	474
XV. Age.....	554	536	606	556	Laryngitis.....	46	32	45	40
XVI. Sudden*.....	191	147	108	126	Bronchitis.....	805	922	1,050	1,006
XVII. Violence, Privation, Cold, and Intemperance.....	402	437	524	576	Pleurisy.....	24	31	50	35
					Pneumonia.....	989	946	1,053	1,036
					Asthma.....	174	216	216	151
					Disease of Lungs, &c.....	95	115	96	91
					Teething.....	118	120	99	107
					Quincy.....	24	24	31	10
					Gastritis.....	18	16	21	19
					Enteritis.....	82	91	89	95
					Peritonitis.....	47	48	68	61
					Ascites.....	33	25	32	33
					Ulceration (of Intestines, &c.).....	38	22	33	38
					Hernia.....	26	29	29	41
					Ileus.....	22	34	37	48
					Intussusception.....	14	10	8	11
					Stricture of the Intestinal Canal.....	8	11	13	9
					Dis. of Stomach, &c.....	78	65	79	77
					Disease of Pancreas.....	..	..	..	..
					Hepatitis.....	29	44	40	61
					Jaundice.....	38	36	40	45
					Disease of Liver.....	183	155	157	157
					Disease of Spleen.....	5	4	5	4
					Nephritis.....	6	10	5	12
					Nephra (or Bright's Disease).....	31	35	39	30
					Ischuria.....	2	3	5	4
					Diabetes.....	10	17	12	16
					Stone.....	7	6	7	12
					Cystitis.....	13	6	2	9
					Stricture of Urethra.....	6	12	17	9
					Dis. of Kidneys, &c.....	67	64	73	76
					Paramenia.....	8	2	1	2
					Ovarian Dropsy.....	14	9	14	7
					Childbirth, see Metria.....	60	62	59	69
					Dis. of Uterus, &c.....	42	31	40	43
					Arthritis.....	1	1	3	8
					Rheumatism.....	56	61	51	55
					Disease of Joints, &c.....	41	46	45	49
					Carbuncle.....	7	3	9	10
					Phlegmon.....	5	4	7	18
					Disease of Skin, &c.....	13	13	8	11
					Intemperance.....	15	17	15	20
					Privation.....	8	9	7	2
					Want of Breast Milk, see Privation & Atrophy.....	37	51	77	54
					Neglect.....	1	2	5	1
					Cold, see Privation.....	1	1	1	1
					Poison.....	20	22	23	26
					Burns and Scalds.....	58	49	69	66
					Hanging, &c.....	41	54	55	93
					Drowning.....	47	59	58	103
					Fractures and Contusions.....	129	142	164	163
					Wounds.....	28	20	33	26
					Other Violence.....	18	11	12	11
					Causes not specified.....	59	101	114	146
I. Small Pox.....	99	191	339	74					
Measles.....	338	264	204	121					
Scarlatina.....	466	429	603	952					
Hoping Cough.....	273	424	286	316					
Croup.....	80	89	93	76					
Thrush.....	38	39	33	27					
Diarrhoea.....	452	316	401	843					
Dysentery.....	79	41	80	31					
Cholera.....	494	23	15	14					
Influenza.....	49	26	34	41					
Purpura and Scurvy.....	11	13	18	14					
Ague.....	7	5	6	5					
Remittent Fever.....	15	28	24	13					
Infantile Fever.....	12	18	13	11					
Typhus.....	558	619	770	634					
Metria, or Puerperal Fever, see Childbirth.....	56	55	69	46					
Rheumatic Fever, see Rheumatism.....	20	14	21	21					
Erysipelas.....	109	87	116	67					
Syphilis.....	18	29	43	37					
Noma or Cancor, see Mortification.....	3	4	11	5					
Hydrophobia.....	..	..	..	..					
II. Hemorrhage.....	51	58	38	59					
Dropsy.....	205	183	225	220					
Abscess.....	26	23	20	20					
Ulcer.....	17	18	8	14					
Fistula.....	2	4	6	2					
Mortification.....	56	40	43	45					
Cancer.....	242	219	223	228					
Gout.....	14	17	11	10					

* Under the head of "sudden deaths," are classed not only deaths described as sudden, of which the cause has not been ascertained or stated; but also all deaths returned by the Coroner in vague terms, such as "found dead," "natural causes," &c. &c.

REVENUE.

Abstract of the Net Produce of the Revenue of Great Britain in the Years and Quarters ending 5th April, 1852 and 1853; showing the Increase or Decrease thereof.—(Continued from page 91.)

[From the "London Gazette."]

Sources of Revenue.	Years ended 5th April.			
	1852.	1853.	Increase.	Decrease.
	£	£	£	£
Customs.....	18,827,828	18,513,189		314,639
Excise	13,182,698	13,385,498	202,800	
Stamps	5,901,526	6,429,025	527,499	
Taxes	3,691,226	3,194,271		496,955
Property Tax	5,283,800	5,593,043	309,243	
Post Office.....	1,051,000	1,045,000		6,000
Crown Lands.....	190,000	252,000	62,000	
Miscellaneous	192,000	271,514	79,514	
Total Ordinary Revenue	48,320,078	48,683,540	1,181,056	817,594
Imprest and other Moneys .	522,686	714,718	192,632	
Repayments of Advances....	749,643	1,114,548	364,905	
Total Income.....	49,591,807	50,512,806	1,738,593	817,594
Deduct Decrease			817,594	
Increase on the Year			920,999	

Sources of Revenue.	Quarters ended 5th April.			
	1852.	1853.	Increase.	Decrease.
	£	£	£	£
Customs	4,615,025	4,432,832		182,193.
Excise	2,070,064	2,098,581	28,517	
Stamps	1,515,985	1,657,749	141,764	
Taxes	295,048	111,476		183,572
Property Tax.....	2,068,827	2,152,233	83,406	
Post Office.....	259,000	282,000	23,000	
Crown Lands.....	80,000	72,000		8,000
Miscellaneous	41,733	19,518		22,215
Total Ordinary Revenue	10,945,682	10,826,389	276,687	395,980
Imprest and other Moneys .	140,441	221,096	80,655	
Repayments of Advances	88,608	171,859	83,251	
Total Income.....	11,174,731	11,219,344	440,593	395,980
Deduct Decrease			395,980	
Increase on the Quarter			44,613	

Consolidated Fund Operations.—The total income brought to this account in the quarter ended 5th April, 1853, was 11,244,500*l.* The total charge upon it was 7,885,216*l.*, leaving a surplus of 3,359,284*l.*

CORN.

Average Prices of Corn per Imperial Quarter in England and Wales, during each Week of the First Quarter of 1853; together with the Monthly and Quarterly Average—(Continued from p. 92.)

[Supplied by the Controller of Corn Returns.]

Weeks ended on a Saturday, 1853.		Weekly Average.					
		Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
January	1	46 7	29 8	18 9	29 7	35 0	32 9
	8	46 0	29 8	18 6	29 1	34 8	32 5
	15	45 10	29 10	18 7	30 8	34 8	30 7
	22	45 8	30 5	18 7	32 5	34 11	31 9
	29	46 0	31 2	18 7	32 2	34 9	31 10
Average for January		46 0	30 1	18 7	30 9	34 9	31 10
February	5	46 1	31 8	18 7	31 11	34 7	31 5
	12	45 2	31 5	18 5	30 11	34 10	31 9
	19	44 6	31 1	17 9	29 3	34 5	31 2
	26	45 2	31 3	18 4	30 4	34 5	31 6
Average for February		45 2	31 4	18 3	30 7	34 6	31 5
March	5	45 9	31 7	18 3	30 9	34 8	32 6
	12	45 8	31 9	18 6	30 9	34 4	32 9
	19	45 5	31 9	18 10	30 10	34 2	32 11
	26	44 9	31 10	18 9	33 0	34 3	32 6
Average for March		45 4	31 8	18 7	31 4	34 4	32 8
Average for the Quarter		45 7	31 0	18 6	30 10	34 7	32 0

Foreign and Colonial Wheat and Wheat-Flour imported in each of the Months ended 5th January, 5th February, and 5th March, 1853; the Quantities Entered for Home Consumption during the same Months; and the Quantities remaining in Warehouses at the close thereof.—(Continued from p. 92.)

[From the "London Gazette."]

WHEAT.

Months ended	Imported.			Quantities entered for Home Consumption.			In Bond at the Month's end.		
	Foreign.	Colonial.	Total.	Foreign.	Colonial.	Total.	Foreign.	Colonial.	Total.
1853.	qrs.	qrs.	qrs.	qrs.	qrs.	qrs.	qrs.	qrs.	qrs.
5th Jan.	242,471	6,322	248,793	242,471	6,322	248,793	2,164	1	2,165
5th Feb.	440,743	159	440,902	411,519	159	411,678	1,387	1	1,388
5th Mar.	136,704	..	136,704	136,704	..	136,704	1,387	1	1,388

WHEAT-FLOUR.

Months ended	Imported.			Quantities entered for Home Consumption.			In Bond at the Month's end.		
	Foreign.	Colonial.	Total.	Foreign.	Colonial.	Total.	Foreign.	Colonial.	Total.
1853.	cwts.	cwts.	cwts.	cwts.	cwts.	cwts.	cwts.	cwts.	cwts.
5th Jan.	225,783	12,720	238,503	225,785	12,720	238,505	8	7	15
5th Feb.	305,487	133	305,620	305,487	133	305,620	8	7	15
5th Mar.	260,964	6	260,970	260,964	6	260,970	8	7	15

CURRENCY.

BANK OF ENGLAND.

An Account, pursuant to the Act 7th and 8th Victoria, c. 32, for each Week ended on a Saturday, for the First Quarter of 1853.

[Compiled from the "London Gazette."]

ISSUE DEPARTMENT.

Date.	Notes Issued.	Notes in hands of Public.	Government Debt.	Other Securities.	Gold Coin and Bullion.	Silver Bullion.
1853.	£	£	£	£	£	£
Jan. 1 ...	34,014,005	33,053,510	11,015,100	2,984,900	19,994,851	19,154
" 8 ...	33,107,165	33,297,635	11,015,100	2,984,900	19,151,011	19,154
" 15 ...	32,665,555	33,661,370	11,015,100	2,984,900	18,646,401	19,154
" 22 ...	32,918,040	33,473,775	11,015,100	2,984,900	18,898,886	19,154
" 29 ...	32,494,810	32,983,450	11,015,100	2,984,900	18,475,656	19,154
Feb. 5 ...	32,034,230	32,695,410	11,015,100	2,984,900	18,015,076	19,154
" 12 ...	31,799,710	32,305,035	11,015,100	2,984,900	17,780,556	19,154
" 19 ...	31,748,385	32,080,690	11,015,100	2,984,900	17,729,131	19,154
" 26 ...	31,652,320	31,990,050	11,015,100	2,984,900	17,633,166	19,154
March 5 ...	32,361,900	32,275,870	11,015,100	2,984,900	18,342,746	19,154
" 12 ...	32,378,600	32,713,170	11,015,100	2,984,900	18,359,456	19,154
" 19 ...	32,596,935	32,464,840	11,015,100	2,984,900	18,577,781	19,154
" 26 ...	32,584,005	32,793,695	11,015,100	2,984,900	18,564,851	19,154

BANKING DEPARTMENT.

Date.	Proprietors' Capital.	Rest.	Public Deposits.	Other Deposits.	Seven Day and other Bills.	Total Dr.
1853.	£	£	£	£	£	£
Jan. 1 ...	14,553,000	3,113,924	9,266,343	12,993,952	1,384,381	41,311,599
" 8 ...	14,553,000	3,176,619	5,771,914	14,310,648	1,489,104	39,301,285
" 15 ...	14,553,000	3,208,878	4,839,878	13,254,168	1,529,567	37,515,481
" 22 ...	14,553,000	3,214,206	4,998,754	13,727,637	1,438,669	37,932,296
" 29 ...	14,553,000	3,218,441	5,235,993	13,066,193	1,440,636	37,514,163
Feb. 5 ...	14,553,000	3,308,432	5,568,205	12,606,230	1,439,998	37,475,865
" 12 ...	14,553,000	3,313,924	6,239,297	12,012,578	1,417,334	37,536,633
" 19 ...	14,553,000	3,313,109	6,738,059	12,081,941	1,344,113	38,031,022
" 26 ...	14,553,000	3,247,336	7,062,129	12,397,543	1,355,814	38,615,822
March 5 ...	14,553,000	3,617,702	7,312,751	12,622,301	1,378,446	39,484,200
" 12 ...	14,553,000	3,622,448	7,607,914	13,051,136	1,292,007	40,126,505
" 19 ...	14,553,000	3,626,365	8,203,555	12,874,698	1,353,498	40,610,116
" 26 ...	14,553,000	3,630,638	8,468,758	12,721,782	1,351,108	40,725,286

Date.	Government Securities.	Other Securities.	Notes.	Gold and Silver Coin.	Total Cr.
1853.	£	£	£	£	£
Jan. 1 ...	13,961,691	15,875,756	10,960,495	19,154	40,311,599
" 8 ...	13,870,796	15,025,553	9,809,490	595,456	39,301,285
" 15 ...	13,870,796	14,157,548	9,004,185	482,953	37,515,481
" 22 ...	13,830,407	14,170,745	9,444,265	456,879	37,932,296
" 29 ...	13,800,613	13,654,185	9,511,360	548,025	37,514,163
Feb. 5 ...	13,764,651	13,705,819	9,338,820	666,582	37,475,865
" 12 ...	13,618,600	13,790,758	9,494,625	602,650	37,536,633
" 19 ...	13,619,393	14,177,702	9,667,595	566,332	38,031,022
" 26 ...	13,488,853	14,926,214	9,662,270	539,485	38,615,822
March 5 ...	13,464,538	15,401,220	10,086,030	532,412	39,484,200
" 12 ...	13,464,538	15,396,827	10,665,430	599,710	40,126,505
" 19 ...	13,464,538	15,447,273	11,132,096	566,311	40,610,116
" 26 ...	13,464,538	15,931,447	10,790,310	538,991	40,725,286

QUARTERLY JOURNAL

OF THE

STATISTICAL SOCIETY.

SEPTEMBER, 1853.

On the Immediate and Remote Effect of the Remission of Customs and Excise Duties on the Productiveness of those branches of the Revenue.
Communicated by DR. GUY.

[Read before the Statistical Society, 16th May, 1853.]

TOWARDS the close of last year, I laid before the Society a communication on the Relation of the Price of Wheat to the Revenue, in which communication I made use of certain results arrived at in previous papers on the Effect of the Remission of Taxes on the Revenue. On the occasion to which I refer, a very general wish was expressed by those who took part in the discussion, that the inquiry into the relation of the price of wheat to the revenue should be extended so as to embrace the effect produced by fluctuations in the price of that first necessary of life on those branches of the revenue—the customs and excise—which seemed most likely to be affected by them. Seeing the interest which the Society took in this subject, I have lost no time in preparing the way for the second branch of the inquiry, by instituting those preliminary investigations to which I have referred as preceding the communication on the Relation of the Price of Wheat to the Revenue. I have accordingly combined in this single communication the two distinct inquiries contained in the papers published in the Journal of this Society in June and September, 1852.

The object of this communication, therefore, is twofold:—1. To examine the effect, immediate and remote, of the remission or increase of customs and excise duties on the productiveness of the revenue from those two sources; and, 2. To prepare the way for the promised inquiry into the relation of the price of wheat to the revenue from customs and excise.

In entering upon the first of these inquiries, it is necessary to premise that the customs and excise duties are here grouped together for the same reason which induced the late Mr. Porter, in his work on the Progress of the Nation, to place them under the same head, namely, the frequent transference of duties from the one to the other. It is necessary further to state that the figures in the first columns of the following tables, headed “customs and excise,” represent the amounts received into the Exchequer from those two sources, after deduction made from the gross receipts of repayments and charges of collection. So that in this case, as in the tables contained in former communications respecting the ordinary revenue, the net receipts are made the basis of the calculations. The figures themselves have been

copied direct from the ninth column, headed "Payments into the Exchequer," of the Finance Returns of the United Kingdom for the period to which the paper refers. The estimated amounts of customs and excise duties reduced or repealed, increased or newly imposed, are taken, as were the corresponding figures in the communications just referred to, from Mr. Cardwell's Parliamentary Return, headed "Public Income and Expenditure, &c.," dated March 16, 1852.

The following table, with the exception of embracing a shorter period of time, is the counterpart of the table contained in the communication printed in the June number of the Journal of the Society for 1852. It presents the amount received into the Exchequer, in the shape of customs and excise duties, in each of the thirty years from 1822 to 1851 inclusive, the amounts in each year following, the increase or decrease, the excess of customs and excise duties reduced or repealed,* and the effect on the revenue under the three distinct heads of "Revenue restored and surplus of," of "Revenue partially restored to the extent of," and of "Revenue not restored, and further deficiency of."

TABLE I.

Year.	Customs and Excise, Amount re- ceived into the Exchequer.	Customs and Excise in the year following.	Increase or Decrease.	Excess of Customs' and Excise Duties Reduced or Repealed.	Revenue Restored and Surplus of.	Revenue Partially Restored to the extent of.	Revenue not Restored, and further Deficiency of.
1822	37,947,025	36,841,590	- 1,105,435	1,901,101		795,666	
1823	36,841,590	38,095,781	+ 1,254,191	1,667,107	1,254,191		
1824	38,095,781	37,546,011	- 549,770	1,430,170		830,795	
1825	37,546,011	36,452,731	- 1,093,280	3,258,549		2,165,269	
1826	36,452,731	36,333,112	- 119,619	1,725,987		1,606,368	
1827	36,333,112	37,995,094	+ 1,661,982	21,402*	1,640,580		
1828	37,995,094	36,751,851	- 1,243,243	50,032			1,193,211
1829	36,751,851	36,184,707	- 567,144	126,406			440,738
1830	36,184,707	32,819,296	- 3,365,411	3,397,951		97,540	
1831	32,819,296	33,406,029	+ 586,733	995,950	586,733		
1832	33,406,029	32,752,652	- 653,377	702,738		49,361	
1833	32,752,652	33,294,552	+ 541,900	976,754	541,900		
1834	33,294,552	33,615,273	+ 320,721	644,227	320,721		
1835	33,615,273	36,042,885	+ 2,427,612	165,877	2,427,612		
1836	36,042,885	33,958,420	- 2,084,465	708,795			1,375,670
1837	33,958,420	34,478,417	+ 519,997	396*	519,601		
1838	34,478,417	35,093,633	+ 615,216	8,134*	607,082		
1839	35,093,633	35,536,468	+ 442,835	63,418	442,835		
1840	35,536,468	35,577,680	+ 41,212	1,844,196*			1,802,984
1841	35,577,680	33,542,791	- 34,889	27,170			7,719
1842	33,542,791	33,911,246	+ 368,455	1,214,436	368,455		
1843	33,911,246	35,812,872	+ 1,901,626	411,821	1,901,626		
1844	35,812,872	33,782,439	- 2,030,433	356,851			1,673,582
1845	33,782,439	34,557,219	+ 774,780	4,511,841	774,780		
1846	34,557,219	32,908,108	- 1,649,111	1,149,790			499,321
1847	32,908,108	35,153,187	+ 2,245,079	344,886	2,245,079		
1848	35,153,187	34,622,284	- 530,903	585,968		55,065	
1849	34,622,284	34,758,254	+ 135,970	388,798	135,970		
1850	34,758,254	35,057,419	+ 299,165	790,151	299,165		
1851	35,057,419	35,386,614	+ 329,195	801,064	329,195		

* The asterisk in the fourth column of the table marks the exceptional years in which the customs' and excise duties increased or newly imposed exceeded those reduced or repealed.

In the thirty years comprised in this table, customs and excise duties have been remitted in excess of duties increased or newly imposed to the amount of 26,474,105*l*. In twenty-six out of the thirty years, the taxes reduced or repealed have exceeded those increased or newly imposed; while in the remaining four years, an opposite state of things prevailed. During these same thirty years, the total amount of taxes of all kinds reduced or repealed, in excess of those increased or newly imposed, amounted to 28,679,980*l*.; so that the balance of duties remitted in the customs and excise fell short by little more than two millions of the balance of all the duties remitted.

The immediate effect of this remission of customs and excise duties upon the productiveness of those branches of the revenue, in the twenty-six years, is shown in the following abstract, based on the figures contained in the last three columns of the table :—

1. Revenue from customs and excise restored with further increase	13 years.
2. Revenue partially restored	7 „
3. Revenue not restored and further falling off	6 „
4. Revenue wholly or partially restored	20 „

Of the four years in which the customs and excise duties increased or newly imposed exceeded those reduced or repealed, the amount of additional taxes was realised with further addition in three, and not realised in one. If the whole thirty years are divided into the three groups of successful, partially successful, and unsuccessful years, the results of the financial operations of the several years will be as follows :—

1. Successful years	16
2. Partially successful years	7
3. Unsuccessful years	7

It will be interesting and instructive to compare this result of the remission of excise and customs duties with the result of the remission of duties and taxes of all kinds, customs and excise duties included, in the same thirty years. This comparison is made in the following table :—

TABLE II.

	Customs and Excise.	All Branches.
1. Successful years	16	12
2. Partially successful years	7	7
3. Unsuccessful years	7	11

It appears, then, that the immediate effect of the repeal of customs and excise duties on the revenue derived from those two sources is more favourable than the immediate effect of the repeal of imports of every kind on the total net ordinary revenue from all sources.

In some of the years comprised in the table, the immediate effect of the remission of customs and excise duties on the yield of those branches of the revenue was very remarkable; but I must content myself with one illustration.

In the year 1845, customs and excise duties to the amount of 4,511,841*l.* were remitted, and yet the customs and excise in the following year, 1846, had not only recovered themselves, but actually exhibited an increase of 774,780*l.*

The total amount of customs and excise duties reduced or repealed in excess of duties increased or newly imposed is, as has been already stated, 26,474,105*l.*; but as the amount of customs and excise duties in 1851 falls considerably short of the amount in 1822, the gain to the nation is represented by a smaller amount. In 1822, the customs and excise yielded 37,947,025*l.*, and in 1851, 35,057,419*l.* There was, therefore, a falling off of 2,889,606*l.*; and the sum remitted under the head of customs and excise duties, without injury to the revenue, is 26,474,105*l.*, less 2,889,606*l.*, or 23,584,499*l.*

The same sort of calculation for the respective periods of five, ten, fifteen, and thirty years, is made in the following table, which is the counterpart of Table II. contained in the communication made to the Society on the 21st of June, 1852, with the exception that the net revenue from customs and excise duties is substituted for the net ordinary revenue.

TABLE III.

	Customs and Excise in First Year of the Series.	Customs and Excise in Last Year of the Series.	Increase or Decrease.	Excess of Customs and Excise Duties Reduced or Repealed.	Gain to the Nation.
<i>Periods of Five Years.</i>					
1822 to 1826	37,947,025	36,452,731	-1,494,294	9,933,309	8,439,015
1827 „ 1831	36,333,112	32,819,296	-3,513,816	4,548,937	1,035,121
1832 „ 1836	33,406,029	36,042,885	+ 2,636,856	3,198,391	6,835,247
1837 „ 1841	33,958,420	35,577,680	+ 1,619,260	1,762,138*	142,878†
1842 „ 1846	33,542,791	34,557,219	+ 1,014,428	7,644,739	8,659,167
1847 „ 1851	32,908,108	35,057,419	+ 2,149,311	2,910,867	5,060,178
<i>Periods of Ten Years.</i>					
1822 to 1831	37,947,025	32,819,296	-5,127,729	44,482,246	9,354,517
1832 „ 1841	33,406,029	35,577,219	+ 2,171,190	1,436,253	3,607,443
1842 „ 1851	33,542,791	35,057,419	+ 1,514,628	10,555,606	12,070,234
<i>Periods of Fifteen Years.</i>					
1822 to 1836	37,947,025	36,042,885	-1,904,140	17,680,637	15,776,497
1837 „ 1851	33,958,420	35,057,419	+ 1,098,999	8,793,468	9,892,467
<i>Period of Thirty Years.</i>					
1822 to 1851	37,947,025	35,057,419	-2,889,606	26,474,105	23,584,499

* Excess of customs and excise duties imposed or increased. † Loss.

The general results to be derived from this table agree very closely with those deduced from the table already referred to, as embracing the net ordinary revenue. With the single exception of the quinquennial period 1837 to 1841, when the customs and excise duties increased or newly imposed exceeded those remitted or repealed, and the nation sustained a loss in customs and excise duties of 142,878*l.*, all the periods exhibit a more or less successful financial result. The remission of those duties proved eminently successful when measured by its effect on that portion of the public revenue which is derived from those sources. Duties to the amount of more than twenty-six millions were remitted in the thirty years under review, the revenue at the beginning of the period having been less than thirty-eight millions, and the decrease at the end of the period being less than three millions. In other words, upwards of twenty-six millions, out of a revenue amounting to less than thirty-eight millions, have been sacrificed during the last thirty years, and yet the whole of that twenty-six millions, with the exception of less than three millions, has been replaced. This is obviously a more successful result than was displayed by the total net ordinary revenue derived from all sources, inclusive of customs and excise; for out of the larger sum of nearly fifty-four millions, to which the net ordinary revenue amounted in the year 1822, the excess of duties remitted amounted to less than twenty-nine millions, and the loss to the revenue to about two millions. The comparison now instituted will be better understood by means of the following table:—

TABLE IV.

	Customs and Excise.	Residue.	Net Ordinary Revenue.
Revenue in 1822.....	37,947,025	15,705,448	53,652,473
„ 1851.....	35,057,419	16,612,134	51,669,553
Difference	2,889,606	906,686*	1,982,920
Excess of duties remitted	26,474,105	2,205,875	28,679,980
Remitted without loss to revenue	23,584,499	3,112,561	26,697,060
Per-centage proportion of revenue in } 1822	62	19	50

* Increase.

The elasticity of that part of the revenue which consists of customs and excise duties is placed by this table in a very striking light; for while the remissions effected, in the thirty years from 1822 to 1851, in the net ordinary revenue, without entailing loss, amounted to 50 per cent., and in the residue, consisting of duties other than those of customs and excise, to 19 per cent., the remissions effected in the customs and excise, without impairing the productiveness of those branches of the revenue, amounts to no less than 62 per cent,

- A similar result, as regards this class of duties, is obtained, when the necessary corrections for increase of population are made, as in the following table, which, it will be observed, is a counterpart of Table III., inserted in the communication made to the Society, June, 1852.

TABLE V.

	Customs and Excise in First Year of the Series. A.	Gain to the Nation. B.	Sum of A and B.	Calculated Amount of Customs and Excise, in Last Year of Series, supposing an Increase equal to the Increase of Population, and no Remis- sion of Taxes.	Gain or Loss to the Nation, corrected.
<i>Periods of Five Years.</i>					
1822 to 1826	37,947,025	8,439,015	46,386,040	40,793,040	+ 5,593,000
1827 „ 1831	36,333,112	1,035,121	37,368,233	39,058,094	- 1,689,861
1832 „ 1836	33,406,029	6,835,247	40,241,276	35,744,451	+ 4,496,825
1837 „ 1841	33,958,420	142,878†	33,815,542	36,335,509	- 2,519,967
1842 „ 1846	33,542,791	8,659,167	42,201,958	35,555,358	+ 6,646,600
1847 „ 1851	32,908,108	5,060,178	37,968,286	34,942,594	+ 3,025,692
<i>Periods of Ten Years.</i>					
1822 to 1831	37,947,025	9,354,517	47,301,542	43,639,076	+ 3,662,466
1832 „ 1841	33,406,029	3,607,443	37,013,472	38,082,871	- 1,069,399
1842 „ 1851	33,542,791	12,070,234	45,613,025	37,567,925	+ 8,045,100
<i>Periods of Fifteen Years.</i>					
1822 to 1836	37,947,025	15,776,497	53,753,522	46,295,370	+ 7,458,152
1837 „ 1851	33,958,420	9,892,467	43,850,887	40,410,519	+ 3,440,368
<i>Period of Thirty Years.</i>					
1822 to 1851	37,947,025	23,584,499	61,531,524	55,782,226	+ 5,749,298
† Loss.					

The results obtained from this table are the same in kind as the results of the table just referred to,* but they are generally greater in amount; for where there is a gain, it is uniformly greater, and where there is a loss, it is, with one exception, uniformly less. This superior elasticity and productiveness of the customs and excise duties will, however, be best seen in the following tabular comparison, in which the gain or loss to the nation accruing from changes in the customs and excise duties and in the ordinary revenue respectively for the several periods of five, ten, fifteen, and thirty years, are placed side by side in parallel columns.

* Table III. of the paper "On the Effect of the Remission of Taxes on the Revenue in the Thirty Years from 1822 to 1851 inclusive," read before the Statistical Society of London, 21st June, 1852, and published in the fifteenth volume of this Journal, p. 223.

The first column of the table is the same as the last column of Table V., while the second column, headed "Net Ordinary Revenue," is taken from the last column of Table III., inserted in the communication laid before the Society in the month of June, last year.

TABLE VI.

		Gain or Loss to the Nation.	
		Customs and Excise.	Net Ordinary Revenue.
<i>Periods of Five Years.</i>			
1822 to 1826		+ 5,593,000	+ 4,835,764
1827 „ 1831		— 1,689,861	— 2,572,840
1832 „ 1836		+ 4,496,825	+ 3,370,119
1837 „ 1841		— 2,519,967	— 2,478,722
1842 „ 1846		+ 6,646,600	+ 5,885,225
1847 „ 1851		+ 3,025,692	+ 2,241,932
<i>Periods of Ten Years.</i>			
1822 to 1831		+ 3,662,466	+ 1,913,697
1832 „ 1841		— 1,069,399	— 1,545,015
1842 „ 1851		+ 7,945,100	+ 6,796,150
<i>Periods of Fifteen Years.</i>			
1822 to 1836		+ 7,458,152	+ 5,346,659
1837 „ 1851		+ 3,440,368	+ 3,161,001
<i>Period of Thirty Years.</i>			
1822 to 1851		+ 5,749,298	+ 1,480,398

It will be seen that there is no period of years comprised in this table in which the gain to the nation from the remission of customs and excise duties is not greater than the gain to the nation arising from the remission of all duties, including the customs and excise; and that, with the exception of the quinquennial period from 1837 to 1841, the loss sustained is less. It follows, therefore, that there must have been a considerable loss entailed upon the revenue by the remission of duties belonging to that portion of the national receipts which has been designated in Table IV. as the residue. This statement is so fully borne out by the per-centage proportions in Table IV., that it is not necessary to enter into more minute calculations. The increase of the net ordinary revenue in the thirty years from 1822 to 1851 amounts, it will be seen, to about 50 per cent., being somewhat more than the per-centage increase of population for the same period, which was 47 per cent. This very moderate increase coincides with and confirms the moderate annual gain to the nation which was estimated in a former communication at 50,000*l*. On the other hand, while the financial operations in the departments of customs and excise have issued in an increase of 62 per cent., the increase of population having been 47 per cent., the financial operations bearing upon the residue

have yielded an increase of only 19 per cent., or considerably less than half that which would have been brought about by mere increase of population, had no reduction of duty taken place. These figures, then, are in perfect harmony with each other, at the same time that they confirm the results already arrived at in this communication, in proof of the greater elasticity of the revenue derived from customs and excise. While the increase in the net ordinary revenue exceeded the increase attributable to increase of population by about fifty thousand per annum, the increase in the two departments of the customs and excise amounted to no less than $\frac{5,749,298}{30}$, or 191,643*l.*, or between three and four times as much.

The results of the present inquiry, then, may be summed up as follows:—

1. The immediate effect of a remission of customs and excise duties on the revenue derived from those two sources is greater than the immediate effect of a remission of all duties, without exception, on the net ordinary revenue.

2. The effect of a remission of customs and excise duties on the productiveness of the revenue derived from those two branches is proportionably greater for periods of five, ten, fifteen, and thirty years, than the effect of the remission of imposts of all kinds (customs and excise duties included) on the productiveness of the net ordinary revenue for the same periods of time.

3. The increase of the customs and excise duties for the last thirty years has been at a greater rate than the increase of the net ordinary revenue; for while the annual increase in the net ordinary revenue has exceeded the increase due to the growth of population by only 50,000*l.* per annum, the increase in the departments of the customs and excise has exceeded by upwards of 190,000*l.* per annum the increase due to that cause.

By the calculations contained in this communication, the way is prepared for an inquiry into the effect of variations in the price of wheat on the productiveness of customs and excise duties, the results of which inquiry I hope to be able to lay before the Society on some future occasion.

Statistics of the Island of Portsea.

[Communicated to the British Association for the Advancement of Science by the Portsmouth and Portsea Literary and Philosophical Society, and read before the Statistical Section, at Belfast, September, 1852.]

(Continued from page 168.)

The Dockyard.

AMONGST the Government Establishments at Portsmouth, the Naval Arsenal is that which has long exerted the greatest influence upon the character and interests of the place. The town of Portsea is the most intimately associated with those interests; but they extend beyond that town, and, in different degrees, affect both the town of Portsmouth and the large and constantly-increasing suburbs. Hence the condition of Portsmouth, Portsea, and the suburbs, cannot be fully estimated apart from the dockyard.

Influence of the Dockyard on the locality.

The extent to which the duties of the dockyard are carried, and the description of those duties, bear upon the commercial as well as upon the strictly social interests of the place.

The dockyard is more especially a repairing and fitting-out, rather than a building yard. The fitting-out and paying off of ships at this port have a considerable effect on the commerce of the towns; as, in the first place, large numbers of both officers and seamen come here, having to provide, at least partially, for wants which they expect will extend over a period of three or four years; and, in the second, considerable portions of their salaries and wages are put into circulation, still further bearing upon the commerce of the towns. This being the case, a statistical report of Portsmouth would be incomplete, if it did not include the dockyard. The following report of that establishment has been therefore undertaken.

The dockyard at Portsmouth is perhaps the oldest establishment of its kind in the kingdom. On the southern coast of England, in the neighbourhood of this place, the infant navy in the time of Alfred the Great performed its feat of valour; no means, however, remain to identify it with this place. But that event, and many others which followed in the course of England's growth, showed the necessity of some establishment on this coast for building ships and vessels, and for their careful preservation in the winter season. There is historical evidence, that in the reign of John, docks were used for the king's ships and vessels at Portsmouth; but it does not appear whether they were constructed in that reign, or whether they had been constructed before.

Antiquity of the Dockyard.

The late Sir Nicolas Harris Nicolas, in the first volume of his *History of the Royal Navy*, chapter 6, p. 147, says: "In May, 1212, the sheriff of Southampton was commanded to cause the docks at Portsmouth to be inclosed with a strong wall, in the manner which the archdeacon of Taunton would point out, for the preservation of the king's ships and galleys; and the sheriff was also to cause penthouses to be erected for their stores and tackle;" referring to "*Rotuli Litterarum Clausarum*," p. 117, as his authority.

Town burnt
by the French.

It may not be practicable to trace its history from that time; but as the harbour of Portsmouth always continued to be important to the navy of England, it is probable that the dockyard was always kept up, subject to changes, as the general aspect of the nation or that of the locality changed. In 1337 or 1338, the French, having disguised themselves, came upon the town, and succeeded in burning it. No mention is made of the dockyard in the record of that event; but it can hardly be supposed that, whilst they destroyed the town, they would spare the arsenal.

Harbour
defences
constructed.

To guard against the recurrence of such a calamity from the sea, military defences were constructed at the entrance of the harbour so early as about the year 1418. And Camden speaks further of "two block-houses at the entry of the haven, made of new heaven stone, which being by King Edward the Fourth begunne, King Henrie the Seaventh, as the inhabitants report, did finish, and strengthened the towne with a garrison."—*Britannia*, ed. 1610, p. 268.

It appears that early in the reign of Henry VIII., the dockyard assumed more decidedly the condition of an *establishment*; and in the early period of the British royal navy, Portsmouth was a most important rendezvous for it.

Loss of the
"Mary Rose."

A fleet having been assembled here in 1545, was going out to engage a French fleet off the coast, when the "Mary Rose," one of the largest ships in the navy, under some unskilful management, overturned and sank. Little progress in development was, however, made until the British navy advanced in importance, according as national and widely-extended conflicts gave the English a more comprehensive range of interests, and elevated their power upon the ocean.

State of Dock-
yard in 1650.

Mr. Charnock, and, after him, Mr. Derrick, recorded a tradition of the state of this dockyard at the middle of the 17th century; and immediately afterwards Mr. Charnock says, in a note: "Thomas Waite, quartermaster, came into Portsmouth yard in 1650; at that time there was no mast-house nor dry dock; not more than one hundred shipwrights, and but one team of horses."

First dry dock
constructed.

"Isaac Hancock, quartermaster, came to the yard in 1661; remembers that the first dry dock was made when Jamaica was taken [1655]; number of shipwrights as above, and forty or fifty labourers."

Mr. Derrick, in recording this tradition, says it was communicated by the two individuals above mentioned, when they were old men, to a gentleman who was living in 1805 or 1806.

Commis-
sioner's house
built.

Soon after the restoration, the establishment was improved by the erection of buildings; the first of these, of which we find any record, was the commissioner's house, which was begun in 1664, and finished in 1666; the commissioner had previously lived in Portsmouth. It appears to have been some years later when houses were built for the principal officers of the dockyard.

Ships built in
17th century.

A considerable quantity of work was executed in this yard during the last half of the 17th century. The following table contains the names, rates, and tonnage, of all the ships built at this yard during that period, as far as we have been able to trace them :—

Rate.	Ship's Name.	Tons.	Guns.	When Built.	Rate.	Ship's Name.	Tons.	Guns.	When Built.
1st	Royal Charles	1,531	100	1673	3rd	Swiftsure	978	70	1673
"	Royal James	1,422	100	1675	4th	Bonaventure	514	48	1683
2nd	Coronation	1,427	90	1685	"	Assurance	680	50	1673
"	St. Michael	1,101	90	1669	"	Litchfield			1694
"	Ossory			1682	"	Nonsuch	368	42	1668
"	Vanguard	1,357	90	1678	"	Phoenix	389	42	1671
3rd	Eagle	1,047	70	1679	"	Weymouth	673	48	1693
"	Expedition	1,059	70	1679	5th	Dartmouth	265		1655
"	Monk	703	60	1659	"	Richmond	211		1655
"	Montague	829	60	1654	6th	Greyhound	184	16	1672
"	Russell	1,177	80	1692	"	Newport		24	1694
"	Shrewsbury			1694	"	Sandados		16	1675

The preceding table shows that towards the close of the period which it includes, the *new* work performed in this yard was less than it had been some time previously. And the following table shows that the number of shipwrights employed in the yard in the two years 1694 and 1697 was comparatively small, whilst in the former of those years, the number of *riggers* was greater than three-fifths of the number of shipwrights, apart from their apprentices, or servants, as they were called in the official language of that time. This relative condition of the workmen indicates the general character of the work that was carried on in the establishment at that time, that is, during the war. It appears by the original documents from which these details have been taken, that the *prest* shipwrights and caulkers were in the condition of the hired artificers of the present day, employed only whilst the duties of the yard were too great for the established complement of artificers.

Number of artificers.

Description of Workmen.	1694.	1697.	1699.	Description of Workmen.	1694.	1697.	1699.
Shipwrights	59	67	216	Bricklayers and masons			26
Prest ditto	25	43		Ditto apprentices			4
Shipwrights' apprentices	30	31	109	Sailmakers			8
Prest ditto	2	6		Sailmakers' apprentices			2
Apprentices to carpenters of ships	18	16		Oar-maker			1
Caulkers	9	29	41	Blockmakers			3
Prest ditto	7	11		Locksmith			1
Caulkers' apprentices		1	9	Locksmith's apprentice			1
Prest ditto		3		Riggers	53		42
Joiners	22	7	39	Sawyers	36	24	34
Joiners' apprentices	4	1	6	Scavellmen			17
House carpenters			53	Labourers	37	4	250
House carpenters' apprentices			3	Pitch-heaters	2	2	2
Plumbers			2	Oakum boys	3	20	25
				Quarter boys	3	7	12

Peace was restored; and it appears that a great change was made in the establishment between April, 1697, and Midsummer, 1699. The number of shipwrights and of their apprentices, and the number of labourers, were greatly increased; the number of riggers was

diminished; and various classes of workmen in small numbers were placed on the list, which it does not appear were on the establishment before; the work for which they were now introduced may have been previously done by contract. And still there were other workmen employed which are not described in the pay-list referred to: no ropemakers are mentioned, whilst the staff of the dockyard included a master ropemaker and a clerk of the rope-walk. And further, an order was given in 1688, that when cables were made in the rope-house, all the men of the fleet were to assist.

The following particulars will show that during the war, the condition of the officers underwent a revision. In December, 1691, the payment of the officers' salaries was ordered to be made at the dockyard, when the annual amounts were as follow:—

Master Shipwright	76 <i>l.</i> 10 <i>s.</i> , with 1 <i>s.</i> a-day exchequer fee.
Master Shipwright's Assistant	20 <i>l.</i>
Storekeeper	50 <i>l.</i>
Master Caulker	10 <i>l.</i>

A large proportion of the emoluments of officers was then derived from various perquisites; one of these was the apprentices which the regulations of the service allowed them to take. The premiums which persons were willing to pay to superior shipwright officers, to have their sons apprenticed to them, and the wages which the masters received on account of their apprentices during the term of service, amounted to no inconsiderable sum.

By an Order in Council of the 19th December, 1695, a new rate of salaries was authorized, and ordered, in the following January, to be carried into effect, as follows:—

Master Attendant		} 200 <i>l.</i> per annum each.
Master Shipwright		
Storekeeper		
Clerk of the Cheque		
Clerk of the Survey		} 100 <i>l.</i> per annum each.
Master Shipwright's Assistant		
Master Caulker		
Master Ropemaker		
Clerk of the Ropeyard		} 80 <i>l.</i> per annum.
Boatswain of the yard		
Porter		30 <i>l.</i> "
Master Mastmaker		} 3 <i>s.</i> per diem.
" Boatmaker		
" Sailmaker		
" House Carpenter		
" Bricklayer (or Mason)		2 <i>s.</i> 6 <i>d.</i> "
Foreman of Shipwrights		3 <i>s.</i> "
Quartermen		2 <i>s.</i> 6 <i>d.</i> "
Foreman of Riggers		2 <i>s.</i> "
Foreman of Labourers and Scavellmen		1 <i>s.</i> 6 <i>d.</i> "
Chirurgeon of the yard		40 <i>l.</i> per annum.
Purveyor	50 <i>l.</i> per annum, besides travelling charges.	

Various extra allowances to the master shipwright and the clerk of the cheque, and all extra allowances to the master ropemaker and the clerk of the rope-yard, were at the same time cut off. By a letter from the Navy Office, written during the same month, it was ordered

that the salary of the second master attendant should be the same as the first master attendant's, and the salary of the second assistant to the master shipwright the same as that of the first assistant. Apprentices continued to be a source of emolument to the professional officers down to the date when the Board of Revision sat, early in the present century. The master shipwright was allowed to have five apprentices, each of his assistants three, and the other officers of inferior grades had also their apprentices. The same form of perquisite was extended, with limitation, to the artificers; but in this grade the emolument did not exceed the current proportion of the wages: a premium was out of the question when the master was a working shipwright. An artificer having an apprentice was legally entitled to his service during the whole of the term, and if he died during that term, then his representatives were entitled to the advantage of the apprentice's service till the expiration of the term. Apprentices.

The artizans were allowed as a perquisite the chips which they had made at their work, in the reign of Charles II. The value of this privilege was never definite, although it was considerable at the close of the 17th century and early in the 18th, when wood was the principal, if not the exclusive, article of fuel in this part of England. The system of adding perquisites to a small pecuniary remuneration, was tried with both officers and artizans for more than a century. But such privileges were generally liable to encroachment on the part of those who enjoyed them, and the Navy Board endeavoured, from time to time, to fix such conditions to the exercise of the privilege of chips, as appeared likely to protect the interests of the Government. Chips. All efforts seem, however, to have failed of defining and limiting the extent of that privilege in such a way as to ensure mutual satisfaction, perhaps because that mode of remuneration was essentially vicious in principle. Under a wiser economy of more recent institution, the salaries and wages of officers and men have been finally adjusted, on the condition that they should be the exclusive direct rewards of service.

The care of the dockyard during the night was entrusted to watchmen, and it appears that some time before the Restoration, the number was increased. When the establishment underwent a revision, after that event, it was deemed that some abatement might be made in the care and expense bestowed on this object. The Navy Board, therefore, having received general instructions from the Duke of York on the 28th January, 1661-2, issued their order on the 10th May, 1662, "that the watchmen should be reduced to the ancient number of four; and for the better discovery of the good or ill performance of their duty," they ordered that a bell should be hung up at each watch-house, to answer one another by striking every half-hour; and in their letter to the officers of the dockyard, they stated that four bells had been ordered to be sent to Portsmouth for this use. It appears that little danger was apprehended during the night; the smallness of the number of watchmen implies this; and it is further intimated by the fact that persons were allowed to pass in and out of the dockyard as they chose, by night as well as by day. When the time of the Revolution drew near, and the state of the nation became unsettled, it was deemed unsafe to continue this liberty. Watchmen. On the 19th November, 1688,

Watchmen

therefore, Sir Richard Beach, the resident commissioner, wrote to the clerk of the cheque, storekeeper, and porter, stating that "it had been a common practice in this yard to leave the dock gates unlocked all night, whereby his Majesty's stores were exposed to thievery and embezzlement, and people coming in and out at all hours in the night, which did and might prove very hazardous and prejudicial to his Majesty's service." He then directed that the gate should be locked and bolted precisely at eight o'clock at night in winter, and nine in the summer, and that no person should be let in or out after that time, till the watch was relieved in the morning.

At the crisis, however, a more efficient guard was required in the dockyard; danger seemed imminent; for the Irish soldiers who had been quartered in the garrison, it was said, were very insolent, and even threatened the destruction of the naval establishment.

In the alarm thus produced, Sir Richard Beach ordered the artificers and labourers to attend on the 13th December, armed with firelocks and provided with ammunition, and to mount guard for the protection of the dockyard during the night.

The master shipwright was directed to have the command of the guard till midnight, and his assistant to succeed him then, and retain the command till the watch was relieved in the morning.

It was at the same time ordered, that if the same guard should be required on the night of the 14th, the clerk of the cheque and clerk of the survey successively were to command it; and if it were required to be repeated the third night, the storekeeper and boatswain of the yard were similarly to have charge of it.

It does not appear that the watch was very strictly kept by the four watchmen of the dockyard, for on the 31st December, 1689, the commissioner wrote to the clerk of the cheque: "Whereas it is become a common practice with the watchmen of this yard to keep in their watch-houses the time of their watch in the night, and to omit the striking of the bell, whereby the people cannot know the certain time of the night; and when they do strike, they strike commonly more or less than the hour is, being half asleep and half awake as they come out of their watch-houses, whereby their Majesties' stores and houses are exposed to thievery, embezzlement, or fire, by their remissness in their duty. These are therefore to direct and require you to let them know, at the time of their going to the watch, that, for the time to come, those which shall be found to sleep in the time of their watch, in their cabins, and not to strike the bell true, whereby we may know the certain time of the night, shall not only be discharged and checked their wages, but shall receive such further punishment as the Commissioners of the Admiralty shall impose; it being death for a sentinel to forsake his post, or sleep on his watch, and I think the charge of this is not inferior to that."

The system was, however, defective in its character, and admonition appears to have failed of making it what it was required to be. In a time of danger, this was perceived, and efficiency was sought to be realised in supervision.

Information was conveyed to the Commissioners of the Admiralty in 1696, "that some evil designs were then intended by ill-disposed people against the magazine here and that part of the royal navy as

were lodged at this port, for prevention whereof, by particular injunction from the Honourable Navy Board, it was required for the more effectual disappointment of such attempts," and the resident commissioner issued an order accordingly on the 4th November of that year, that the respective officers of this yard should take the nightly watch by turns, as the most suitable means to frustrate those intentions. This practice fell into neglect after some time, but during the War of the Succession it was revived, apparently with a greater degree of strictness.

In January, 1704-5, fears were entertained of machinations on the part of the enemy. The slender protection of the dockyard at that time, coupled with the permission to persons to pass in at the dockyard gates at unseasonable hours of the night, "under pretence of belonging to her Majesty's ships either lying in the docks or at the jetty heads," exposed the yard, it was alleged, "in a more easy manner than could be wished for by the enemy." The officers belonging to the dockyard were therefore directed to attend, in turns, regularly and personally to the charge of the nightly watch, and to report to the commissioner in the morning the occurrences of the night. The list included almost all who had any authority in the dockyard; the clerk of the cheque was not, however, included. But as it will show very nearly what was the official staff at that time, it is added :

"A list of such officers (and others) as are appointed to inspect the watch each night in this her Majesty's yard, viz. :—

1. Master Attendant	During the war, and that they do not lie on board the ships in ordinary.	17. Master Bricklayer
2. Master Attendant		18. Master Sailmaker
3. Master Shipwright		19. Porter of the yard
4. Storekeeper		20. Mr. Deane, Freemason
5. Clerk of the Survey		21. Mr. Brown, Quartermen
6. First Assistant.		22. Mr. Merrett, Blockmaker
7. Second Assistant		23. Mr. Autram, Teamer
8. Master Caulker		24. Mr. Hartfield, Twicelaid Ropemaker
9. Clerk of the Ropeyard		25. Mr. Hamond, Foreman Shipwright
10. Master Ropemaker		26. Mr. Durley, Foreman Caulker
11. Surgeon		27. Mr. Eastwood, Foreman afloat
12. Boatswain of the yard		28. Mr. Betts, Quartermen
13. Master Mastmaker		29. Mr. Leggatt, Foreman Mastmaker
14. Master Boatbuilder		30. Mr. Holmes } Quartermen
15. Master Joiner		31. Richard Dixon }
16. Master House Carpenter		32. Ben. Lodd, Foreman yard
		33. Mr. Smith, Teamer

On the 15th February following, Commissioner Gifford addressed another letter to the officers, complaining that not more than two or three of them complied with that part of the preceding order which required them to render to him in the morning an account of the occurrences of the night, and informing them that whoever should for the future omit to do so might "expect to be respited."

The civil guard of the dockyard was afterwards placed upon a somewhat different footing. An officer, called the *master warden*, had the control of it, and the persons charged with keeping watch during the day were called *wardens*.

In the night, watchmen, being men employed by day in the dock- Watchmen.

yard, took their stations, voluntarily undertaking this duty, in addition to their labour in the day, for certain additional remuneration. Until that system of police was abolished, the officers continued to exercise a supervision over the nightly watch.

Military guard. A military guard was also stationed in the dockyard, both by day and by night.

Police. On the 27th February, 1834, an entirely new form of civil guard was introduced—the present police force, under a lieutenant of the navy, with the style of director of police. The established number is ninety-one. A third part of this number is constantly on duty at the same time, by night and by day.

Military guard. The military guard remains as formerly: it consists of 1 captain, 2 subalterns, 3 sergeants, 5 corporals, 2 drummers, and 63 privates. 21 sentinels are constantly on duty.

Docks. Until the year 1698, the only dock in this yard was a wet dock. When, therefore, a ship required any external repair below the part which could be got at by the ebbing of the tide, such ship had to be sent either to Chatham or Woolwich for that purpose.

Towards the close of the 17th century, a basin was constructed on the western side of the yard, facing the harbour, of the following dimensions: from north to south, 218 feet, and from east to west, 247·5 feet, and it occupied an area of $1\frac{1}{4}$ acre. The breadth of the entrance was 53 feet. It was enclosed with two pairs of gates, one pair opening externally, and the other opening internally. Within this basin, and on its eastern side, a dry dock was built, 247 feet 6 inches long, and 82 feet 6 inches broad at the upper part; and the first large ship that was taken into it was the “Royal William;” this was on the 28th June, 1698.

“She drew 17 feet 3 inches water abaft; there was 19 feet water in the wet dock at that time, and the rise of the tide then was 14 feet; therefore the ship drew 3 feet 3 inches water more, and the water in the said dock was 5 feet deeper than the tide flowed [rather ebbed], which difference was occasioned by digging away the ground of the dock so much below the surface of the low-water level, and is to be pumped out of the dry dock by the measures prepared for that purpose.”—(Letter from the officers of the dockyard to Commissioner Greenhill, dated 10th November, 1698.)

Another dock was in the course of construction at the same time, and a third was formed before the year 1725. A new dock was made on the eastern side of the basin, 206 feet $1\frac{1}{2}$ inch long at the bottom, and 229 feet 9 inches at the top, 34 feet 3 inches broad at the bottom, and 84 feet 8 inches at the top. It is 26 feet 2 inches deep, and contains water to the depth of 19 feet 4 inches at spring tides.

This dockyard was not brought to a state of maturity until the time when the late Sir Samuel Bentham filled the situation of director-general of works under the Admiralty.

Improvement of the Dock-yard.

On the 24th April, 1795, the Navy Board, in pursuance of instructions received from the Lords Commissioners of the Admiralty, wrote to Sir Charles Saxton, commissioner at this dockyard, desiring that “Brigadier-General Bentham might have free access into the dockyard at all seasonable times, to make his observation on any mechanical powers used therein.”

Soon after this time, General Bentham conceived the plans for very extended improvements in the dockyard. His primary object appears to have been to make this dockyard as complete as possible for careening, repairing, and fitting out ships. This required increased means of performing such duties, by jetties, docks, and capacity of basins. To this his attention was therefore first directed.

The dockyard occupies an area of 118 acres 1 rood and 9 perches, Area of the Dockyard. having at various times, and lastly in 1848, been enlarged both by the purchase of additional land and by encroachment into the harbour, as the extent of public works in this establishment required greater means for carrying them on. Twelve parcels of land were purchased or otherwise obtained in the year 1711, for enlarging the dockyard, and for the erection of a boundary wall, which was built between June and December in that year. We have not been able to ascertain whether those twelve pieces were all included in an area of 38,985 feet purchased in that year, and for which the sum of 118*l.* 1*s.* 1*d.* was paid. By this enlargement, as it appears, the dockyard was made to include an area of 66 acres, as this is recorded to have been the extent of it in 1712.

The following are the principal buildings in the dockyard:—

The Royal Naval College is a handsome building, in the form of Royal Naval College. the letter H. It was founded by George II., for seventy students, and designated the “Royal Naval Academy.” The foundation-stone was laid on the 8th May, 1730, on the north side, under the dining-room; and on the 12th May, 1732, it is stated another wing was to be built. In 1733, Commissioner Hughes was appointed governor, and William Hasleden first master. At that time, there were only seven students, and the rules of the establishment required that they should go to bed at nine o'clock in the evening. It was much improved and enlarged in the reign of George III., at whose desire the name of Royal Naval College was substituted for its original name. The object of the college formerly was to educate *youths* for the naval service; but this function has lately ceased, or at least been suspended. It was re-opened upon the basis of its new constitution on the 24th December, 1838; and now, instead of training youths as naval cadets, officers bearing the rank of mates are there educated and examined as candidates for the rank of lieutenant.

Besides these young officers in their elementary career as naval men, the establishment includes 24 officers on half-pay, for the prosecution of their studies to higher proficiency than their early education led to; viz., 6 captains, 6 commanders, and 12 lieutenants; and to these have been added lately 3 masters.

Cadets for the artillery companies also are educated at the college. The subjects of study are mathematics, steam, gunnery, and fortification.

Connected with the establishment is the “Excellent,” naval gunnery ship.

The governor is the First Lord of the Admiralty for the time being; and the staff of the college includes a captain-superintendent, who is the captain of the gunnery ship; a professor of mathematics, who is also chaplain of the gunnery ship; a mathematical master; an instructor in fortification and mechanical drawing; and an assistant in the

observatory. There are also a clerk and a matron. All these have apartments in the college. Candidates for naval and marine cadetships are now examined there, before admission into the service.

Central School
of Mathematics.

The Central School of Mathematics and Naval Construction is a neat building, 176 feet in length, 45 feet in breadth, and 36 feet in height. This building was constructed for the late School of Naval Architecture, after a design by Edward Hall, Esq., begun in 1815, and completed in 1817. That institution and the Royal Naval College were, by virtue of an Order in Council of 30th January, 1816, united into one establishment, under one governor and one professor. The School of Naval Architecture was abolished in 1832.

In 1848, the Board of Admiralty formed a new plan for the superior education of a select number of shipwright apprentices, with a view to their scientific qualification for officers in the dockyards. The same building is used for that purpose. A small number of pupils only are sent to it, after the close of the fourth year of their apprenticeship as artificers in the dockyards, to finish their term of seven years in the study of mathematics, under the principal of that school, Dr. Woolley, and continuing the study of ship-building under the direction of the master shipwright of the dockyard.

This school is quite distinct from the Royal Naval College, and is materially different from the late School of Naval Architecture.

Chemical
Laboratory.

Immediately in the rear of the above building is a laboratory, which was erected, in 1848, for the use of Mr. W. J. Hay, the chemical assistant of the dockyard, an office of some importance, that was created in 1847, and to which are referred for investigation and report such subjects as require a knowledge of chemistry to be brought to bear upon them.

This department is connected with the educational establishments of the dockyard, for the students of the central school are taught the elements of chemical science and the methods of manipulation, a provision for diffusing a knowledge of this subject over the various dockyards of the kingdom, and one calculated to bring that increasingly important science into more general usefulness in these national establishments.

Wood mills.

One of the most interesting departments of labour in the dockyard is the *wood mills*, in which the block machinery is situated. In 1801, this was erected, under the direction of General Bentham. The late Sir Isambert Brunel had constructed a working model of certain machines for cutting the shells and sheaves of blocks, which was shown to the Lords of the Admiralty, who referred it to General Bentham. The plan was approved and recommended; and the machinery, already constructed in London, was transferred to Portsmouth in 1802, and was put in operation in 1804; but many more parts were deemed by Mr. Brunel necessary to the completion of the machinery, which were not finished till 1808. This machinery at once superseded the inconveniences to which the navy was subject through the imperfections of blocks made by hand; for both the shells and the sheaves were cut with mathematical exactness; and amongst the other improvements which resulted from Mr. Brunel's labours, was the greater *strength* of the blocks.

The machinery is so complete, and yet so simple, that it does not

require skilled artificers to use it, labourers exercising ordinary care Wood mills. being competent to perform the work at the machinery. Four men are employed in making the shells, and these can make as many with the machinery as fifty men could make by hand. The saving of labour in making the sheaves is not quite so great in relation to hand-work, for it is estimated that two men at the machinery can perform the work of only twenty men working by hand. The system is so complete, that experience has not suggested any way in which its efficiency could be increased. It includes the following machinery:—

Two 30-horse power engines, which consume daily $2\frac{1}{4}$ tons of coals

1 Boring machine	Three sets of each size, viz., small, middling, large.	
1 Mortising ditto		
1 Corner ditto		
1 Scoring ditto		
1 Shaping ditto		
2 Dead-eye ditto		
1 Shot-rack ditto		
1 Universal boring ditto		
2 Bench-saws for cutting blocks of wood		
1 Large circular saw		
1 Cross-cut ditto		
4 Circular frame ditto		

1 Round sheave saw
1 Close ditto
1 Bench ditto
1 Coaking machine
1 Drilling ditto
1 Boring ditto
2 Rivetting hammers
6 Facing machines
1 Stamping ditto
3 Broaching ditto
1 Drilling lathe
5 Turning machines
3 Polishing or testing machines
8 Turning lathes

The following table will show the number and description of blocks made with this machinery in the year 1849:—

Machines.	Size of Blocks.	Number of Single Block Shells.	Number of Double Block Shells.	Number of Treble Block Shells.	Number of Clewline Block Shells.	Number of Long-tackle Block Shells.	Number of Sister Block Shells.	Number of Sheaves for the Blocks.	Number of Pins for the Blocks.	Number of Dead-eyes.	Number of Block Shells to each size.
<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;">Inches</div> <div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;">Small Machine.</div> <div style="margin-bottom: 10px;">Middle Machine.</div> <div style="margin-bottom: 10px;">Large Machine.</div> </div> </div>	4	798	..	..	..	..	..	798	798	..	798
	5	4,460	585	..	..	..	..	5,630	5,045	101	5,045
	6	3,300	988	..	139	..	..	5,415	4,427	507	4,427
	6½	694	95	..	..	..	..	884	789	..	789
	7	5,039	2,068	..	259	..	..	9,474	7,386	963	7,386
	8	5,426	2,828	..	239	..	10	11,341	8,618	715	8,608
	9	1,784	478	..	..	..	..	2,690	2,212	335	2,212
	10	2,178	1,886	10	79	60	..	5,179	3,773	1,088	3,713
	11	1,801	395	6	13	32	..	2,186	1,779	626	1,747
	12	878	494	56	..	69	..	2,172	1,566	356	1,497
	13	473	186	63	..	27	1	1,090	778	20	750
	14	482	175	52	..	5	14	1,026	747	154	728
	15	65	95	26	..	17	18	408	256	292	221
	16	140	85	15	..	..	12	379	264	315	262
		26,968	9,878	228	729	210	55	48,667	38,333	5,472	38,068

Wood mills.

Hitherto all blocks less than 4 inches in length, and above 16 inches, have been made by hand; these are, however, very few in comparison with the intermediate sizes, so that it was not originally deemed advisable to incur the expense of smaller and larger machinery for such. But an order has lately been given for a turning-lathe for making blocks more than 16 inches in length.

All the shells of blocks made by the machinery are finished or smoothed by hand labour.

There are 19 men employed in the blockmaking department, viz., 12 in making the shells (these make those shells also which are manufactured entirely by hand), 5 in making sheaves, 2 in making the pins; and 9 boys are employed in carrying the blocks to the different machines, &c.

The preceding table shows the amount of work performed by the machinery with this number of hands, working ten hours a-day; but if the machines were worked with as many men as could be employed at them, and a proportionate number of finishers and boys, working the same period of time throughout the year, the produce would be about five times as great of the sizes and descriptions shown in the table.

From the time that the dockyard establishment began to present the means of greater service to the navy, after the middle of the 17th century, attention was increasingly directed towards an extension of those means, and storehouses and docks were constructed with that object.

Docks.

The following table contains the dimensions of the docks, with the dates of their construction:—

No. of the Dock.	Length of Dock at Bottom from Mitre Post.		Length at Top from Mitre Post to the Head.		Width of Dock at Bottom.		Width of Dock at Top.		Depth at Midships.		Date of Opening the Dock.
	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	
1	228	3	254	1	33	4	92	9	26	9½	Before 1725
2	221	7	253	4	35	2	89	2	31	8½	1802 or 1803
3	228	2½	264	1	27	7	90	10	32	8	1803
4	206	1½	229	9	34	3	84	8	26	2	1772
5	204	11½	227	7	34	2	85	6½	25	0½	Before 1725
6	190	2½	223	5	31	11	83	3	23	7½	"
7	263	0	293	0	35	0	100	0	32	0	1849
8	250	9	295	3	36	0	88	0	26	1	1850

The water below the level of the ebb tide is pumped out of the docks by means of chain pumps, a description of pumps first used for this purpose in 1696; these are now worked by steam-power.

About the close of the last century, at the advice of General Bentham, a large basin was formed, partly upon the site of an old basin that was not sufficiently capacious for the duties of the establishment.

This basin was completed in 1801, and on the 12th June in that year it was opened, and the "Britannia" taken in. It occupies an area of 2 acres and 78 perches.

The docks numbered 2, 3, 4, and 5, in the preceding table, open into the basin; that which is numbered 2 has no covering, being used to admit ships with their masts in. Nos. 3, 4, and 5, have housings to shelter the ships taken into them for repair.

There are five slips in the yard for building new ships, all of which are housed over, to protect the ships from injurious exposure to the weather, and to render the process of seasoning more effectual whilst they are in frame. The three slips of the most recent construction are covered with corrugated galvanized iron roofs; the other slips with wooden roofs. Building-slips.

Connected with the steam factory in this yard, is another and a more spacious basin, for the admission of steam ships and vessels requiring anything to be done to their machinery. It is 900 feet long and 400 feet broad, and includes an area of 6 acres 2 roods and 26 perches. The foundation stone of this basin was laid by Rear-Admiral Hyde Parker, admiral superintendent of the dockyard, on the 13th January, 1845, at the south wall, with the following inscription, the work having been commenced on the 10th June, 1843:—

"This Stone is laid
This 13th day of January, 1845,
By Hyde Parker,
Rear-Admiral Superintendent of Her Majesty's
Dockyard:
Commander-in-Chief Admiral Sir C. Rowley;
William Purdo, Master-attendant;
John Fincham, Esquire, Master-shipwright;
W. Pennell, Storekeeper;
Robert Taplin, Engineer and Mechanist;
James Henderson, Surgeon;
Director-General of Architectural and Engineering Works,
H. B. Brandreth, Capt., R.E.
Local Director, R. S. Beatson, Lieut., R.E.
Henry Wood } Clerks of Works.
John Stansfield }
Peter Rolt, Esquire, Contractor.
W. E. Smith, Agent to ditto."

The basin was opened for general use on the 25th May, 1848, by her most gracious Majesty in person. The depth of water in it at spring tides is 26 feet 6 inches. There is one dock, No. 7, opening into the west side of this basin, which is used for steam vessels; and on the east side, two other docks are in the course of construction.

On the western side of the basin stands a building 687 feet long and 47 feet in breadth; it was begun in 1847, and finished in 1849, and was intended for a storehouse connected with the engineering department; but in the unfinished state of that department, it has been used as a steam factory. Steam factory.

Most of the buildings of the dockyard are formed of brick, and are generally of good substantial construction.

The following table shows the principal dimensions of the storehouses and other public buildings in the dockyard:—

Dockyard
buildings.

Description of Buildings.	Length.		Breadth.		Height.		Date of Erection
	Ft.	In.	Ft.	In.	Ft.	In.	
Present use storehouse	192	2	51	0	44	2	1697
Clock storehouse	209	11	50	11	44	2	
South storehouse	193	3	51	1	44	4	
West sea storehouse	220	0	40	0			
East sea storehouse	151	6	43	1			
Return store	51	3	53	7	18	6	
East masts houses	302	9	138	4	14	4	
West masts houses	122	3	106	7			
New mast shed	127	11½	23	11	11	9	
New mast store	140	0	91	0	41	0	1844
Mast pond	318	9	190	0			
Shed over mast pond	190	11½	66	9	17	9½	
West hemp house	208	0	40	0			1771
East hemp house	175	0	40	0			1781
Hatchelling house	144	3	37	4	25	6	
Working boathouse	140	5	90	8	14	6	
New boat store, built of brick, stone, and iron	171	0	127	6	50	4	1848
Ropery	1,080	0	53	0			
Sail loft	192	7	51	0	42	6	
Riggers' shed attached thereto	187	5	34	6	7	6	
Rigging house	220	7	51	0	42	6	
Smithery	180	4	138	9	22	1	
New smithery in course of erection, with four chimnies 100 feet high	209	0	209	0	38	0	
Tarring house	140	8	47	0½	27	6	
Engine and boiler house	147	1	139	2	29	8	
Copper store	46	9	17	6	19	9	
Public offices for the officers	140	0½	36	0			1788
Building at King's Stairs	44	11	42	2	26	0	
Pay office and main guard	88	7	64	4	31	6	1796
Semaphore							1813
St. Ann's chapel	76	2	50	1½	43	9	1786
The Port Admiral's house	215	0	70	0			1785

Ropery.

The duties of the ropery are performed partly by machinery and partly by hand, and they occupy 219 persons. The strands of rope are made by machinery; the ropes themselves are made by *hand*. The largest ropes made there are 25-inch cables, and 136 fathoms is the greatest length that can be made there. Eighty men are employed in spinning twine and the lighter descriptions of work carried on in the building.

Smithery.

Smiths were first employed as a part of this establishment in 1726, and the officers considered that thirty tons of iron and thirty tons of coals would then be enough for the year. Coals were then for the first time advertised to be contracted for, for the use of the yard. They had before been procured in the small quantities of one or two bushels for the use of the locksmith. In 1741, the number of smiths was increased. There were then 2 firemen at 2s. 6d. a-day, 3 at 2s. 2d., and 9 at 1s. 10d.; 45 hammermen; 2 servants to the master smith, and 1 to the foreman. At the beginning of the present century, there were 116 smiths employed in this yard. The number was gradually increased in the course of the war, until, in 1814, it had risen to 179.

The establishment was then reduced gradually, and in 1817 there were only 138; but in 1819, the number was raised to 163, and continued so till 1840. The number in the year 1849-50 was 180.

In the year 1810, the smiths worked 15 hours a-day, and used in the course of the year 745 tons of iron; in 1813, they worked 13 hours a-day, and used 842 tons; in 1822, they worked 10 hours a-day, and only 5 days in a week, when they expended only 434 tons of iron; in 1840, they worked 10 hours a-day, and used 548 tons of iron; in 1849, the number being increased to 180, they still worked 10 hours a-day, when they used 866 tons.

It has been stated that at the time of the Revolution, the apprehension for the safety of the dockyard was such as to lead to the arming of the men belonging to the establishment. This was intended only for the immediate occasion of mounting guard during the panic, consequent on the great transition of the time. A more systematic arrangement was made in 1715. On the 20th September, the commissioner proposed that the artificers of the dockyard should be formed into a regiment. Towards the close of the following month, the proposal was ordered to be carried into effect; the corps to consist of 12 companies, of 50 men each. Each company included a sergeant, a corporal, and a drummer; and 2 extra lieutenants of the line were allowed to drill them. This corps of volunteers was called the "Commissioner's Regiment," as under such designation they were allowed one night's pay for having been out on Sunday, the 20th October, 1723, to solemnize the king's coronation; and on the 21st October, 1730, it was stated that the officers and workmen of the dockyard should not do garrison duty unless specially ordered to do so.

Military
organisation.

Commis-
sioner's regi-
ment.

A similar scheme was revived in 1803. On the 24th August, volunteer companies were directed to be formed from the artificers of the dockyard, each company to consist of 1 captain, 1 lieutenant, 1 ensign, 3 sergeants (including 1 drill sergeant), 3 corporals, 2 drummers, and as nearly as possible 82 privates. There were 5 companies formed. The officers were 1 colonel, 1 lieutenant-colonel commanding, 1 major, 5 captains, 5 lieutenants, 5 ensigns; and there were 461 rank and file.

Dockyard
volunteers.

The artificers of the dockyard were again organized into a military corps in April, 1847. They were formed into 8 infantry companies, in 2 battalions, 6 artillery companies, 4 boat brigade, and 1 sapper company. The officers were 1 colonel commandant, 1 lieutenant-colonel, 4 majors, 19 captains, 34 lieutenants, and 1 adjutant. The men were drilled by sergeants allowed from the marine and artillery companies. The dockyard battalions still continue to be drilled during the summer months, and are kept in readiness for any such service as that contemplated in the formation of the corps.

Dockyard
brigade.

Soon after the middle of the 17th century, the establishment increased rapidly. It is not, however, easy to trace the steps of improvement as they were taken; but the following table shows the number and description of workmen employed about the year 1696, with the wages paid to them for one quarter, and the allowance for lodging to those who were entitled thereto:—

Number of
workmen in
1896.

Description of Workmen.	Number of Men.	Wages Paid.			Allowance for Lodging.			Total.		
		£.	s.	d.	£.	s.	d.	£.	s.	d.
Servants to Master Shipwright	5	36	10	8				36	10	8
„ 1st Assistant.....	3	25	2	2				25	2	2
„ 2nd Assistant	3	23	19	11				23	19	11
„ Master Caulker	3	27	2	1				27	2	1
„ Master Boatbuilder	2	13	12	7	0	5	2	13	17	9
„ Master Mastmaker	2	15	15	2	0	5	3	16	0	5
Foremen	3	39	14	0	0	8	0	40	2	0
Servants to ditto	5	31	16	3	0	12	8	32	8	11
Quartermen	17	173	15	0	2	3	11	175	18	11
Servants to ditto	17	113	0	6	2	4	8	115	5	2
Servants to widows of deceased workmen	10	69	9	8	1	5	11	70	15	7
Shipwrights	216	1,828	15	1	30	9	9	1,859	4	10
Servants to ditto	42	251	19	0	5	2	6	257	1	6
Servants to Ships' Carpenters.....	17	115	5	9	2	4	2	117	9	11
		2,765	17	10	45	2	0	2,810	19	10
<i>Caulkers.</i>										
Foreman	1	14	2	10	0	2	8	14	5	6
Servant to ditto	1	4	11	0	0	2	8	4	13	8
Quartermen	2	24	1	10	0	5	4	24	7	2
Caulkers	41	333	19	11	4	6	2	338	6	1
Servants to ditto	9	62	18	2	1	4	0	64	2	2
		439	13	9	6	0	10	445	14	7
Joiners.....	39	300	5	9	4	18	5	305	4	2
Servants to ditto	6	24	3	9	0	13	8	24	17	5
		324	9	6	5	12	1	330	1	7
House Carpenters	53	417	5	9	6	9	8	423	15	5
Servants to ditto	3	25	19	9	0	8	0	26	7	9
		443	5	6	6	17	8	450	3	2
Plumbers.....	2	6	13	9				6	13	9
Bricklayers	21	109	7	8	2	3	5	111	11	1
Servants to ditto	3	19	6	9	0	7	9	19	14	6
		128	14	5	2	11	2	131	5	7
Masons	5	28	2	1				28	2	1
Servant to ditto	1	4	11	0				4	11	0
		32	13	1				32	13	1
Sailmakers	8	68	16	3	0	17	9	69	14	0
Servants to ditto	2	14	11	6	0	5	4	14	16	10
		83	7	9	1	3	1	84	10	10

Description of Workmen.	Number of Men.	Wages Paid.			Allowance for Lodging.	Total.	Number of workmen in 1696.
		£	s.	d.	£	s.	d.
Riggers	42	285	10	1		285	10 1
Scavellmen	17	121	14	4		121	14 4
Labourers	250	1,009	3	4		1,009	3 4
Quarter boys	12	27	3	2	1 5 3	28	8 5
Oakum boys	25	47	13	5	3 1 0	50	14 5
Pitch-heaters	2	11	9	1		11	9 1
Blockmakers	3	29	7	8	0 7 8	29	15 4
Locksmith	1	9	16	7		9	16 7
Servant to ditto	1	3	19	0		3	19 0
		13	15	7		13	15 7
Sawyers	43	379	12	8		379	12 8
Oar maker	1	9	7	0		9	7 0

There were no smiths at this time ; and it has been stated that that class of artificers formed no part of the establishment till the year 1726.

Until April, 1696, no order prevailed as to the number of either foremen or quartermen that should be employed in this dockyard. Their wages had been recently increased ; and the next thing affecting them was to determine the numbers that should be employed. On the 1st of the above month, the Navy Board therefore directed that there should be " 4 foremen, namely, 2 for the old works, 1 for the works afloat, and 1 for the caulkers ; and that 1 quarterman for a leading man should be allowed to every 20 shipwrights and caulkers."

The number of artificers increased considerably with the importance of the dockyard, in the early part of the 18th century, and in 1734, the number of shipwrights was 600 ; in 1778, there were 846 shipwrights.

The following table will show how the number of this and some other classes of artizans have varied at different intervals since the breaking out of the War of the Revolution :—

Date.	Number of			
	Shipwrights.	Caulkers.	Joiners.	Smiths.
1792.....	787	114	55	68
1797.....	1,070	160	90	106
1810.....	1,230	134	123	149
1820.....	1,070	102	142	160
1830.....	830*	90	83	153
1840.....	780*	69	108	162

* Including Inspectors.

Number of
workmen in
1850.

In the year 1850, the establishment included the following artificers and other workmen, of the respective ages marked in the columns:—

Description of Workmen.	Estab- lished Comple- ment.	Ages.					Total.
		15 to 25 Years.	25 to 35 Years.	35 to 45 Years.	45 to 55 Years.	55 to 65 Years.	
Shipwrights	810	211	222	150	93	134	810
Blockmakers	4				3	1	4
Oar maker	1						1
Caulkers	80	33	23	8	11	14	89
Joiners	134	5	56	46	14	16	137
Cooper	1		1				1
Bricklayers	2			2			2
Sawyers	100	2	64	19	6	9	100
Painters	35		14	14	7		35
Labourers	200	35	122	28	4	11	200
"	200	36	93	52	19		200
Millwrights and workmen employed with them	61	9	16	15	10	10	60
Smiths	180	28	78	47	24	2	179
Block mills	60	15	15	12	6	12	60
Plumbers, braziers, and tin- men	13	1	5	6	1	3	16
Apprentices at mathematical school	16	16					16
Total in Master Shipwright's department	1,897						
Single stationed men	17	1	2	3	11		17
Riggers	113		42	46	8	17	113
Seamen for yard service	125	5	40	23	1		69
Sailmakers	58	14	13	8	6	13	54
Spinners	104	23	45	30	12	10	120
Storehouse men	18		4	5	5	5	19
Messengers	7		1		1	5	7
Colour women	7		2		5		7
Police	91	2	45	29	11	4	91
Workmen at steam factory....	462	95	233	121	12	1	462
Staff of dockyard battalion, including Adjutant	15			7	8		15
<i>Extra Workmen at Ropery.</i>							
Ropemakers	38						
Labourers	38	55	25	8	6	2	96
House boys	20						
<i>Under Director of Works.</i>							
Foreman	1						
Overseers	2						
Draughtsmen	1						
Assistant ditto	1	1	3	6	1		11
Messenger	1						
Labourer	1						
Temporary clerk and writer....	1						
Assistant at telegraph	1	1					1
Seamen for yard service afloat	89	9	33	27	12	8	89

It has been already remarked that the duties of this dockyard consist to a greater extent of repairing and fitting out ships than in building them. The preponderance of duties in this way is, of course, greater in a time of war than in a time of peace; and there may be, as there has been, an exception to this, and the duties of building exceed those of repairing, &c.

Still, in time of war, the pressure of duties connected immediately with ships in commission has been so great as to oblige the suspension of new work altogether; thus it was during the two years 1797 and 1798. The different descriptions of employment of the shipwrights will be presented with sufficient clearness in the following table, which embraces eleven consecutive years during war, and five years at intervals of about ten years apart, with the exception of the first of these years, during peace.

This table will show what class of duties gives the establishment its importance in time of war.

A Table of the respective Employments of Shipwrights, showing the Number of Days' Work for one man, and also the Amount of Absence from Duty of the Men, on account of Sickness and Hurts, with Leave of Absence, and without Leave, during the Years therein expressed.

Date.	Building.	Repairing.	Number of Days employed in Repairing, for one Day employed in Building.	In the Mast House.	In the Boat House.	Capstan House, Top House, and Single Stations.	Absent through Sickness, &c.	Absent with Leave.	Absent without Leave.	Total Working Days for the Year.
1791	10,764	151,274	14-00	27,964	81,698	18,614	18,696	694	2,628	252,122
1792	15,660	149,928	9-50	24,468	22,890	17,334	13,918	468	2,384	247,860
1793	8,418	154,994	24-00	40,716	24,228	20,046	2,862	246	2,508	252,018
1794	6,694	156,360	27-00	43,782	29,160	20,340	8,648	366	3,340	261,690
1795	2,694	155,226	57-00	54,564	32,100	20,680	6,174	246	3,288	275,172
1796	1,624	152,282	99-90	62,076	41,868	25,860	4,722	228	3,546	292,206
1797	..	182,724	..	44,460	49,650	30,408	5,260	600	5,076	318,078
1798	..	168,618	..	63,006	41,424	26,586	5,016	288	4,974	309,912
1799	3,204	178,740	55-78	60,630	43,640	25,302	3,930	636	4,950	321,262
1800	3,642	171,426	47-00	63,210	44,082	24,606	3,486	432	4,278	315,162
1801	3,804	181,938	21-90	63,568	46,134	24,568	3,432	384	5,214	322,914
1810	18,920	246,390	17-70	37,896	22,156	41,664	4,866	1,164	7,468	374,424
1820	48,456	220,972	4-50	27,498	23,796	9,240	3,186	882	2,408	336,438
1830	172,974	37,266	0-21	19,890	12,090	10,188	4,932	852	822	268,954
1840	83,908	143,244	4-20	23,232	12,948	16,239	5,820	1,002	828	287,216
1849	54,241	156,868	2-89	19,551	12,581	16,001	8,094	1,356	644	269,336

Total Number of Days for One Man in 16 Years.... 4,644,244

The preceding table exhibits the amount of time lost by the workmen without leave, in relation to their whole working time; and as this is, to a great extent, a fair index to the discipline which prevails, the following statement has been deduced from the table:—

Time lost by workmen.

The workmen lost—

In 1791 one day in	95 days.	In 1799 one day in	65 days.
1792	103	1800	73
1793	100	1801	62
1794	111	1810	50
1795	83	1820	139
1796	82	1830	315
1797	62	1840	286
1798	62	1849	418

Time lost by
workmen.

It appears, therefore, that during the first year after the war of which notice is taken in this account, the time absented from labour without leave was diminished to nearly one-third of what it had been in 1810. In 1830, the time lost from work without leave was still further diminished; but at that time the artificers were employed only five days in the week. In 1840, when they worked six days in the week, the lost time was inconsiderably increased; but in 1849, it was far less than in any preceding year included in this table. Thus it appears that the attendance of the men at their duties has been brought within these few years to a far higher degree of punctuality than it has ever risen to before; and this is clearly associated with the measures which have been in operation tending to the moral improvement of the establishment. Of this improvement, too, there are other evidences, as complaints of conduct in any way constituting a breach of order or discipline are now of rare occurrence.

Although the labour of repairing and fitting out ships generally exceeds that of building them, yet in a time of peace there is no inconsiderable amount of building performed in this yard. The proportions of new and old work will perhaps be a little further exemplified by the following table, showing what ships have been built in this yard during the present century, and a statement of the number of ships docked:—

Ships built
during the
present cen-
tury.

Name.	Guns.	Tons.	Date.	Name.	Guns.	Tons.	Date.
Neptune.....	120	2,705	1832	<i>Corvettes, Sloops,</i>			
Queen.....	110	3,104	1839	<i>&c.</i>			
Princess Charlotte	104	2,417	1825	Volage.....	26	516	1825
Boyne (afterwards	104	2,155	1810	Brazen.....	26	422	1808
Excellent).....				Tweed.....	26	500	1823
Dreadnought.....	104	2,123	1801	Challenger.....	26	603	1826
Bellerophon.....	78	2,056	1818	Sapphire.....	26	605	1827
Indus.....	78	2,098	1839	Martin.....	20	400	1821
Bulwark.....	76	1,940	1807	Hermes.....	20	512	1811
Carnatic.....	74	1,819	1823	Champion.....	18	455	1824
Pitt.....	74	1,751	1809	Columbine.....	18	492	1826
Vindictive.....	74	1,758	1813	Electra.....	18	462	1837
				Favourite.....	18	432	1829
<i>Frigates.</i>				Grasshopper.....	18	368	1813
President.....	50	1,537	1829	Hazard.....	18	431	1837
Leander.....	50	1,987	1848	Orestes.....	18	459	1824
Grampus.....	50	1,114	1802	Primrose.....	18	383	1810
Fox.....	46	1,063	1829	Rose.....	18	398	1821
Minerva.....	46	1,082	1820	Wolf.....	18	454	1826
Thalia.....	46	1,082	1830	Childers.....	18	384	1812
Lacedemonian.....	46	1,073	1812	Albatross.....	16	484	1842
Pallas.....	42	951	1816	Bittern.....	16	484	1840
Pyramus.....	42	920	1810	Frolic.....	16	509	1842
Laurel.....	42	1,088	1813	Grecian.....	16	484	1838
Inconstant.....	36	1,422	1836	Podargus.....	14	252	1808
Alexandria.....	32	662	1806	Zephyr.....	14	253	1809
				Racer.....	12	431	1833
<i>Corvettes, Sloops,</i>				Daring.....	12	426	1844
<i>&c.</i>				Osprey.....	12	425	1844
Eurydice.....	26	921	1843	Icarus.....	10	234	1814
Actæon.....	26	620	1831	Jasper.....	10	235	1820

Name.	Guns.	Tons.	Date.	Name.	Guns.	Tons.	Date.	Ships built during the present century.
Lynx	10	232	1833	Cygnets	6	235	1819	
Myrtle	10	230	1825	Prince Regent	Yacht	282	1820	
Rapid	10	319	1840	Arrow	Cutter	157	1823	
Plover	10	237	1821	Sylvia	Cutter	65	1827	
Pantaloon	10	323	1831	Seaflower	Cutter	116	1830	
Ferret	8	358	1840	Fanny	Cutter	136	1831	
Sealark	8	319	1843					

To the preceding list, which includes the names of sailing-ships and vessels only, must be added the names of steam-ships and vessels:—

Name.	Guns.	Horse-Power.	Tons.	Date.
Arrogant (<i>screw</i>)	46	360	1,862	1848
Dauntless (<i>screw</i>)	33	520	1,496	1847
Centaur	6	540	1,270	1845
Firebrand	6	400	1,190	1842
Scourge	6	420	1,124	1844
Driver	6	280	1,056	1840
Thunderbolt	6	300	1,055	1842
Stromboli	6	280	967	1839
Furious	16	400	1,286	1850
Hermes	6	220	830	1835
Argus	6	300	975	1849
Volcano	3	140	720	1836
Rifleman (<i>screw</i>)	8	100	483	1846
Plumper (<i>screw</i>)	12	60	489	1848

The number of ships and vessels taken into dock for repairs during the six years from 1805 to 1810, inclusive, were 69, 67, 70, 77, 61, and 82, respectively, which gives a mean of 71 ships and vessels docked for repair in each year. More than two-thirds of these were in commission, having been generally sent home to undergo such repairs as were absolutely necessary. The others were taken from a state of ordinary, repaired, and put into commission.

In the year 1851, there were about fifty-eight ships and vessels taken into dock, nearly two-thirds of which, whether sailing-vessels or steamers, were sloops and smaller vessels; and as this number is relatively high for a time of peace, it is proper to state that the greater employment of steamers within these few years has given occasion to a great increase of docking, without a proportionate increase of repairs.

Since the native forests of this country have failed of yielding a supply of timber adequate to the wants of the navy, oak and other descriptions of timber have been procured elsewhere, first on the continent of Europe and in North America, and more recently also in Africa, the East and West Indies, and South America, and in the colonial parts of the empire in the more southern regions. The following table will show the quantities and descriptions of timber that were used in this yard in the years 1820, 1830, 1840, and 1849:—

Description of Timber.	1820.			1830.			1840.			1849.		
	Timber.	Thick Stuff.	Plank.	Timber.	Thick Stuff.	Plank.	Timber.	Thick Stuff.	Plank.	Timber.	Thick Stuff.	Plank.
	Loads.	Loads.	Loads.	Loads.	Loads.	Loads.	Loads.	Loads.	Loads.	Loads.	Loads.	Loads.
Oak.—English	6,760	469	673	2,783	168	294	1,369	264	256	1,809	603	213
„ Dantzic	..	86	484	..	36	517	..	108	220	..	171	185
„ Foreign, not Dantzic.....	1,771	..	..	..	73	308	..	16	188	..	..	..
„ Adriatic	..	91	173	961	..	..	464	..	..	1,295	91	26
„ Lorraine and French.....	..	..	..	24	..	..	31	..	..	..	..	..
„ African	..	..	2	1,065	..	..	1,080	..	..	737	8	67
Teak and other Foreign, not oak.....	716	29	22	..	134	..	..	86	..	..	..	..
Teak	..	196	35	135	..	..	12	..	..	275	71	47
Mahogany	..	..	..	..	..	..	..	..	..	394	37	72
Sabicu	..	..	..	..	..	..	..	..	..	163	..	7
Cedar	..	..	..	..	..	..	73	..	..	56	..	2
Fir.—Dantzic.....	111	..	..	612	..	..	310	..	..	264	..	..
„ Red Pine	2,318	..	..	993	..	..	318	..	..	447	..	..
„ Yellow Pine.....	298	..	..	138	..	..	78	..	..	336	..	..
„ Pitch Pine.....	12	..	..	..	..	..	..	..	..	183	..	..
„ Riga	718	..	..	965	..	..	292	..	..	44	..	..
„ of sorts	..	41	273	..	83	612	..	121	450	..	66	608
Larch.—Polish	..	..	..	..	..	..	330	..	..	51	..	..
„ Italian	..	..	..	..	..	..	..	..	..	10	..	..
Cowdie (from New Zealand).....	..	..	..	..	..	..	2	..	..	..	..	..
Elm.—English	989	..	198	681	113	78	1,073	63	49	863	42	154
„ Canada Rock ..	..	..	..	..	..	..	143	11	59	120	6	96
Beech	71	..	22	76	..	4	89	..	27	52	..	..
Ash	28	..	..	19	..	..	5	..	..	21	..	..
Total in each year..	13,792	902	1,822	8,452	607	1,813	5,657	669	1,259	6,930	1,094	1,466
Mast Sticks of all descriptions	No. 3,631			No. 2,873			No. 2,455			No. 3,013		
Deck Deals, 30 ft. lengths	5,879			3,980			2,943			2,462		
Ordinary Deals, 12 ft. lengths	16,030			19,060			20,888			13,119		
Treenails of all descriptions	201,520			161,805			66,451			89,385		
Ash Orr-Rafters	3,281			2,383			489			2,536		
Capstan Bars	454			204			288			295		

Statement of the Number of Deaths amongst the Workmen and Police Constables of the Dockyard, and whether occasioned by Sickness or by Accidents, from the 1st July, 1838, to the 30th June, 1850.

	Shipwrights.		Caulkers.		Metal Mill and Millwrights.		Smiths.		Joiners.		Sail-makers.		Rope-makers.		Sawyers.		Painters.		Seamen and Riggers.		Masons and Labourers.		Factory People.		Police Constables.		Total in each Year.	
	Sickness.	Hurts.	Sickness.	Hurts.	Sickness.	Hurts.	Sickness.	Hurts.	Sickness.	Hurts.	Sickness.	Hurts.	Sickness.	Hurts.	Sickness.	Hurts.	Sickness.	Hurts.	Sickness.	Hurts.	Sickness.	Hurts.	Sickness.	Hurts.	Sickness.	Hurts.	Sickness.	Hurts.
From July 1st to Dec. 31st, 1838	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	4	..	..	..	..	..	..	..	5	..
From Jan. 1st to Dec. 31st, 1839	8	..	..	..	1	..	6	..	1	..	1	..	..	1	2	1	..	..	2	..	1	..	..	..	..	..	21	2
From Jan. 1st to Dec. 31st, 1840	6	..	..	..	..	..	1	..	2	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	11	2
From Jan. 1st to Dec. 31st, 1841	3	2	1	..	2	..	1	..	1	..	..	..	..	..	1	..	..	..	3	..	2	..	..	..	..	1	16	2
From Jan. 1st to Dec. 31st, 1842	6	..	..	..	1	..	2	..	2	..	..	..	1	..	1	..	..	..	1	..	1	..	..	..	..	..	14	..
From Jan. 1st to Dec. 31st, 1843	4	..	..	..	..	..	3	..	1	..	..	..	..	..	3	..	..	..	..	..	3	1	..	..	..	..	14	1
From Jan. 1st to Dec. 31st, 1844	6	1	2	1	..	1	..	1	3	..	1	..	2	..	3	..	..	..	1	..	1	..	..	..	1	..	19	4
From Jan. 1st to Dec. 31st, 1845	8	3	..	..	..	..	2	..	2	..	2	..	2	..	..	..	..	..	2	1	3	..	..	..	..	..	23	4
From July 1st to Dec. 31st, 1846	9	..	..	..	..	..	1	..	..	..	..	..	2	1	..	1	2	..	..	..	2	1	..	..	..	..	16	3
From Jan. 1st to Dec. 31st, 1847	10	..	1	..	1	..	..	1	1	1	..	..	3	..	1	..	2	..	1	..	4	1	..	..	..	..	24	2
From Jan. 1st to Dec. 31st, 1848	7	..	..	..	..	..	1	..	2	..	1	..	6	..	1	..	1	..	1	..	9	..	3	..	..	..	32	..
From Jan. 1st to Dec. 31st, 1849	10	1	..	..	..	..	1	..	..	..	..	..	3	..	1	..	..	1	1	1	10	..	1	..	1	..	29	2
From Jan. 1st, to June 30th, 1850	6	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	1
Total	79	7	4	1	5	1	18	..	16	1	6	..	22	2	13	2	5	..	16	2	37	3	4	..	3	2	230	23

Dockyard officers.

The dockyard includes the following officers :—A superintendent, who is a rear-admiral, and who holds his appointment for a term of five years; a master attendant and an assistant master attendant, both of whom are masters in the navy, and who hold their appointments for a term of five years. These officers are charged with the care of all the ships afloat in the harbour, as to the efficiency of their moorings, and with the stowage and rigging of all ships fitted out for sea. A master shipwright and four assistants, two of whom are shipwright officers, a third is an engineer, who is charged with the superintendence of the machinery in his department, the fourth is a chemist, to whom duties are referred as they present themselves, and whose office included also the preparation of a half-yearly report on copper sheathing in the navy, and the delivery of lectures on chemistry to the officers of the yard and to the students at the central school. There are six foremen of the yard, and twelve inspectors. There are a foreman of joiners and two inspectors. Connected with the smithery, are a master smith and two foremen of smiths. There are also a storekeeper and a store-receiver, who are charged with the receipts, custody, and issue of stores. There is a timber inspector, under whose supervision is placed directly all the timber in charge of the storekeeper of the yard.

There is a chief engineer and inspector of machinery connected with the steam factory, and an assistant engineer; and there is a captain of the Royal Engineers in charge of architectural works in the establishment.

The clergyman attached to the yard is a naval chaplain, and the surgeon and assistant surgeon are also naval officers, as likewise is the director of police.

Clerks.

There are 29 clerks in the dockyard, viz., 3 first class, 9 second class, and 17 third class clerks.

Foremen, inspectors, and leading men.

The supervision of labour in the master shipwright's department was altogether *direct* until the year 1847; that is, the work was performed under the general superintendence of foremen of the yard, and more directly under officers of inferior rank, called inspectors, who were charged with the management of a company; and this company was divided into gangs, at the head of each of which was a leading man. In April, 1847, the labour of this department was put under a new supervision, partly *direct* and partly *indirect*. The number of inspectors was diminished from 21 to 12; their salaries were increased at the same time, and a system of *partial measurements* of work was introduced, constituting the *indirect* supervision. For this purpose, four officers were appointed, under the denomination of measurers, whose salaries amount to about the sum saved by reducing the number of inspectors.

Measurers.

These officers no sooner organised their departments and entered upon its duties, than it was ascertained, as had been already suspected, that there was a serious deficiency in the earnings of the workmen in relation to their wages. The average deficiency of earnings shown in a number of the earliest measurements was about 10 per cent. When the amount of wages was found not to have been earned, the workmen were paid only the exact amount of their earnings, and this mode of checking their exertions soon proved completely effective; the energies of the men were honestly given to their duties; and their earnings

since that time have generally exceeded their wages at the rate of about 3 per cent., which, added to the previous amount of deficiency, makes about 13 per cent. increase of work performed by the men through an improved supervision of their labour; and in this way a saving is effected in this dockyard of more than 11,000*l.* annually.

Connected with this class of duties, a new system of accounts has been framed, with the view no less effectually to check the expenditure of materials, than occasional and partial measurements have checked the performance of labour. This system is still in the course of development, and so far as any inference can yet be drawn of the results to which it may lead, in the event of its being applied with integrity and zeal, it is expected that it will be productive of economy in the use of materials as satisfactorily as have been the results of measuring work. When the accounts have been kept long enough to obtain the requisite data of the actual cost of work in all its branches and in sufficient detail, a general standard may be formed much surer than any yet set up for the expense of any descriptions of work. The detail of these accounts is so extensive, without being cumbrous, that the expense in materials and workmanship can be readily shown of work performed, not only in building a ship in the gross, but also of the work performed in different stages, from the commencement up to the completion of the ship. A general comparison of different ships can by this means be easily made; the cause of any discrepancy in their expense be traced, and extravagance, where any exists, can likewise be readily traced, and responsibility be made to attach to any officer who might in that respect be in fault.

In particular sections of this department, the accounts have already been brought to a very mature state, as in the mast-house, joiners' shop, and smithery, where the works are on a scale that admits of their being performed in a short time. The long intervals between the beginning and finishing of ships, being sometimes a considerable number of years, will, however, require proportionably longer time to render the accounts relating to them so complete as to constitute the means of checking all expenditure of materials along with the performance of workmanship.

Population.

Population of Portsmouth and Portsea, according to the Census Returns, from 1801 to 1841 (both inclusive).

Year.	Portsmouth.			Portsea.			Grand Total.	Increase per Cent.
	Males.	Females.	Total.	Males.	Females.	Total.		
1801			7,839	11,696	13,691	25,387	33,226	} 22·1
1811							40,567	
1821							45,648	} 12·5
1831			8,083	18,555	23,751	42,306	50,389	
1841	5,015	4,339	9,354	19,567	24,111	43,678	53,032	} 5·2

Country in which the Persons enumerated in the Returns for 1841 were born.

England.				Scotland.		Ireland.		British Colonies.		Foreigners and British Subjects born in Foreign Parts.		Not Specified.		Total.
In the County of Southampton.		In other Counties.												
Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	
17,412	22,847	5,302	4,877	983	198	559	378	6	5	274	93	46	52	53,032

Table showing the Extent of each Parish; the Number of Houses Inhabited, Uninhabited, and Building, in June, 1841, and the Number of Inhabitants—distinguishing those under 20 Years of Age from those of 20 Years and upwards, and those Born in the County from those Born elsewhere.

Parish.	Area in Acres.	Houses.			Inhabitants.		
		Inhabited.	Uninhabited.	Building.	Males.	Females.	Total.
Portsmouth	110	1,184	95	2	5,015	4,339	9,354
Portsea.....	4,980	8,702	676	41	19,567	24,111	43,678
Total...	5,090	9,886	771	43	24,582	28,450	53,032

Parish.	Ages.				Born in	
	Under 20 Years.		20 Years and upwards.		This County.	Elsewhere.
	Males.	Females.	Males.	Females.		
Portsmouth	1,821	1,628	3,194	2,711	5,549	3,805
Portsea.....	8,988	9,983	10,579	14,128	34,710	8,968
Total...	10,809	11,611	13,773	16,839	40,259	12,773

From the above table it appears that the number of persons not born in the county, but residing within the limits of the borough when the census was taken, bears to the number of those born in the county the proportion of 24 per cent., which can scarcely be called excessive, considering that Portsmouth is a sea-port, a naval arsenal, and a garrison. The returns furnish the following particulars:—

In the town of Portsmouth—		Hamlet of Copnor	141
Inhabitants	6,535	„ Fratton	233
Military	1,755	„ Milton.....	235
Other persons in the barracks } and military hospitals	410	Military	147
In Portsmouth workhouse	132	Other persons in the barracks } and fort	71
In Portsmouth gaol	61	On board the "Leviathan," convict hulk	629
Residing in the parish, without the walls	461	In Portsea workhouse	511
In the town of Portsea—		In the Female Penitentiary	13
Inhabitants	13,999	In the Polish Refugee Hospital	89
Landport, Southsea, and the district formerly known as Portsea Guildable	27,610	Total.....	53,032

The excess of females over males amounts to 15·7 per cent. This proportion is undoubtedly affected by the peculiar position of Portsmouth as a sea-port, many of the females therein enumerated being the wives and daughters of individuals who were at sea when the census was taken. It is, however, remarkable, that in Gosport, situated on the western side of Portsmouth harbour, and with the parish of Alverstoke (of which it forms a part), included by the Registrar-General in the same district with the borough of Portsmouth, the returns of the census of 1841 indicated an excess of males over females in the proportion of 21·6 per cent., the numbers being respectively 4,864 and 3,998. The proportion of males under 20 years of age to the whole number of males in the borough of Portsmouth, is 43·9 per cent.

Classification of the Inhabitants of the Borough of Portsmouth, according to Age, June, 1841.

Age.	Males.	Females.	Total.
Under 5 years of age	3,068	3,000	6,068
5 years and under 10	2,869	2,919	5,788
10 " " 15	2,619	2,782	5,401
15 " " 20	2,253	2,910	5,163
20 " " 25	2,467	3,258	5,725
25 " " 30	1,877	2,534	4,411
30 " " 35	1,724	2,098	3,822
35 " " 40	1,224	1,502	2,726
40 " " 45	1,239	1,653	2,892
45 " " 50	960	1,265	2,225
50 " " 55	1,307	1,391	2,698
55 " " 60	874	856	1,730
60 " " 65	854	864	1,718
65 " " 70	481	501	982
70 " " 75	399	466	865
75 " " 80	190	246	436
80 " " 85	110	128	238
85 " " 90	29	48	77
90 " " 95	13	18	31
95 " " 100	3	5	8
100 years and upwards		1	1
Not specified	22	5	27
Grand Total.....	24,582	28,450	53,032

*Classification of the Population of the Borough of Portsmouth,
June, 1841.*

Occupation.	Males.		Females.		Total.
	20 Years and upwards.	Under 20 Years.	20 Years and upwards.	Under 20 Years.	
Persons engaged in trade, commerce, and manufactures	5,699	646	954	177	7,476
Persons engaged in agriculture—					
Farmers and graziers	29		1		30
Agricultural labourers	229	38	12	4	283
Gardeners, nurserymen, and florists	77	5	2		84
Labourers—					
Carriers, carters, and waggoners	16	4			20
Charwomen			156	8	164
Grooms and hostlers	23	3			26
Porters	43	18			61
Seamstresses			430	127	557
Washerwomen and laundresses			238	5	243
Not otherwise specified	1,345	135	18	1	1,499
Army	1,193	234			1,427
„ half-pay	8				8
Navy	611	38			649
„ half-pay	52				52
Marines	598	97			695
Seamen	667	62			729
Harbour-master	1				1
Pilots	21				21
Boatmen	146	7			153
Fishermen	85	8			93
Professional persons—					
Clergymen and divinity students	19				19
Ministers of other denominations	23				23
Legal—Attornies, solicitors, and law students	42	1			43
Conveyancer	1				1
Notary	1				1
Medical—Physicians	3				3
Surgeons and medical students	54	8			62
Other educated persons—					
Clerks	112	23	2		137
Schoolmasters and governesses	51		122	11	184
Teachers of languages	24		2	2	28
Government civil service—					
Dockyard	30	1	2		33
Customs and excise	65				65
Post office	18				18
Stamps and taxes	2				2
All other departments	5				5
Parochial and church officers	14				14
Law officers	2				2
Police officers, constables, and watch- men	72				72
Domestic servants	156	101	1,389	588	2,234
Carried forward	11,537	1,429	3,328	923	17,217

Classification of the Population of the Borough of Portsmouth, June, 1841.—
Continued.

Occupation.	Males.		Females.		Total.
	20 Years and upwards.	Under 20 Years.	20 Years and under.	Under 20 Years.	
Brought forward	11,537	1,429	3,328	923	17,217
Nurses			45	1	46
Stewards	4				4
Other persons employed in trade, branch not specified	26	41	11	1	79
Persons returned as independent	399	22	1,726	100	2,247
Almspeople, pensioners, paupers, lunatics, and beggars	766	118	293	119	1,296
Other persons, including convicts and prisoners	580	61	17	8	666
Residue of population	461	9,138	11,419	10,459	31,477
Grand Total	13,773	10,809	16,839	11,611	53,032

Abstract of the Classification of Persons Enumerated in the Borough of Portsmouth, June, 1841.

Occupation.	Males.		Females.		Total.
	20 Years and upwards.	Under 20 Years.	20 Years and upwards.	Under 20 Years.	
1. Persons engaged in trades, commerce, and manufactures	5,725	687	965	178	7,555
2. Persons engaged in agriculture	335	43	15	4	397
3. Labourers in other departments	1,427	160	842	141	2,570
4. Army, including half-pay	1,201	234			1,435
5. Navy, including half-pay, marines, merchant-seamen, fishermen, and boatmen	2,181	212			2,393
6. Professional persons—					
Clerical	42				42
Legal	44	1			45
Medical	57	8			65
7. Other educated persons	187	23	126	13	349
8. Persons engaged in the Government civil service	120	1	2		123
9. Parochial, town, and church officers	88				88
10. Domestic servants	160	101	1,434	589	2,284
11. Persons returned as independent	399	22	1,726	100	2,247
12. Almspeople, pensioners, paupers, lunatics, and beggars	766	118	293	119	1,296
13. Other persons, including convicts and prisoners	580	61	17	8	666
Residue of population	461	9,138	11,419	10,459	31,477
Grand Total	13,773	10,809	16,839	11,611	53,032

In the preceding abstract, under the head of "Trade and Commerce," not only the shopkeepers and masters are included, but all those who have returned themselves as engaged in the several branches; from which the following may be selected, inasmuch as they indicate the nature of the occupations which more particularly characterise the borough. The greater number of persons under the respective denominations are employed in her Majesty's dockyard.

Occupation.	20 Years and upwards.	Under 20 Years.	Occupation.	20 Years and upwards.	Under 20 Years.
Blacksmiths	234	28	Sawyers	172	4
Carpenters and joiners	455	62	Ship builders and carpenters.....	766	56
Painters, glaziers, and plumbers	167	24	Caulkers	63	16
Rope and cord spinners	174	9	Riggers	41	

The total 31,477, under the head of "Residue of the Population," comprises both sexes and all ages, as in the general return for the kingdom. Of this number, the proportion of males 20 years of age and upwards is 1.46 per cent. For the remainder, the following are the proportions:—Males under 20 years of age, 29.46 per cent.; females 20 years of age and upwards, 36.8 per cent.; females under 20 years, 33.7 per cent.; whilst for the whole kingdom, the proportions under the same heads are:—Males 20 years of age and upwards, 2.5 per cent. of the whole number; and of the remainder, the respective proportions are about 31, 32, and 33 per cent.

Quarterly Returns of Marriages, Births, and Deaths, for the Year 1841.

	Quarters ending				Total.
	March 31.	June 30.	Sept. 30.	Dec. 31.	
<i>Marriages.</i>					
Portsea island	86	173	246	220	725
<i>Births.</i>					
Portsmouth town	60	43	49	52	204
Portsea town	116	106	109	105	436
Kingston and Landport	100	97	95	90	382
Landport and Southsea	190	137	138	129	594
Total	466	383	391	376	1,616
<i>Deaths.</i>					
Portsmouth town	55	44	67	67	233
Portsea town	96	80	72	83	331
Kingston and Landport	105	56	55	74	290
Landport and Southsea	100	71	87	100	358
Total	356	251	281	324	1,212

Gaol.

The Gaol and House of Correction is under the jurisdiction and superintendence of the mayor and magistrates of the borough. The officers are, the gaoler, chaplain, surgeon, matron, and two turnkeys. The two first named are appointed by the mayor, the others by the mayor and magistrates.

General Statement of the Progress of the Committed and Offences, from the Year 1803 to 1830, accompanied with references to the state of the Population and the circumstances of the times. Extracted from the Third Report of Inspectors of Prisons to the Secretary of State, dated 31st March, 1838.

Period. (The Year ending at Michaelmas.)	Felonies.						Misdemeanours.						For Punish- ment by Courts Mar- tial.	Greatest Num- ber of Pri- soners at one time.	Total Num- ber Com- mitted.	Remarks.	
	Committed.			Con- victed.	Trans- ported.	For the As- saults.	Committed.			Con- victed.	Trans- ported.	For Debt.					
	For Examination.		For Trial at the Ses- sions.				For Examination and on Summary Process.		For Trial at the Ses- sions.								
	Males.	Fem.					Total.	Males.									Fem.
1803.....	147	68	215	83	47	12	10	3	726	246	972	9	2	22	...	625	War with France. { Many deserters from the Navy & disorderly women.
1804.....	111	80	191	57	27	7	3	2	598	146	744	3	3	24	...	1,187	
1805.....	149	91	240	49	26	5	3	...	374	223	597	8	6	32	...	1,016	
1806.....	93	79	172	45	31	4	...	...	416	235	651	20	6	40	...	888	
1807.....	108	63	171	56	23	2	...	...	357	114	471	1	...	16	...	809	
1808.....	114	63	177	60	40	11	7	...	344	126	470	12	...	29	...	877	
1809.....	113	82	145	71	48	10	10	...	244	100	344	4	2	36	...	651	
1810.....	89	55	144	50	34	4	18	...	248	125	373	12	6	44	...	532	
1811.....	90	46	136	55	37	2	14	...	266	85	351	14	9	36	...	545	
1812.....	152	51	203	91	63	9	14	...	252	98	350	25	15	55	...	592	
1813.....	145	63	208	83	49	10	32	...	202	142	344	18	7	23	...	636	
1814.....	146	74	220	90	58	8	7	...	418	176	594	18	10	64	...	671	
1815.....	179	64	243	73	55	12	19	...	311	131	442	18	10	58	...	947	
1816.....	163	54	217	87	64	7	18	...	194	47	241	18	9	45	...	697	
1817.....	136	43	179	57	43	8	31	...	269	39	308	11	8	73	...	548	
1818.....	118	43	161	65	51	...	21	...	236	49	275	12	6	31	...	539	
1819.....	119	42	161	70	49	6	19	...	236	44	280	8	5	25	...	483	
1820.....	107	33	140	61	41	11	15	...	208	29	237	15	10	21	...	410	
1821.....	100	38	138	61	44	5	13	...	214	82	296	20	10	18	...	471	
1822.....	98	33	99	47	32	8	8	...	238	79	317	36	17	28	...	454	
1823.....	76	23	99	47	32	8	8	...	238	79	317	36	17	28	...	454	
1824.....	102	49	151	73	41	11	19	...	207	45	252	12	5	30	...	61	
1825.....	117	60	167	73	45	8	14	...	180	60	240	10	8	35	...	63	
1826.....	67	23	90	46	31	8	6	...	236	65	301	20	11	45	...	50	
1827.....	96	30	126	54	38	8	11	...	233	45	278	21	6	62	...	436	
1828.....	101	39	140	62	46	11	14	...	194	59	253	29	11	29	...	474	
1829.....	107	38	145	66	42	12	14	...	203	38	241	8	4	29	...	494	
1830.....	120	40	160	86	72	19	2	...	196	53	249	8	4	51	...	487	
Total	3,213	1,427	4,740	1,844	1,290	225	345	...	8,064	2,795	10,859	397	189	1,037	263	16,999	
Maximum	179	91	245	90	72	19	31	...	726	246	972	36	17	73	...	1,187	Population 1801, 83,926.
Minimum	67	23	90	46	26	...	...	...	180	29	237	1	...	15	...	410	1811, 40,567.
War Average	127	63	190	66	41	7	...	...	259	147	506	12	6	38	...	744	1821, 46,648.
Peace Average	109	38	148	65	44	8	15	...	215	53	269	16	7	35	...	463	1831, 50,389.

The following details for the year 1841 are extracted from the Seventh Report of Inspectors of Prisons; the accompanying observations from the Report of the Governor of the Gaol:—

1841.—Population 53,032.

	Males.		Females.		Total.
	Adult.	Juvenile.	Adult.	Juvenile.	
Committed for trial during the year	57	17	27	2	103
Rendered in court for trial	2		2		4
	59	17	29	2	107
These cases were thus disposed of—					
Convicted	42	14	20	1	77
Acquitted	6	1	3		10
No bills found	5	2	3	1	11
Not prosecuted	6		3		9
Total	59	17	29	2	107

Summary Convictions.

	Males.		Females.		Total.
	Adult.	Juvenile.	Adult.	Juvenile.	
By courts martial	34				34
Deserters awaiting a route	17				17
Under the Vagrant Act	17		16		33
Under the Malicious Trespass Act.....	13		4		17
Under the Larceny Act	3	6			9
Under the Local Police Act	10				10
For assaults	19	5	9	..	33
For want of sureties	18		7	1	26
As known or reputed thieves	4	6			10
Not otherwise specified	24	3			27
Total	159	20	36	1	216

Number of Prisoners in the course of the Year.

	Males.		Females.		Total.
	Adult.	Juvenile.	Adult.	Juvenile.	
In custody at the commencement of the year	11	3	13	3	30
Received under commitments	218	41	61	3	323
Committed for examination, and discharged	47	6	49	2	104
Debtors at the commencement of the year	6		1		7
Debtors in the course of the year	52		3		55
Total	334	50	127	8	519
Greatest number of prisoners at any one time in the course of the year	59		32		91
Daily average throughout the year	44		16		60

Recommitals.

	Males.		Females.		Total.
	Adult.	Juvenile.	Adult.	Juvenile.	
Once	34	6	28	1	69
Twice	13	5	10		28
Thrice	6	2	3		11
Four times or more	7	2	3		12
Total	60	15	44	1	120

State of Instruction of Prisoners for Trial, or Tried, at the Assizes or Sessions.

	Males.		Females.		Total.
	Adult.	Juvenile.	Adult.	Juvenile.	
Can neither read nor write	7	5	5		17
Can read only	9	2	7	1	19
Can read and write imperfectly	27	8	16	1	52
Can read and write well	16	2	1		19
Total	59	17	29	2	107

State of Instruction of Prisoners under Summary Conviction.

	Males.		Females.		Total.
	Adult.	Juvenile.	Adult.	Juvenile.	
Can neither read nor write	27	10	20		57
Can read only	21	7	6	1	35
Can read and write imper- fectly	40	5	6		51
Can read and write well	20	2			22
Not ascertained	51				51
Total	159	24	32	1	216

Ages of Prisoners.

	For Trial.			Under Summary Conviction.		
	Males.	Females.	Total.	Males.	Females.	Total.
Under 12 years				3		3
12 years and under 14	4		4	10	1	11
14 „ „ 17	13	2	15	11		11
17 „ „ 21	17	1	18	20	6	26
21 „ „ 30	23	13	36	46	14	60
30 years and upwards	19	15	34	42	12	54
Not ascertained				51		51
Total	76	31	107	183	33	216

Number of Prisoners Sentenced to Transportation.

	Males.		Females.		Total.
	Adult.	Juvenile.	Adult.	Juvenile.	
7 and under 10 years	3	1	3	1	8
10 „ 14 „	1		1		2
14 „ 15 „	1				1
Total	5	1	4	1	11

Number of Prisoners Sentenced by Courts of Justice.

	Males.		Females.		Total.
	Adult.	Juvenile.	Adult.	Juvenile.	
To solitary confinement	19	12	6		37
To be whipped publicly					
" " privately....		16			16

Number of Punishments for Offences within the Prison.

	Males.		Females.		Total.
	Adult.	Juvenile.	Adult.	Juvenile.	
Handcuffs and other irons	1				1
Dark cells	14	3			17
Solitary cells	20	7			27
Stoppage of diet	42	13			55
Total	77	23			100

These punishments are inflicted for disobedience of the rules for the good order and discipline of the gaol.

Mode in which the Prisoners have been Employed.

	Males.		Females.		Total.
	Adult.	Juvenile.	Adult.	Juvenile.	
Hard labour	140				140
Employment — not hard } labour	12	15	44	2	73
Not employed	125	35	79	6	245

The prisoners returned as "not employed," are those who were not sentenced to hard labour. The employments for the males sentenced to hard labour are the tread-mill and beating and picking oakum. Females are employed in washing, cleaning the prison, and needle-work. The following is the average scale of treadmill labour :—

Average number of working hours per day	6 hours
Height of each step	9 inches
Number of steps per minute	50 steps
Average number of feet in ascent per day	13,500 feet
Ordinary proportion of prisoners off the wheel to the total number employed	one-half
Daily amount of labour in feet of ascent performed by every prisoner	6,750 feet
Application of its power	Raising water

Cases of Lunacy, Sickness, and Death.

	Males.		Females.		Total
	Adult.	Juvenile.	Adult.	Juvenile.	
Slight indisposition.....	118		42		160
Infirmary cases	17		8		25
Criminal lunatics					
Deaths.....	1				1
	136		50		186
Total					
Greatest number sick at one time	7		6		13

The annual reports show that the gaol is usually in a healthy condition. Separate apartments are provided for the sick. In the year 1841, the number of prisoners the gaol was capable of containing was, when each prisoner slept in a separate cell, 47; when more than one prisoner slept in one cell, 59. The prisoners were divided into seven classes; there were eight day-rooms and seven airing-yards. Since that period, the gaol has been enlarged; twenty separate sleeping-cells and one work-room, and three airing-yards, have been added.

Each prisoner receives one pound and a half of bread and one pint of gruel per day; three-quarters of a pound of beef and one pint of soup on Fridays. Each day-room two bushels of coals per week in winter, and one in summer, and wood to light the fires. Soap, towels, razors, and combs, are allowed for the prisoners' use. Weekly cost per head, about 2s. 8d.

Each prisoner is allowed, in summer, a straw bed, a blanket, and a rug; in winter, an additional blanket. Cost per head, about 20s. Clothing per head, about 16s.

A chaplain was first appointed to the gaol in March, 1840. Morning and evening services are performed every Lord's-day, with two sermons. The chaplain attends the prisoners three times per week, two or three hours each time. Bibles, prayer-books, and other books of a moral and religious character, are provided.

Female prisoners are exclusively attended by female officers.

Abstract of Receipts and Expenditure, 1841.

	£	s.	d.		£	s.	d.
Profits of Productive Labour	14	11	0	Total cost of Prison Diet	289	6	10
Received for subsistence of Military Prisoners	36	8	6	Clothing	19	19	4
Received from the Exchequer for the removal of Transports	12	18	3	Bedding and Straw	23	6	7
Actual cost to the Borough	1,048	17	4	Extra allowances by order of Surgeon	6	14	6
				Fuel	64	11	10
				Soap	16	18	2
				Candles, Oil, and Gas	18	0	0
				Stationery, Printing, and Books	6	8	0
				Rates and Taxes	12	18	0
				Officers' Salaries:—Gaoler	£200	0	0
				Chaplain	100	0	0
				Surgeon	81	10	0
				Turnkey	100	0	0
				Ditto	76	0	0
				Matron	26	0	0
				Removal of Prisoners	631	10	0
				Repairs, Alterations, and Additions	27	16	6
				Sundries, not enumerated	78	12	11
					27	14	6
					£1,112	16	1

Convict Establishment.
Extract from the Report of the Convict Establishment for 1841.

Date.	Name of Hulk.	Station.	Expense.	Average Number of Convicts daily on board.	Number of Days' Labour performed.	Number of Artificers employed.	Number of Labourers employed.	Rate per Diem.	Artificers' and Labourers' Earnings, separately.	Total Value of Labour performed at each Ship.
Jan. 1st to June 30th, 1841	Leviathan	Portsmouth	£ 4,682 9 6½	603	154	{ 2,596	78,340	2 6	£ 324 10 0	£ 6,200 0 0
	York	Gosport	4,834 18 0	599	152	{ 760	68,067	2 6	96 0 0	5,200 0 6
	Leviathan	Portsmouth	5,118 6 0½	630	167	{ 3,346	88,706	2 6	418 2 6	6,696 1 6
July 1st to Dec. 31st, 1841	York	Gosport	5,168 16 4½	616	168	{ 756	74,639	2 6	98 2 6	5,688 11 0

Charities in the

Gift.	Date of Will.	Amount of Charity.	Devises.	By whom the Devises are selected.
Thomas Winter.	1679.	£200, or £10 per annum.	The Poor of the parish of Portsmouth.	Churchwardens and inhabitants of Portsmouth.
William Brandon.	Dec. 28, 1700.	£200, or £10 per annum.	The Poor of the parish of Portsmouth, who are not receiving parochial relief.	Churchwardens and inhabitants of Portsmouth.
Mr. Peck.		£1 per annum.	Poor of the parish of Portsmouth.	Churchwardens and inhabitants of Portsmouth.
John Timbrell.		£50.	Poor of the parish of Portsmouth.	Churchwardens and inhabitants of Portsmouth.
William Smith, M.D.	The school was built, with master's house attached to it, in 1732.	Grammar school. The master receives from the executors £130 per annum.	Sons of resident inhabitants of the borough of Portsmouth. The present number is 20.	A Committee appointed from time to time by the Dean and Chapter of Christ Church, Oxford; at present consisting of Vicar of Portsmouth, Vicar of Portsea, Mayor of Portsmouth, Superintendent of Portsmouth Dockyard, Head Master.
John Mounsher.		£100, or £5 per annum.	Poor Widows of Portsmouth, not receiving parochial relief.	Churchwardens and inhabitants of Portsmouth.
Charles West.	Dec. 2, 1765.	£100, or £3 per annum.	The Poor, and the poor House-keepers in Portsmouth, not receiving alms from the parish.	Vicar of Portsmouth.
William Pike.	Oct. 25, 1774.	£300, or £12 per annum.	Poor of the parish of Portsmouth, not in constant receipt of parochial relief.	Sir John Carter, and his executors and administrators.
		£13 10s. 6d. per annum.	The Poor of the Dissenting Meeting-house in High-street, Portsmouth.	The Minister of the Congregation.
		Alms-Houses, consisting of 10 rooms.	Old persons in the parish of Portsmouth — chiefly Widows.	Minister and Churchwardens of Portsmouth.
Thomas Mills.		£100.	Poor of the parish of Portsmouth.	Churchwardens and inhabitants of Portsmouth.

Parish of Portsmouth.

The Will of the Testator.	Executors and Trustees.	Remarks.
That the Aldermen and Burgesses of Portsmouth should distribute, yearly, on St. Thomas' Day, the sum of £10 to the Poor of the parish of Portsmouth.	Thomas Heather, Thomas Barton, Lewis Allin, Thomas Brounker, John Skinner, Joseph Voake.	This Charity is in full operation.
That the Mayor and Aldermen of the borough of Portsmouth distribute annually, on St. Thomas' Day, the sum of £10 to the Poor of the parish of Portsmouth.	The Mayor and Aldermen of the borough of Portsmouth.	The last payment was made in 1708, since which no information can be obtained respecting this Charity.
....		The last payment was made in 1717. It is probable that the Charity consisted of a donation for a term of years, which expired in 1717.
....	Thomas Mills, Nicholas Hedger.	The last payment with respect to this Charity was made in 1730, since which no trace of it can be found.
....	Dean and Chapter of Christ Church, Oxford.	This Charity is in full operation.
....	John Vining, Charles Bissett, Samuel Henty.	The last payment with respect to this Charity was made in 1761, since which no trace of it can be found.
That one-half be given yearly, at Christmas, to the Poor; the other half to be distributed to 30 poor House-keepers.	James Norris, Samuel Ballard, Elias Arnaud, Thomas Bartlett.	This Charity is in full operation.
To be distributed to the Poor of Portsmouth annually, on St. Thomas' Day.		This Charity is carried out according to the donor's will.
....	John Carter, John Norman, John Franklin.	This Charity has been left chiefly by members of the Congregation. It is in full operation.
There is no account of the Testator's will, but each occupant receives 2s. per week from the parish, with a chaldron of coals in winter.		
....	Mayor and Aldermen.	

Charities in the

Gift.	Date of Will.	Amount of Charity.	Devisees.	By whom the Devisees are selected.
Thomas and Eleanor Brewer.	1666.	£3 per annum.	Poor Widows of Portsea.	Churchwardens and Overseers of the parish of Portsea.
Edward Craft.	June, 1780.	£933 6s. 8d. Reduced 3 per cent. stock.	Poor Widows', Labourers', and Artificers' Children, of the parish of Portsea, not receiving alms.	Minister and Commissioners of St. George's Chapel, Portsea, and donor's executors.
William Sheppard.	1797.	£100, or £5 per annum.	Poor Widows of the parish of Portsea.	Churchwardens, and occasionally by the inhabitants of the parish.
Richard Wilmot.	Jan. 22, 1805.	£500.	Sons of poor Widows resident in the parish of Portsea.	The executors during their lives, after which, by a majority of the trustees.
Major Ebenezer Vavasour.	1808.	£100.	Six poor Children of the parish of Portsea.	President and Steward of the Beneficial Society of Portsea.
Thomas Fitzherbert.	June 8, 1821.	£10,000.	Certain persons named in the will, and after their decease, 5 poor Men, married or single, 10 poor Widows, and 5 poor single Women, at the age of 50 and upwards, born either in the Liberty or Guildable of Portsea, resident for 10 years previous to the period of their election.	The Vicar or his Curate, the Minister of St. John's Chapel, the Minister of St. George's Chapel, the Curate or officiating Minister of each and every new Church or Chapel having cure of souls, and the Churchwardens of the Guildable part of Portsea.
Elizabeth Mary Claypit.	August, 1851.	£500.	Poor Widows of the parish of Portsea, not receiving parochial relief.	Vicar and Churchwardens of the parish of Portsea.

Parish of Portsea.

The Will of the Testator.	Executors and Trustees.	Remarks.
That Bread and Coals be distributed to the poor Widows of the parish of Portsea on St. Thomas' Day.		£1 on a paddock at Landport. £2 on a piece of land called Bidsclose. In consequence of a dispute, this Charity has not been in operation for some time; it is expected to be in full operation very soon.
That as many Boys as the money would allow be educated in reading, writing, and arithmetic, to fit them for trades.	Samuel Venables, William Drayton.	This Charity is in full operation.
That on Whit-Monday of every year Bread be distributed amongst such poor Widows of the parish of Portsea as the trustees shall think fit.	Churchwardens of the parish of Portsea.	This Charity is in full operation.
That 20 poor Boys be educated, for the space of three years, in the English language, writing, accounts, and navigation; 6 of these Boys are to be selected from the testator's poor relations, and 14 from the sons of poor widows.	Master-General of the Ordnance, Principal Engineer of Government Works in the island of Portsea, Superintendent of Dockyard, Master Shipwright of ditto, Members of Parliament for Southampton, Mayor of Portsmouth.	This Charity is in full operation.
That 6 poor Children be educated at the School of the Beneficial Society, Portsea.	Peter Stubbington, John Lutman, Henry Collins	This Charity is in full operation.
That the executors purchase £10,000 4 per cent. Consolidated Bank Annuities, for the purposes specified in the will, and that the annuitants receive an equal proportion of the interest, if not removed for any of the undermentioned causes:—1. Keeping a public-house; 2. Adultery, fornication, or habitual drunkenness; and, 3. Widows or single women marrying after election.	George Doyle, Frederick Bouth, Alexander Poulton, and others.	Subsequently £10,000, 4 per cent. were converted to 3½ per cent., and a question concerning the appropriation of the dividends thus changed was taken before the Court of Chancery; the expenses of the suit being discharged from the charity fund, there remains now an income of £325 to be applied annually for the benefit of annuitants. This charity is in full operation.
That the proceeds of £300 be distributed to the poor Widows of the parish of Portsea, and £200 be given to the Directors of the Portsea and Gosport Hospital.	Thomas Smith Edgcombe	This Charity is now in operation.

Savings Bank.

The following statements of the Portsmouth and Portsea Bank for Savings, which was established in the year 1816, afford a convincing proof that the poor are desirous of availing themselves of the benefits arising from this useful institution:—

Classes.	November, 1828.			November, 1841.		
	No. of Accounts.	Amount of each Class.			No. of Accounts.	Amount of each Class.
Balances, including interest, not exceeding £20	603	£	s.	d.	1,511	£ s. d.
Exceeding £20	474	14,255	6	4	1,023	31,282 16 4
" £50	217	14,523	18	5	478	33,774 8 3
" £100	70	8,069	6	4	133	16,161 8 9
" £150	34	5,661	4	8	101	16,607 1 10
" £200	9	1,860	5	8	8	1,640 11 8
Number of Depositors	1,407	49,023	5	5	3,254	110,681 2 6
Charitable Societies	10	362	1	11	23	1,514 14 3
Friendly Societies	14	1,872	1	1	35	10,300 4 8
Total	1,431	51,257	8	5	3,312	122,496 1 6

Friendly Societies.

The following is a list of the Friendly Societies established within the borough of Portsmouth, and existing in the year 1841:—

Name of Society.	Where Established.	Date of Enrolment.
Religious Friendly Benefit Society	Portsea	Easter Sess. 1836
Provident and Humane Society	"	Mich. Sess. 1836
Ebenezer Benefit Society	"	" "
United Brothers' Benefit Society	"	" "
Philanthropic Burial Society	Landport	" "
St. Thomas' Amicable Benefit Society	Portsmouth	" "
United Brothers' Benefit Society	Landport	Epiph. Sess. 1837
Royal Marine Sergeants' Death and Discharge...	Portsmouth	" "
Widow and Orphans' Fund Society	Landport	" "
Hebrew Benevolent Society	Portsea	Mich. Sess. 1837
St. Alban's Friendly Society	Portsmouth	Mids. Sess. 1838
Benign Benefit Society	Portsea	" "
Present Help Burial Society	Landport	Epiph. Sess. 1839
United Brethren Benefit Society	"	Mich. Sess. 1839
Portsea Island Annuitant Society	Portsea	Easter Sess. 1840
Union Insurance Benefit Society	Landport	" "
Widows' Friendly Burial Society	Portsea	" "
Benevolent Brothers' Society	Portsmouth	Mich. Sess. 1840
Good Samaritan Burial Society	Portsea	Epiph. Sess. 1841

Indigenous Plants.

The following is a summary of the Indigenous Flowering Plants and Ferns observed in the island of Portsea, and communicated to the Society to the present time, August, 1852. Several gentlemen are continuing the search in order to complete a local Flora of the island.

	Orders.	Genera.	Species.
<i>Flowering Plants.</i> —Dicotyledones	56	215	385
Monocotyledones	10	50	112
<i>Ferns and their allies.</i> —Acotyledones	2	9	12
Totals	68	274	509

Dicotyledones.

Orders.	Genera.	Species.	Orders.	Genera.	Species.
Ranunculacæ	3	15	Cornacæ	1	1
Nymphæacæ	2	2	Umbelliferæ	22	29
Papaveracæ	2	3	Caprifoliacæ	2	2
Fumariacæ	1	2	Rubiacæ	2	7
Cruciferæ	17	22	Dipsacæ	3	3
Resedacæ	1	2	Compositæ	36	57
Violacæ	1	2	Campanulacæ	1	1
Droseracæ	1	1	Ericacæ	2	2
Polygalacæ	1	1	Illicacæ	1	1
Frankeniaceæ	1	1	Jasminacæ	2	2
Caryophyllacæ	11	22	Gentianacæ	1	2
Linacæ	2	3	Convululacæ	2	4
Malvacæ	1	3	Solanacæ	2	3
Hypericacæ	1	3	Scrophulariacæ	10	25
Aceracæ	1	1	Orobanchacæ	1	2
Geraniacæ	2	7	Verbenacæ	1	1
Celastracæ	1	1	Lamiacæ	12	19
Leguminiferæ	12	33	Boraginacæ	4	8
Rosacæ	11	19	Primulacæ	5	6
Onagracæ	1	2	Plumbaginacæ	2	2
Haloragiacæ	2	3	Plantaginacæ	1	5
Lythracæ	1	1	Chenopodiaceæ	6	14
Cucurbitacæ	1	1	Polygonacæ	2	13
Portulacacæ	1	1	Thymelæacæ	1	1
Illecebracæ	1	1	Euphorbiacæ	2	5
Grossulariacæ	1	1	Urticacæ	4	6
Crassulacæ	1	2	Amentiferæ	4	7
Saxifragacæ	1	1			
Araliacæ	1	1	Total	215	385

Monocotyledones.

Orders.	Genera.	Species.	Orders.	Genera.	Species.
Orchidacæ	4	5	Aracæ	4	8
Iridacæ	1	1	Juncacæ	2	10
Liliacæ	3	3	Cyperacæ	2	18
Tamnacæ	1	1	Gramina	27	57
Alismacæ	2	3			
Fluviales	4	6	Total	50	112

Acotyledones.

Orders.	Genera.	Species.
Filices	8	11
Pteridoides	1	1
Total	9	12

Statistics of Mental Diseases in Denmark, according to the Census of July 1st, 1847. By DR. J. R. HÜBERTZ, of Copenhagen.

[Read before the Statistical Society, 21st February, 1853.]

I.

THE Government having ordered researches to be made into the number, the state, &c., of persons labouring under mental derangement, a general inquiry was instituted throughout the kingdom, on the 1st of July, 1847, the results of which will be laid before the reader in the following treatise.

For reasons that cannot here be explained, the duchies, Iceland, and the colonies, were not taken into consideration. By an order of the minister under whose charge the medical department is, the author was honoured with the task of drawing up an account of the reports.

The persons affected with mental diseases are divided into two chief classes, viz. idiots and lunatics; and, as different opinions (at least on the Continent) are prevalent, respecting the meaning of these terms, I shall at once give the sense in which they are used here. By the term idiot, I would have understood those who are born with such defective mental faculties, that they never did show signs of understanding, or at least always had been of very imperfect intellect. On the other hand, lunatics are understood to be such as have once had a sound intellect, which, in the course of life, has been weakened or deranged. Yet, the reporters not always having been able to find out at what time, in early childhood, the disease had taken its beginning, I have been obliged to comprise those born with imperfect intellects, and part of those affected in early childhood (as far as I can remember about 400 or 500 individuals), under the one head, idiots. It is to be hoped, that some means may be found to avert this inconvenience for the future.

To find out the number of the inhabitants on the 1st of July, in relation to which the proportions of deranged persons were to be calculated, the population generally increasing 1 in 100 yearly, there has been added $2\frac{1}{2}$ in 100 for the supposed augmentation in the $2\frac{1}{2}$ years which have elapsed since the census of 1845. Now the census of 1850 shows that the population of the kingdom of Denmark, during five years, has increased not more than 4 in 100; the difference, however, being so very insignificant, may be looked upon as not existing, as it will only alter the proportion by $\frac{1}{10000}$, when we compare the whole amount of deranged persons with the whole population, and it will not be observed when the comparison is made with the population of the minor divisions of the country.

Perhaps it will not be deemed quite superfluous to add, that the kingdom of Denmark is divided into *Stifts*, for ecclesiastical administration (a *Stift* meaning the same as a diocese), and into *Amts*, for civil administration. The subdivision of an *Amt* is called a *Herred*. For the convenience of the lunacy department, it has been proposed to divide the kingdom into three districts, and though this

division has not yet received the sanction of the government, it has been adopted in some of the tables. The districts are:

First district, comprising the island of Seeland, and its dependencies as a diocese, together with the islands of Lolland and Falster.

Second district, containing the island of Funen, and its dependencies.

Third district, North Jutland.

The colouring of the map* is to show the relation of the soil to geology; not surely as if I meant to state, that insanity has anything whatever to do with geology; but the different geognostic formations varying very much in fertility, and in other respects, I have thought myself justified in not wholly withdrawing my attention from them.

The larger numbers on the map denote the amount of deranged persons in 1000 inhabitants in the *Herreds*, the smaller ones the amount in 1000 inhabitants in the towns and parishes, where the proportion was, at least, 5 insane persons in 1000 inhabitants, and the numbers are put down in the map, as near as possible to the spot where the town, &c., is situated.

The numbers for towns and parishes, where smaller proportions exist, together with the number for Amts, &c., are left out, in order not to encumber the map.

The chief object of the present publication is to give an account of the exertions of the Danish government, to elucidate, as far as regards its dominion, the state, &c., of the disease, and further to draw attention to a department of science that has hitherto been much neglected.

Mental disease, as it now stands, has in every country two sides, which require to be distinguished: on the one hand, we find the insane collected in asylums and proper establishments, under the care of the most able medical men; on the other hand they are found dispersed over wide countries, almost devoid of medical aid, and neglected until they grow troublesome to society. In this way the disease is left to propagate at leisure, without any effort being made to circumscribe its ravages.

We are of opinion, that if the disease, without the asylums, was observed with the same zeal, the same diligence, and the same perseverance as it is within, we should soon be able, if not wholly to prevent the disease, at least in a great degree to retrench its limits.

But, in order to obtain this result, it will be absolutely necessary to have the same researches continued for at least ten or twenty years, and every year the results put forward. In short, labour is wanting, and that a labour patronized by the greater states. The smaller countries, also, may be able to do much good in this way, and even Denmark is in possession of many of the qualities required. In point of size and individuality, the said kingdom is large and distinct enough to give results of some interest, but not to answer all the necessary purposes; for after a most diligent scrutiny, we are at a loss to know whether the results obtained are local or universal, and are always obliged to act with great caution before we make use of them for scientific purposes.

But to revert to the treatise now before the reader, we feel

* Published in the "Annales Médico-psychologiques."

obliged to declare that we cannot take upon ourselves the responsibility of all the reports, though, in general, they have seemed to us drawn up conscientiously, and have inspired us with nothing but confidence. The reporters of the two northernmost Herreds in Jutland had agreed to admit to their reports only insane persons of a certain description, and it is therefore that the proportions in these Herreds are less than they certainly ought to be.

II.—Number and relative proportions of persons labouring under mental derangement.

1. In the kingdom there were found 3756 persons, in some way or other, labouring under mental derangement, of these 1865, or 49·70 in 100, were males, 1891, or 50·30 in 100, females. The proportions between the two sexes, in the nation at large, being at the same time 49·44 in 100 males, and 50·56 females, the former were in a slight degree less affected with the disease than the latter.

953, or 25·37 per cent., lived in the towns, 2803, or 74·63 per cent. in the country.

Of those living in the towns, 439, or 46·07 in 100, were males, 514, or 53·93 in 100, were females; in the country, 1426, or 50·87 in 100, were males, 1377, or 49·13 in the 100, were females.

1995, or 53·12 in 100, were idiots, and 1761, or 46·88 in 100, were lunatics.

Of the idiots, 1066, or 53·43 in 100, were males, 929, or 46·57 in 100, were females. Of the lunatics, 799, or 45·37 in 100, were males, 962, or 54·63 in 100, females. If these statements are to be relied on, women would be less exposed to be affected with idiotism, but more with lunacy than our sex. 295, or scarcely 11 in 100 of idiots, were living in the towns, and among these, 150, or 50·85 in 100, were males, 145, or 49·15 in 100, females. 1700, or about 89 in 100, were living in the country, and of these, 916, or 54 in 100, were males, 784, or about 46 in 100, females. 658, or 37 in 100 of lunatics, were living in the towns, 1103, or 63 in 100, in the country. Of lunatics in the towns, 289, or 43 in 100, were males, 369, or 57 in 100, females; in the country, 510, or 46 in 100, were males, 593, or 54 in 100, were females.

Assuming that the facts laid down above may be relied on, it does not seem unreasonable to suppose, that the difference in the statements of writers respecting the frequency of the disease, in this or that sex, may, at least in some degree, find its explanation in the fact, of authors having at one time had more lunatics or more idiots, more of the town, or more of the country population under observation, than at another.

For further particulars I refer to the tables.

TABLE I.

Idiots and Lunatics in Denmark on the 1st of July, 1847.

Amts, Districts, &c.	Males.			Females.			Totals.		
	Married.	Unmarried.	Widowers.	Married.	Unmarried.	Widows.	Males.	Females.	Total.
Amt of Copenhagen	39	228	18	41	257	39	285	337	622
" Frederiks- borg.....	3	88	5	10	68	16	96	94	190
" Holbek	9	100	5	10	77	5	114	92	206
" Sorø	5	59	4	6	51	7	68	64	132
" Præstø	11	76	3	14	79	15	90	108	198
" Barnholm	3	27	2	3	42	4	32	49	81
" Færo Isles....	4	20		4	17	3	24	24	48
" Maribo	7	61	2	6	65	6	70	77	147
Total, 1st District	81	659	39	94	656	95	779	845	1,624
Amt of Odensee	7	128	5	9	134	18	140	161	301
" Svendborg....	4	102	1	8	69	14	107	91	198
Total, 2nd District	11	230	6	17	203	32	247	252	499
Amt of Hjørving	2	71	2	9	70	6	75	85	160
" Thisted	6	67	2	3	73	2	75	78	153
" Aalborg	4	86	5	13	66	7	95	86	181
" Viborg	7	68	3	4	55	4	78	63	141
" Randers.....	2	81	2	7	78	5	85	90	175
" Aarhus	2	62	1	2	56	3	65	61	126
" Skanderborg	3	61	2	5	49	5	66	59	125
" Veile	4	83	2	10	61	12	89	83	172
" Ringkjøbing	15	98	3	7	78	12	116	97	213
" Ribe	7	86	2	20	62	10	95	92	187
Total, 3rd District	52	763	24	80	648	66	839	794	1,633
Grand Total	144	1,652	69	191	1,507	193	1,865	1,891	3,756
<i>Towns.</i>									
City of Copenhagen	31	152	14	36	208	35	197	279	476
Towns of 1st District	38	218	18	41	270	49	274	360	634
" 2nd "	7	42		3	43	9	49	55	104
" 3rd "	8	104	4	10	83	6	116	99	215
Total of Towns....	53	364	22	54	396	64	439	514	953
<i>Country.</i>									
1st District	43	441	21	53	386	46	505	485	990
2nd "	4	188	6	14	160	23	198	197	395
3rd "	44	659	20	70	565	60	723	695	1,418
Total of Country	91	1,288	47	137	1,111	129	1,426	1,377	2,803

TABLE II.
*Deranged Persons in Denmark (Idiots and Lunatics) in 1,000 Inhabitants
on the 1st of July, 1847.*

Amts, Districts, &c.	Males.			Females.			Totals.		
	Married.	Unmarried.	Widowers.	Married.	Unmarried.	Widows.	Males.	Females.	Total.
Amt of Copenhagen	1.33	3.45	5.08	1.42	4.20	3.26	2.88	3.30	3.09
„ Frederiksborg	0.24	3.73	3.69	0.79	3.01	5.12	2.55	2.45	2.50
„ Holbek	0.69	4.35	4.31	0.77	3.49	1.69	3.07	2.42	2.74
„ Sorø	0.43	2.75	4.09	0.52	2.57	2.59	1.99	1.88	1.93
„ Præstø	0.77	3.07	2.54	0.98	3.42	4.65	2.23	2.66	2.45
„ Barnholm	0.66	3.33	4.21	0.66	5.08	3.09	2.44	3.48	2.98
„ Færo Isles	3.14	8.10	0.00	3.13	7.25	9.07	6.14	6.07	6.11
„ Maribo	0.52	2.59	1.61	0.45	2.89	1.91	1.84	1.98	1.91
Total, 1st District	0.81	3.42	3.86	0.94	3.61	3.30	2.57	2.73	2.65
Amt of Odense	0.43	3.94	2.98	0.56	4.35	4.43	2.78	3.16	2.97
„ Svendborg	0.29	3.67	0.83	0.58	2.66	4.02	2.50	2.11	2.30
Total, 2nd District	0.37	3.82	2.08	0.57	3.58	4.24	2.65	2.68	2.66
Amt of Hjørving	0.17	3.35	1.59	0.77	3.37	2.10	2.19	2.41	2.30
„ Thisted	0.73	4.73	2.56	0.37	4.95	1.12	3.25	3.16	3.20
„ Aalborg	0.38	4.21	4.33	1.23	3.45	2.46	2.95	2.64	2.79
„ Viborg	0.70	3.57	3.05	0.40	2.99	1.79	2.59	2.06	2.32
„ Randers	0.17	3.64	1.62	0.59	3.62	1.79	2.40	2.49	2.44
„ Aarhus	0.30	4.58	1.39	0.30	4.51	1.92	3.09	2.95	3.02
„ Skanderborg	0.39	4.14	2.67	0.66	3.57	2.93	2.86	2.57	2.72
„ Veile	0.35	3.68	2.06	0.89	2.94	4.72	2.55	2.40	2.48
„ Ringkjøbing	1.51	5.68	3.22	0.70	4.22	4.86	4.13	3.14	3.61
„ Ribe	0.69	4.68	1.83	1.97	3.42	3.56	3.21	2.96	3.08
Total, 3rd District	0.53	4.16	2.43	0.82	3.64	2.80	2.88	2.65	2.76
Grand Total	0.63	3.78	3.02	0.84	3.62	3.22	2.71	2.69	2.70
<i>Towns.</i>									
City of Copenhagen	1.75	3.51	6.54	2.08	5.09	4.05	3.13	4.17	3.86
„ „ and the towns of the 1st District	1.44	3.47	5.79	1.59	4.57	4.12	2.97	3.72	3.36
2nd „	1.62	4.27	0.00	0.71	4.55	5.64	3.36	3.60	3.48
3rd „	0.81	4.75	3.72	1.05	4.07	1.69	3.54	2.96	3.25
Total of Towns	1.31	3.85	4.75	1.37	4.45	3.76	3.14	3.54	3.34
<i>Country.</i>									
1st District	0.58	3.39	3.01	0.72	3.14	2.72	2.39	2.27	2.33
2nd „	0.16	3.73	2.47	0.55	3.38	3.86	2.52	2.50	2.51
3rd „	0.50	4.08	2.27	0.77	3.58	2.99	2.79	2.61	2.70
Total of Country	0.48	3.76	2.58	0.73	3.39	3.01	2.60	2.47	2.53

2. But, as the great number of idiots, who are generally single, swell the columns of unmarried persons, it perhaps will be of some interest to give the proportions of lunatics only; as below, in order to show more clearly the influence of widowhood, as productive of the disease.

TABLE III.

Proportions of Lunatics (exclusive of Idiots) to 1,000 Inhabitants, on the 1st of July, 1847.

Towns and Country.	Males.			Females.			Totals.		
	Married.	Unmarried.	Widowers.	Married.	Unmarried.	Widows.	Males.	Females.	Total.
1st District.....	0·73	1·43	3·83	0·91	1·73	3·02	1·28	1·58	1·43
2nd „	0·37	1·49	2·08	0·57	1·06	3·84	1·15	1·13	1·14
3rd „	0·51	1·23	2·43	0·80	1·20	2·75	1·03	1·19	1·11
The whole of Denmark	0·59	1·35	3·00	0·82	1·41	3·02	1·15	1·35	1·25
Copenhagen.....	1·70	2·49	6·54	2·08	4·04	4·05	2·41	3·53	2·99
Remaining towns	1·29	2·28	4·77	1·35	2·87	3·65	2·07	2·55	2·31
In the Country	0·43	1·10	2·54	0·70	1·01	2·77	0·92	1·04	0·98

III. — Religious confessions of deranged persons.

1. According to the reports, not a few had grown up to maturity, nay, even to old age, without having been susceptible of religious notions. 10 individuals, 2 males and 8 females, had been confirmed only at an age of above 20 years. 308 individuals had passed their 20th year without having been thought qualified to be admitted to confirmation, of whom 165 were males, 143 females. The whole of these persons confirmed so late, or not at all, amounted to 318, thus distributed over the country. In the first district there were found 75, second district 49, third district 194, or taken in proportion to the population, and for Denmark the average was 0·23; in the first district 0·12, in the second 0·26, in the third 0·33, in 1,000 inhabitants, the proportions increasing towards the west, in respect to these fatuous persons, just as in respect to the insane in general, as will be shown hereafter.

2. The proportions of the idiots and insane in 1,000 inhabitants of the different confessions, offered rather considerable variations.

Thus, the Catholics had 3·34 in 1,000

the Jews 5·85 "

the Calvinists 9·16 "

The nation at large, being of the Lutheran confession, and the

average in the entire population being 2·70, we should thence conclude that the Lutherans were not affected to a like degree with the malady, as the other confessions; but the tables which have served as a basis for the calculations, not being considered as over exact on this point, the reader is forewarned not to be in too great a hurry to draw conclusions from what we have just stated. The only thing further worth mentioning is, that among those confirmed at a late period of life, one, a man of above 30 years, became suddenly aroused, and desired to be taught reading, that he might be confirmed, which accordingly took place in his 36th year, after which time he was pretty reasonable for some few years, but afterwards he relapsed into stupid fatuity again.

Among those having passed their 20th year, without having been confirmed, there was a man of 52 years, of whom the report stated that just at the time of this inquiry he was about to be taught, and that he, probably, thereafter would be confirmed.

These two instances show that, even in idiotism, without any help from art, there may come a period when the understanding to a certain degree will break through the cloud that surrounds it; but the intellect being weak, and the organs to bear it out in its workings imperfect, the lucid interval will, of course, be of short duration and little avail.

IV.—*Age of Deranged Persons.*

Table IV. gives the number of idiots and lunatics at different ages, and Table V. the per-centage proportion of the same. The illness not showing itself in the first days of life, or not being liable to be recognized at this time, its appearance in the early stages is less frequent, but we find a very sensible augmentation in the number of idiots who have attained the age of from 10 to 15. The culminating period is from 20 to 25 for male idiots, from 15 to 20 for the female ones. For male lunatics the culminating period is from 35 to 40, for female ones, from 45 to 50.

TABLE IV.
The Ages of Idiots and Lunatics.

Years.	Idiota.				Lunatics.				Total Idiots and Lunatics.
	Males.		Females.		Males.		Females.		
	In the Towns.	In the Country.	Total.	In the Towns.	In the Country.	Total.	In the Towns.	In the Country.	
From 0 to 1 year									
" 1 " 3 years	1	3	4	1	3	4	1	3	9
" 3 " 5 "	3	11	14	5	8	13	1	9	30
" 5 " 10 "	8	66	74	5	44	49	3	11	146
" 10 " 15 "	24	120	144	8	79	87	4	10	257
" 15 " 20 "	19	114	133	27	108	135	6	30	327
" 20 " 25 "	26	128	154	21	99	120	19	43	384
" 25 " 30 "	15	110	125	13	92	105	19	48	399
" 30 " 35 "	17	70	87	16	73	89	27	54	338
" 35 " 40 "	8	63	71	9	66	75	30	61	327
" 40 " 45 "	9	63	72	7	50	57	33	54	324
" 45 " 50 "	12	48	60	12	58	70	35	87	334
" 50 " 55 "	4	40	44	8	46	54	25	39	256
" 55 " 60 "	2	38	40	7	29	36	34	44	239
" 60 " 65 "	1	22	23	3	11	14	25	33	175
" 65 " 70 "		14	14	2	13	15	11	23	130
" 70 " 75 "	1	4	5		2	2	9	10	57
" 75 " 80 "		1	1	1	1	2	5	5	36
" 80 " 85 "					2	2	2	2	14
" 85 " 90 "									7
" 90 " 95 "									1
" 95 " 100 "									1
Unknown		1	1				3	1	5
Totals	150	916	1,066	145	784	929	289	510	3,756

TABLE V.
Calculation of the preceding Tables.

Years.	Idiota.				Lunatics.				Total Idiots and Lunatics.
	Males.		Females.		Males.		Females.		
	In the Towns.	In the Country.	Total.	In the Towns.	In the Country.	Total.	In the Towns.	In the Country.	
From 0 to 1 year	0.67	0.33	0.38	0.69	0.38	0.43	0.17	0.10	0.24
" 1 " 3 years	2.00	1.20	1.31	3.45	1.02	1.40	0.27	0.21	0.80
" 3 " 5 "	5.33	7.20	6.94	3.45	5.61	5.27	0.81	1.46	3.89
" 5 " 10 "	16.00	13.10	13.51	5.52	10.08	9.36	1.04	1.69	6.84
" 10 " 15 "	12.67	12.46	12.47	18.62	13.78	14.53	2.08	3.25	8.70
" 15 " 20 "	17.33	13.97	14.45	14.48	12.63	12.92	6.57	2.98	10.22
" 20 " 25 "	10.00	12.01	11.73	8.97	11.73	11.30	6.57	6.24	9.56
" 25 " 30 "	11.33	7.64	8.16	11.03	9.31	9.58	9.34	9.11	9.40
" 30 " 35 "	5.33	6.87	6.66	6.21	8.42	8.08	8.67	9.78	8.70
" 35 " 40 "	6.00	6.87	6.75	4.82	6.37	6.14	11.42	12.31	8.63
" 40 " 45 "	8.00	5.24	5.63	8.28	7.40	7.53	12.11	10.79	8.89
" 45 " 50 "	2.67	4.37	4.13	5.52	5.87	5.81	8.65	8.43	6.82
" 50 " 55 "	1.33	4.15	3.75	4.82	3.70	3.87	11.76	9.44	6.36
" 55 " 60 "	0.67	2.40	2.16	2.07	1.40	1.51	9.76	7.42	4.66
" 60 " 65 "		1.53	1.31	1.38	1.66	1.61	4.26	6.96	3.46
" 65 " 70 "		0.44	0.47		0.26	0.22	2.98	3.37	1.52
" 70 " 75 "	0.67	0.11	0.10	0.69	0.12	0.22	2.71	2.02	0.96
" 75 " 80 "					0.26	0.22	0.54	0.67	0.37
" 80 " 85 "								0.84	0.19
" 85 " 90 "								0.17	0.03
" 90 " 95 "								0.17	0.03
" 95 " 100 "								0.17	0.13
Unknown		0.11	0.09				0.81	0.41	
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

2. To enable the reader to compare, we have drawn up the following table, which contains, in the first column, the whole population, in the different stages of life, in the second, the calculation of the proportions, and in the third, the number of idiots and lunatics in 1000 inhabitants of every class of age.

TABLE VI.

The whole Population of Idiots and Lunatics in every Class of Age.

Classes of Age.	Population, 1st July, 1847.	Proportions of the Classes of Age in 100.	Number of Idiots and Insane in the Individual Classes of Age in 1,000.
From 0 to 1 year	38,909	2·800	0·00
„ 1 „ 3 years....	68,489	4·900	0·13
„ 3 „ 5 „	66,418	4·800	0·43
„ 5 „ 10 „	149,631	10·700	0·98
„ 10 „ 15 „	132,528	9·500	1·94
„ 15 „ 20 „	131,867	9·500	2·48
„ 20 „ 25 „	132,835	9·500	2·89
„ 25 „ 30 „	118,318	8·500	3·03
„ 30 „ 35 „	92,266	6·600	3·66
„ 35 „ 40 „	88,488	6·300	3·70
„ 40 „ 45 „	80,552	5·800	4·02
„ 45 „ 50 „	70,825	5·100	4·72
„ 50 „ 55 „	57,879	4·100	4·42
„ 55 „ 60 „	46,055	3·300	5·19
„ 60 „ 65 „	40,422	2·900	4·33
„ 65 „ 70 „	33,222	2·400	3·91
„ 70 „ 75 „	20,696	1·500	2·75
„ 75 „ 80 „	13,443	1·000	2·68
„ 80 „ 85 „	6,399	0·500	2·19
„ 85 „ 90 „	3,152	0·200	3·25
„ 90 „ 95 „	466	0·030	2·15
„ 95 „ 100 „	91	0·006	10·99
„ 100 „ 105 „	14	0·001	0·00
„ 105 „ 110 „	2	0·000	0·00
Totals	1,391,967	100·000	

3. On the occasion of the census of the kingdom of Denmark, in 1845, it was observed that the Danish nation, having 8·38 individuals in 100 living to above 60, was in a satisfactory condition as to longevity.

The mental derangement increasing every day, even in the highest classes of age, we cannot compare the movement of the whole of the patients with that of the population; but the idiots, being subjected to the same laws of movement, are better adapted to furnish the basis of a comparison of this sort.

The population then, having 8·38 in 100 above the age of 60, and the idiots no more than 4·74 in 100, according to the census 1845, and only 3·9 in 100 according to that of 1847, we have the right to conclude that cretinism and idiotism have a great influence upon the diminution of life.

We add a recapitulation of Table V., comprehending the lunatics in 1845, and one column for the whole population.

TABLE VII.
Recapitulation.

Classes of Age.	Males and Females.			
	Idiots in 1847.	Lunatics in 1845.	Lunatics in 1847.	The whole Population.
From 0 to 30 years ...	58·00	20·70	20·24	60·29
„ 30 „ 50 „	29·26	41·96	42·17	23·87
Above 50 and unknown	12·74	37·34	37·59	15·84
	100·00	100·00	100·00	100·00

V.—*On the State and Professions of the Patients.*

1. The Tables VIII. and IX. are drawn up on the model that has been given by Moreau de Jonnés, in “La Statistique de la France,” to establish comparisons; without any utility, however, having resulted from it, in consequence of the relations of the two nations being too distant. The first table contains the professions of the fathers of the patients, the second, those of the patients themselves.

The Danish nation being chiefly an agricultural people, 75 in 100 of the inhabitants living in the country, and only 25 in 100 in the towns, the great number of deranged persons among the former will not be found surprising.

TABLE VIII.
Professions of the Fathers of the Patients.

	Number.	Proportions.
Ecclesiastics, doctors, teachers, and clerks.....	143	46·37
Soldiers.....	15	4·87
Artists (Painters).....	8	2·59
Merchants and tradesmen	45	14·59
{ In wood	36	11·67
{ In iron.....	12	3·89
Workmen { Masons.....	4	1·30
{ In clothes (tailors and weavers)	25	8·10
{ In leather.....	23	7·46
{ Rope-makers	5	1·62
Retailers of provisions.....	44	14·27
Seafaring men	62	20·10
Agriculturists	2,562	830·74
Daily labourers.....	58	18·81
Natural children of whom it was unknown	42	13·62
Totals	3,084	1000·00

2. Some of the patients exercised professions, of which 914 cases are well known.

TABLE IX.
Professions of the Patients themselves.

	Number.	Proportions.
Ecclesiastics, doctors, teachers, and clerks.....	27	29.54
Soldiers.....	6	6.56
Artists	5	5.47
Merchants and tradesmen	28	30.64
In wood	24	26.26
In iron	7	7.66
Workmen Masons.....	3	3.28
In clothes.....	33	36.11
In leather.....	20	21.88
Rope-makers	6	6.56
Retailers of provisions.....	8	8.73
Seafaring men	10	10.94
Agriculturists	718	785.56
Daily labourers	19	20.79
Totals	914	1000.00

VI.—On the Duration of Lunacy.

1. When we remember how difficult it is for doctors to state exactly the duration of the cases that come under their observation, it would, perhaps, be somewhat bold to rely on the statement of reports, of which only some have been drawn up by professional men. But we have forewarned our readers, and we give the facts as we have received them.

TABLE X.
Duration of Mental Derangement.

Periods of Duration.	Among Men.			Among Women.		
	In the Towns.	In the Country.	Total.	In the Towns.	In the Country.	Total.
From 0 to 1 year	32	32	64	27	39	66
„ 1 „ 3 years....	28	45	73	31	61	92
„ 3 „ 5 „	25	47	72	33	49	82
„ 5 „ 10 „	41	98	139	70	111	181
„ 10 „ 15 „	29	72	101	39	78	117
„ 15 „ 20 „	36	83	119	36	98	134
„ 20 „ 25 „	29	37	66	35	43	78
„ 25 „ 30 „	23	23	46	29	37	66
„ 30 „ 35 „	11	19	30	12	11	23
„ 35 „ 40 „	6	16	22	7	13	20
„ 40 „ 45 „		6	6		9	9
„ 45 „ 50 „		1	1	2	4	6
„ 50 „ 55 „		1	1		1	1
„ 55 „ 60 „		2	2	2		2
„ 60 „ 65 „		1	1		1	1
Unknown duration	29	27	56	46	38	84
Totals.....	289	510	799	369	593	962

From the calculations contained in the following table, we see that the cases of short duration are more frequent in the towns, and the cases of long duration in the country, a result which probably should be attributed to medicine.

TABLE XI.

Proportions in the Different Periods of the Duration of the Disease.

Periods of Duration.	Among Men.			Among Women.		
	In the Towns.	In the Country.	Total.	In the Towns.	In the Country.	Total.
From 0 to 1 year	11·07	6·27	8·01	7·32	6·57	6·86
„ 1 „ 3 years....	9·69	8·82	9·13	8·40	10·29	9·56
„ 3 „ 5 „	8·65	9·22	9·01	8·94	8·26	8·52
„ 5 „ 10 „	14·19	19·22	17·40	18·97	18·72	18·82
„ 10 „ 15 „	10·03	14·12	12·64	10·57	13·15	12·16
„ 15 „ 20 „	12·46	16·27	14·89	9·75	16·53	13·94
„ 20 „ 25 „	10·03	7·25	8·26	9·49	7·23	8·11
„ 25 „ 30 „	7·96	4·51	5·76	7·86	6·26	6·86
„ 30 „ 35 „	3·81	3·72	3·75	3·25	1·86	2·39
„ 35 „ 40 „	2·08	3·14	2·75	1·90	2·19	2·08
„ 40 „ 45 „		1·18	0·75		1·52	0·94
„ 45 „ 50 „		0·20	0·13	0·54	0·67	0·62
„ 50 „ 55 „		0·20	0·13		0·17	0·10
„ 55 „ 60 „		0·39	0·25	0·54		0·21
„ 60 „ 65 „		0·20	0·13		0·17	0·10
Unknown duration	10·03	5·29	7·01	12·47	6·41	8·73
Totals.....	100·00	100·00	100·00	100·00	100·00	100·00

2. It is a question of some note, how great is the annual increase in this department, or, in other words, how many persons will yearly be affected with insanity? A great part of those attacked with the disease, being cured and restored, or dying in a short space of time, and accordingly not coming under the view of the reporters, a strict answer to the question is not to be had for the present; but, through the information we have, we are able pretty accurately to discern how many will yearly swell the reports. On a former occasion, partly by supposition, I have stated the annual increase of lunatics to be about 140 cases. In the year 1845, their number was stated to be 133; in 1847, it was 130.

The average duration, the cases of unknown duration calculated at 15 years, was as follows:—

For 1840	13·70 years.
„ 1845	13·00 „
„ 1847	13·48 „

There is a great uniformity in these numbers, and yet they must be used with great circumspection, as in some cases the disease may, for a long time, have eluded observation. Further, it must be observed, that in the class of idiots, a good many were stated to have pined with the disease from early childhood, many of whom, probably, ought to have been taken together with lunatics; and coming up for the duration of almost a whole life, would have considerably aug-

mented the average duration of the class. Lastly, we have no knowledge of those cured, or of those that have died in the course of the year; and wanting data of so great moment, we are certainly not warranted in making statements about the average duration.

If, however, the annual augmentation is supposed to be 135 individuals, and the average duration 13.39 years, we ought to have found 1,808 deranged persons in the country, on the 1st of July, 1847; but we have found only 1,761. The difference of 47 must be attributed then to cures or deaths.

VII.—Age of Lunatics at the beginning of the Disease.

1. Subtracting the duration of the disease from the age of the sick, we very readily find out at what period the disease had taken its commencement.

TABLE XII.

The Age of Lunatics at the beginning of the Disease.

Classes of Age.	Among Men.			Among Women.		
	In the Towns.	In the Country.	Total.	In the Towns.	In the Country.	Total.
From 0 to 1 year	2	4	6	3	8	11
„ 1 „ 3 years....	2	22	24	7	13	20
„ 3 „ 5 „	2	8	10	3	6	9
„ 5 „ 10 „	1	16	17	5	21	26
„ 10 „ 15 „	7	30	37	9	18	27
„ 15 „ 20 „	26	81	107	38	84	122
„ 20 „ 25 „	33	86	119	41	61	102
„ 25 „ 30 „	38	57	95	46	70	116
„ 30 „ 35 „	39	54	93	39	55	94
„ 35 „ 40 „	35	45	80	44	59	103
„ 40 „ 45 „	33	26	59	32	44	76
„ 45 „ 50 „	18	20	38	14	39	53
„ 50 „ 55 „	9	13	22	15	25	40
„ 55 „ 60 „	8	10	18	9	20	29
„ 60 „ 65 „	5	9	14	8	13	21
„ 65 „ 70 „				7	7	14
„ 70 „ 75 „	1	3	4	1	4	5
„ 75 „ 80 „		1	1	1	4	5
„ 80 „ 85 „					3	3
„ 85 „ 90 „						
„ 90 „ 95 „					1	1
Unknown age	30	25	55	47	38	85
Totals.....	289	510	799	369	593	962

TABLE XIII.
Proportions of the Age of Lunatics at the beginning of the Disease.

Classes of Age.	Among Men.			Among Women.		
	In the Towns.	In the Country.	Total.	In the Towns.	In the Country.	Total.
From 0 to 1 year	0·69	0·78	0·75	0·81	1·35	1·14
„ 1 „ 3 years....	0·69	4·32	3·02	1·90	2·19	2·08
„ 3 „ 5 „	0·69	1·57	1·25	0·81	1·01	0·94
„ 5 „ 10 „	0·35	3·14	2·13	1·36	3·54	2·70
„ 10 „ 15 „	2·42	5·88	4·63	2·44	3·04	2·80
„ 15 „ 20 „	9·00	15·88	13·39	10·30	14·17	12·68
„ 20 „ 25 „	11·42	16·86	14·89	11·11	10·29	10·60
„ 25 „ 30 „	13·15	11·18	11·89	12·47	11·80	12·06
„ 30 „ 35 „	13·49	10·59	11·64	10·57	9·27	9·77
„ 35 „ 40 „	12·11	8·82	10·01	11·92	9·95	10·77
„ 40 „ 45 „	11·42	5·10	7·38	8·67	7·42	7·90
„ 45 „ 50 „	6·23	3·92	4·76	3·79	6·58	5·51
„ 50 „ 55 „	3·11	2·55	2·75	4·06	4·22	4·16
„ 55 „ 60 „	2·77	1·96	2·25	2·44	3·37	3·01
„ 60 „ 65 „	1·73	1·76	1·75	2·17	2·19	2·19
„ 65 „ 70 „				1·90	1·18	1·46
„ 70 „ 75 „	0·35	0·59	0·50	0·27	0·67	0·52
„ 75 „ 80 „		0·20	0·13	0·27	0·67	0·52
„ 80 „ 85 „					0·51	0·31
„ 85 „ 90 „						
„ 90 „ 95 „					0·17	0·10
Unknown age	10·38	4·90	6·88	12·74	6·41	8·84
Totals.....	100·00	100·00	100·00	100·00	100·00	100·00

2. To give a more concise view of the matter, the data of the preceding table have been contracted into a narrower space in the following table, to which is added a table with the results gained by the inquiry of 1845.

TABLE XIV.

Recapitulation.—Ages at which the Malady first appeared.

	In the Duchies.			In Denmark.					
	1845.			1845.			1847.		
	Males.	Fem.	Total.	Males.	Fem.	Total.	Males.	Fem.	Total.
Before the 30th year	55·24	46·64	50·94	51·91	49·31	50·61	51·95	45·00	48·48
From 30 to 50 years	52·69	37·10	34·89	35·39	31·39	33·39	33·79	33·89	33·84
Above 50 and unknown...	12·07	16·26	14·17	12·70	19·30	16·00	14·26	21·11	17·68
Totals	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00

It may reasonably be supposed, that lunatics, the duration of whose disease was not to be found out, had generally been affected for a very long time; if, therefore, we subtract the unknown from those that have been affected at an age above 50 years, and add them to those that have been affected before the 30th year, we shall come somewhat nearer the truth. This operation performed, we get the following proportions:—

TABLE XV.

Rectified Recapitulation.

	In the Duchies.	In Denmark.	
	Males and Females.	Males and Females.	
	1845.	1845.	1847.
Before 30 years, and } age unknown.....}	54·17	54·88	56·33
From 30 to 50.....	34·89	33·39	33·84
Above 50.....	10·94	11·73	9·83
Totals	100·00	100·00	100·00

VIII.—Of the Complications.

1. The complications of the mental maladies not having been always clearly designated, they cannot, for the most part, take a place in our tables. However, 660 cases of complication, of which several have been met with simultaneously in the same individual, have been stated exactly enough for us to comprise them in the following table.

It is to be observed, that the goitre being of very rare occurrence in Denmark, it has not been noticed as a complication. In the countries where goitre is endemical, one was disposed to confound it with cretinism; but the Sardinian Commission having shown that only the third part of the cretins were affected with goitre, the error commences to wear away.

TABLE XVI.—Complications.

	Men.												Women.												
	Blindness.	Deaf and Dumbness.	Deafness.	Epilepsy.	Spasms.	Crippled State.	Contraction of the Members.	Paralysis.	Enuresis.	Water on the Brain.	Sickly.	Total.	Blindness.	Deaf and Dumbness.	Deafness.	Epilepsy.	Spasms.	Crippled State.	Contraction of the Members.	Paralysis.	Enuresis.	Water on the Brain.	Sickly.	Total.	
Amt of Copenhagen	1	2	...	17	5	1	...	3	...	1	...	30	...	...	...	7	8	3	...	...	...	...	...	18	48
" Frederiks- borg	3	5	1	9	...	2	...	1	...	...	...	21	...	2	3	7	...	4	...	...	...	...	...	16	37
" Holbeck	1	7	1	7	2	5	...	5	...	1	...	29	...	2	2	4	...	1	...	1	...	...	1	11	40
" Sorø	...	...	...	6	1	3	...	3	...	1	...	15	...	1	1	3	5	...	...	...	...	...	...	9	24
" Prestø	1	7	2	5	3	1	3	2	1	...	2	27	...	1	...	5	2	...	1	...	...	...	...	10	37
" Bornholm	...	1	...	1	...	2	1	1	...	...	1	7	...	1	...	1	...	1	...	...	...	...	1	4	11
" Færø	...	1	...	1	...	...	...	...	...	...	...	2	...	1	...	...	2	1	...	...	1	...	...	1	3
" Maribo	1	4	1	7	2	2	...	2	...	...	...	19	...	1	4	1	3	2	1	...	1	...	...	13	32
1st Division	7	27	5	53	13	16	4	17	1	3	4	150	2	12	6	30	17	10	1	1	1	...	2	82	232
Amt of Odense	...	3	...	8	2	4	...	...	...	...	...	17	1	4	...	6	1	1	2	2	...	...	1	18	35
" Svendborg	1	15	...	10	...	6	1	2	1	...	...	36	1	7	...	9	2	2	2	1	...	...	2	26	62
2nd Division	1	18	...	18	2	10	1	2	1	...	...	53	2	11	...	15	3	3	4	3	...	...	3	44	97
Amt of Hjørring	1	1	...	8	2	1	...	2	...	...	1	16	...	3	...	8	2	3	2	3	1	...	2	24	40
" Thisted	...	6	...	9	1	...	...	1	1	1	2	21	1	1	...	8	...	1	...	...	...	1	2	14	35
" Aalborg	4	3	...	5	...	2	...	1	1	...	2	17	1	1	...	11	1	2	...	2	...	1	1	21	38
" Viborg	...	5	2	2	...	...	...	1	...	...	...	10	2	2	...	3	...	1	1	...	...	1	1	8	18
" Randers	1	4	...	6	...	2	...	...	...	...	...	13	2	5	...	3	...	5	...	...	...	...	16	29	...
" Aarbus	1	4	...	1	...	2	...	...	...	...	...	8	1	1	...	3	...	2	2	...	1	...	...	5	13
" Skanderborg	...	4	...	6	...	2	...	2	...	...	2	14	1	3	...	4	1	2	...	1	...	...	2	15	29
" Veile	1	11	...	10	...	4	1	2	1	...	...	30	7	7	...	10	2	1	2	1	...	...	...	23	53
" Ringkjøbing	5	3	1	9	...	5	1	...	...	...	...	24	1	6	...	4	1	1	...	1	1	...	...	15	39
" Ribe	1	3	...	9	1	2	...	2	...	...	2	20	...	2	...	10	...	1	...	1	...	...	3	17	37
3rd Division	14	44	3	65	4	18	2	10	3	1	9	173	7	31	...	61	7	19	5	10	2	2	11	158	531
Whole of Denmark	22	89	8	136	19	44	7	29	5	4	13	376	11	54	9	106	27	32	10	14	3	2	16	284	660

IX.—Of the Causes of the Disease.

1. The reports rarely contained any notice about the general causes which ordinarily lead to mental derangement; or if they did, it was for the most part of some special causes, of which we shall give an account in their proper place. But we think that it is not the province of such a work as the present to treat of special causes, and, for such, we must rely on those professional men who treat specially this sort of patients.

There are some general causes, however, which will hardly be found mentioned anywhere, except, perhaps, in those works which are the result of information taken upon the totality of sick persons in a whole people.

We produce, first of all, the result of our researches directed to some of the general causes; and afterwards we add a table which will comprise what has been reported on the special ones.

2. *The Soil.*—We have not proposed to scrutinize all the properties of the soil and their influence on the disease, but there are some which have attracted our attention; we will mention particularly the fertility and sterility, the cohesion of the particles of the soil, &c.

The principal geological formation of Denmark are the lignite formation, the boulder sand, and the boulder clay. After these, it is the lime and chalk which are of the greatest extent.

It will not be without interest to trace the influence which these telluric bases exert upon the economy of human life. Let us, then, first see the influence of the soil upon the density of the population.

The fertile land of boulder clay, rendered still more fecund by detached fragments of lime and chalk in the strata, which is found in the Danish Isles, and on the coast of the east of Jutland, occasions a much denser population than the other geological formations.

Thus, in the islands of Seeland and Funen, &c., there are to be found from 2,500 to above 4,000 inhabitants on the square mile* (in Jutland, only from 700 to near 3,000 on the square mile). The average number for the islands was 3,312, for Jutland 1,289, on the square mile. But, if we consider this distribution of the population in relation to the disease, we find idiots and lunatics among the dense population of the islands in the proportion of 2 to 3 in 1,000 inhabitants; but among the scattered population of Jutland, we find them in a proportion of 3 to 5.

It is thus reasonable to suppose, that the fertility or sterility of the soil, and the more or less dense population, may be reckoned for something among the causes of the disease. Another property to be taken into consideration, is the cohesion of the particles of the soil. The particles of the clay, be it humid or dry, are very compact; the particles of the sandy soil are, on the contrary, very loose, whence result very different effects.

In those parts of the country where the surface and strata contain clay only, the moisture finds no issue; and the inhabitants will always, during the wet season, which is considerably protracted in Denmark, find themselves surrounded with a moist, and consequently cold atmo-

* The Danish mile is nearly five English miles.

sphere. On the other hand, on the sandy parts, moisture finding everywhere an outlet, the inhabitants will have a proportionably dry and warm atmosphere. The influence of these different qualities of the soil is very remarkable; thus, on the clayey territories we find the highest and the lowest proportions of insane persons, though their average number be a moderate one; but, on the sandy grounds, the proportions are everywhere moderate.

Two districts, taken in this point of view, must fix our attention particularly. They are, the isle of Laland, in the Baltic Sea, and the Herred of Vandfild, on the north-west coast of Jutland. The soil of these two countries offers clay as well on the surface as in the strata. Thus, they have both similar geological conditions, only that the island is flat, whilst the surface of the Herred is hilly.

Among the inhabitants of the island, the lowest proportions have always been found, rarely rising even to 2 in 1,000, whereas the highest proportion of 6 in 1,000 has been met with in the Herred. But, on the other hand, the inhabitants of the island are affected with intermittent and remittent fevers, from which the inhabitants of the Herred are, as far as I know, exempt. The geological properties being nearly the same, the difference in the morbid conditions of these two districts must be attributed to other causes, and doubtless, in a great degree, to the climate.

3. *The Climate.*—Till now, it has been a generally received opinion, grounded on the faith of several writers, that mental derangement was less frequent in the south of Europe than in the north. For Italy and Spain, the very low numbers 0·2 persons in 1,000 have been quoted, whilst the censuses in the northern countries have given from 1 to 3 or 4 in 1,000. But the modes of life, the education, the civil and political institutions, the religion, the manners, in short, the northern and southern people are so different, that we should be quite at a loss to what cause to attribute the enormous difference of the numbers, if we did not take the trouble to examine the statistical facts of the different countries.

The report of the Sardinian Commission shows, that the greatest number of cretins and idiots was found principally towards the north and north-west parts of the country; and from our own information, taken upon the spot, the highest proportions were to be found rather often upon the declivity of the mountains towards the north.

Mr. Verga, of Milan, has himself declared to us, that when he, some years ago, examined the Valteline, he found there also the greatest number of cretins on the northern declivities of the mountains.

During my abode in Sion, in the Valais, a medical man having cited different facts for the Upper Valais, I have been myself to Loèche-les-Bains to see Dr. Mengis of Viesges, who has examined the Upper Valais with the greatest care. He has shown me on a map, valleys on the southern declivities of the mountains (on the right-hand shore of the Rhone), sheltered from the north winds, where were no cretins to be found; and, on the opposite side, the side exposed to the north wind, were numerous cretins.

As to Switzerland in general, the results are not very clear, as the deaf and dumb are comprised in the census.

Mr. Rösch has furnished us with numbers clearly enough determined

for the kingdom of Wurtemberg; we have made from them the following calculation. There is to be found in

The Donau Kreis (S.E.).....	1.19 in 1,000 inhabitants.
The Schwarzwald Kreis (S.W.).....	3.57 "
The Neckar Kreis (N.W.).....	5.71 "
The Jaxt Kreis (N.E.)	6.94 "

For the grand duchy of Baden, we will cite what we have learned at Carlsruhe and Illenau. On a population of 1,362,774 inhabitants in 1850, there were found 2,434 cretins, idiots, and lunatics, out of the great establishments; and, among this number, 522 were cretins. The number of the insane in the asylums reaching to 600 individuals, makes a total of 3,054. If, besides, we take the above-mentioned 600 patients in the great asylums, in proportion to the patients declared at large, we obtain the following numbers:—

The See Kreis	2.0 in 1,000 inhabitants.
The Ober Rhein Kreis	2.9 "
The Mittel Rhein Kreis.....	1.9 "
The Unter Rhein Kreis.....	2.0 "

In Baden, the inexactitude of the reports was complained of; and, in comparing the proportions of the Ober Rhein Kreis of the grand duchy of Baden with those of the contiguous Schwarzwald Kreis, in Wurtemberg, we recognize easily, that the researches in these two provinces have been based on different principles. Even the insignificant number of cretins in the grand duchy of Baden carries suspicion with it.

Some years since I read a paper on the statistics of mental disease in Holland, by Schroder van der Kolck, at Utrecht, which I have not before my eyes at present; but I recollect that this author stated, that also in Holland a larger proportion of insane persons were found in the northern provinces.

As regards England, we know the number of the insane in the different counties only by the number of those maintained at the public expense. When we find about 1 in 1,000 for all England, the number in the north and north-west of Wales will be 2 in 1,000. We have found in certain authors the following numbers:—Ireland, 1; England, $1\frac{1}{2}$; Scotland, 2 patients in 1,000 inhabitants.

On a recent visit to Edinburgh, the author had some very valuable information on this subject from the Board of Supervision for Relief of the Poor. Members of the Board, on that occasion, declared that they were informed, that at the Shetland and Orkney Islands, and on the north-western shore of Scotland, the proportions of insane and fatuous persons were much higher than in the rest of the country. This is not always to be gleaned from their own returns, because of the general low state of fortune, or rather, perhaps, universal poverty of these districts.

Lastly, let us see what has been found in Denmark. As elsewhere, so in this county, the highest proportions were found principally on the north and north-western frontiers. In setting out from the point where the population is the lowest (the island of Lolland, in the Baltic), we find it gradually increasing towards the above-named region, and at last attaining the maximum in the north and north-west.

One glance at the groups formed by the patients in the families and parishes of the western regions, will convince us immediately of the greater frequency of mental derangement. Out of the 900 parishes under question in this paper, 605 did not exceed the proportion of 5 in 1,000; in 295 it was higher. Below is the distribution by the divisions:—

Parishes containing Idiots and Lunatics.

Divisions.	Below 5 in 1,000.	5 in 1,000.	6 in 1,000.	7 in 1,000.	8 in 1,000.	9 in 1,000.	10 in 1,000.	Above 10 in 1,000.	Total.
Seeland and Loland—									
Falster	223	39	9	9	10	3	3	2	298
Funen	84	17	5	4	1	2		1	114
Jutland	298	64	45	21	19	10	12	19	488
Denmark	605	120	59	34	30	15	15	22	900

A calculation based upon these numbers gives the following proportions:—

	Parishes having below 5 in 1,000.	Parishes having above 5 in 1,000.
Seeland	74·8 in 100	25·2 in 100
Funen	73·7 „	26·3 „
Jutland	61·1 „	38·9 „

If, in Jutland, we compare the eastern with the western part, we have parishes having,

	Below 5 in 1,000.	Above 5 in 1,000.
Eastern part, the Amts of Aalborg, Randers, Aarhus, Skanderborg, and Veile	66·3 in 100	33·7 in 100
Western part, the Amts of Thisted, Ringkjø- bing, and Ribe	52·9 „	47·1 „

In the Fœroe islands, the number of the patients in the southern isles was not large; but in the northern ones it was rather considerable. In 1848, the authorities of these islands caused a new inquiry to be made; and the result was, 9·29 in 1,000 for the islands in general, and 12·5 in 1,000 for the northern isles in particular*. In

* The number of idiots and lunatics in the Fœroe islands was, in 1847, 48, to which must be added 22, who suffered under a periodical mental derangement, but who, at the time of the inquiry, were of sound mind. In 1848, 70 were found, but it is probable that this number comprises those affected with a periodical mental derangement, whether the paroxysm was present or not.

examining closer, we find denser groups and higher proportions in those parts which face the north and west, and more scattered groups and lower proportions in those parts which are sheltered from the north and west by hills.

To make this clearer, we will quote some Herreds or districts that are sheltered, and others that are not.

Sheltered Herreds.		Neighbouring Herreds that are not Sheltered.	
West Herred, Bornholm....	1 in 1,000	North Herred, Bornholm ...	5 in 1,000
Alsted, Seeland	1 "	Mehrlöse, Seeland	3 "
Framlev, Jutland	1 "	Sabro, Jutland.....	5 "
Rougsø	1 "	North Hald	5 "
Gierlev	1 "	Onsild	3 "
Slet	1 "	West Han	5 "
Hindborg.....	1 "	East Han	3 "
Skads	2 "	North	4 "
		West Horne.....	5 "
		East Horne	4 "

In this manner, to come from the Herred, in which the lowest proportions are, to that with the highest proportions, we have only to pass the hills that separate them.

But, if the sheltered places facing the south prove unfavourable to the procreation and propagation of the disease, they, perhaps, would be those that should have the greatest influence to make it disappear. If we are right in this supposition, the said places should be preferred for establishments intended for the cure of deranged persons.

4. *Nationality.*—In seeking for the causes of the disease in the nationality, we are exposed to fall into the error of attributing to nationality that which has taken its origin in the climate, or in some other cause. But it should always be remembered, that neither the nationality nor any other cause is quite absolute; so that we always have to weigh the influence of more than one cause at a time.

The following statements may be taken as chiefly regarding the nationality:—

According to a little article published in the *Annales Médico-Psychologiques*, the disease is of rather rare occurrence in China. Dr. Williams, who has been a resident in China for twelve years, has observed two cases of lunacy only, and another English or American medical gentleman, has seen idiots and epileptics, but no lunatics. They ascribe the less frequency of the disease in China to the sobriety of the Chinese, and to the circumstance of this people being less under the influence of the febrile excitation of the Europeans and Americans.

It, however, should not be thought astonishing, in a country so well governed as is that of China, that we do not find sick persons of this description strolling about in public, and, consequently, that foreigners do not meet with them. As for the cause, perhaps the Chinese do not make use quite as freely of spirituous liquors as do some of the peoples of the west; yet they indulge in considerable quantities of pretty strong rice wine, and a great number are opium-eaters.

But, if the Chinese people is a peaceable and patient one, not

labouring under the fearful excitation of the peoples of the west, this certainly may be thought the very best preservation against the disease in question.

In Thibet, the disease is said to be of the same rare occurrence.

In the East Indies the disease is rather frequent; and on the coast of Coromandel, cases of imbecility and dementia are often met with.

In the west of Asia, lunacy was found even in ancient times; and in Palestine, lunatic asylums have existed for centuries. In Smyrna, there has been numbered 1 insane person in 1,000 in the Greek population.

As for Europe, we have already, in speaking of the climate, noticed the proportions of deranged persons among some nations; and though the difference may be attributed to the climate in some measure, it may be attributed, at least in part, to the nationality. I have recently examined a good part of the lower class in Switzerland, Lombardy, Piedmont, Savoy, &c. I seldom found the high stature of the Gotho-German races; but in many places the physiognomy, the blue eyes, the light or brown hair of these races, and the fair complexion, is not rare even among people of the higher classes.

In Denmark, by the research of 1845, persons labouring under occasional fits of insanity, having been probably comprised in the number, no matter whether they were in the paroxysms or not, the proportions were very high; but it is curious to see how they go on increasing towards the north and the west. The average being 3.16 idiots and lunatics in 1,000 inhabitants, there was found in Lanenbourg 1.82, in Holstein 2.22, in Sleswick 2.93, in Jutland 3.32, in Lolland Falster 2.25, in Bornholm 2.77, in Seeland and Møen 3.11, and in Funen 3.17 in 1,000.

The population of Denmark is, for the greatest part, of Gotho-German origin; but on the islands of the Baltic, in the south of Bornholm and of Seeland, there are to be found traces of the Vendic or Sclavonians, probably descendants of the colonists that were established here in the 12th century, and it is worth noticing that it is among this population we find the lowest proportions.

But, pursuing our examination towards the north, we find that in Norway, according to the public records of 1845, the average number was 3.23 idiots and lunatics in 1,000 inhabitants; but there is a very great difference in the proportions of the south and the north of this country.

In the south, the highest proportions are found in the Amt of Mandal, having 5.18 in 1,000, and from this, the southernmost of the Amts of Norway, the proportions gradually go on decreasing towards the north. Thus we find, in the Amt of Nedenås and Robygdalagen 4.44, Budskernds 4.59, Christians 3.71, Romsdals 2.60, Nordlands 2.47, and in the northernmost Amt, that of Finnmarken, we find the lowest proportions, 2.06.

Perhaps some of our readers may think, that these statements may subvert the thesis we have taken upon ourselves to defend; namely, that the climate of the north and the west has a tendency to augment the proportions of insane persons; but in Norway itself, it is not difficult to find an explanation of this fact. The country of Norway is mountainous, perhaps more so than even Savoy; and the

Amt of Mandal is, if we are well informed, one of the poorest of the Norwegian provinces. But chiefly it must be considered, that the Amts in which the proportions are decreasing under the average number are inhabited by a population quite different, not only from that of Norway, but even of Europe, viz., the Finns and Laplanders, who, only among the Hungarians and Turks, will find some traces of consanguinity. After all, it is not astonishing to find few cases of mental disease among a people of frugal and peaceable herdsmen. It must also be observed, that these same Finns and Laplanders, only during the summer, live on the northern and western declivities of the mountains: in the rude season of autumn and winter, they inhabit the southern declivities.

The statistics of the United States of North America being not very clear, the statements are but little satisfactory. According to the *Journal of Insanity* of 1849 (vol. I.), the proportion of insane persons is 2 in 1,000.

Tanner, who lived thirty years among the Indians of North-western America, relates cases of insanity occasionally occurring, and he states that the disease is caused by hunger, from which several times every winter these poor savages suffer. Captain Franklin observed the goitre and idiotism among the inhabitants of the fortress of Edmonton, in North-western America, but finding that only the females and the children, who constantly reside in the fortress, and make use of the water of the river Saskatchewan, are affected with these diseases, and that the men, who spend the greatest part of their time in hunting and travelling, making use of snow water, are free from attacks of the said diseases, he ascribes as well the goitre as the idiotism, to the water of the river.

Amongst the Esquimaux population of Greenland, idiotism and most probably lunacy are found, but statistical facts are wanting. If, however, cases of these diseases are rarely met with, it is, perhaps, because the Greenlanders know how to get rid of troublesome persons. A government officer has related the following case. A native woman of Greenland having an idiot son, she patiently waited till the boy had reached his twelfth year, but, as she observed that his understanding did not make progress of development, she caused an excavation to be made in the earth, and putting the idiot at the bottom, she had the hole filled with earth, so that the boy was interred alive. Another officer has stated that the Greenlanders generally kill their lunatics, and even those who, during the course of a fever are, delirious. The Christian Greenlanders having delirious patients, and not venturing to kill a fellow-being, call in an Angekok (priest or sorcerer) from the heathen tribes, to make away with the sick person. Also, it rather frequently happens, that Greenlanders falling into melancholy and despair, leave their homes, and their families, and taking their way into the interior deserts of the mountains, never return.

Resuming then what we have stated on the nationality, we find the disease everywhere, but in different degrees; and, as it seems, the greatest number of sick persons of this description is to be found among the peoples of the Gotho-German race, with proportions gradually increasing towards the north.

It is the inhabitants of the Alps, of Germany, of Scotland, of Denmark, of Norway, and of the United States of North America, who

present the highest proportions, and the number goes on gradually increasing towards the north, until the disease reaches in the high north, a people less susceptible to its attacks, viz., the Finns and Laplanders.

When the disease makes its aggressions in various degrees among a people of one and the same country, and of one and the same nationality, with no other difference between the inhabitants than this, that one part lives on the south, the other on the north side of a range of mountains, we are justified in seeking the cause of the dissimilar proportions rather in the climate than in the nationality. But, if we find the invasion of the disease varying in degrees, in a country inhabited by two quite different nations, we are, I think, right in searching for the cause of this diversity in the nationality, rather than in the climate. Thus, the climate and the nationality seem to dispute with each other the preference among the causes of the disease.

It is unnecessary, perhaps, to observe, that if we attribute some influence in the producing of mental derangement to the climate, it is not in the heat or cold only that we seek for the cause of the greater or less proportions of insane persons, but we seek the said causes in the diversity of the vegetation, the different habits and manners of life of the inhabitants, in short, we seek for them in the different topographical properties, of the two distinct sides of the terrestrial elevations, which, in their exterior, clearly enough show the different influence of the climate.

5. *Education*.—It is well known, that he who has a true sense of his relations to God, to man, and to himself, who moreover modestly remembers his own frailty, and is not wanting in indulgence towards that of others, will go through life with a steadier pace than he who finds himself in an opposite position. Still more, we know that education is one of the most efficacious remedies in lunacy, and even in the beginning of cretinism and idiotism. If this be true, imperfect education must be reckoned among the causes of the disease.

In Denmark, the idiots and lunatics are most numerous in those provinces that are most distant from the centre of civilization, where the education is most neglected, or most imperfect, because of the sterility of the soil, the poverty of the inhabitants, perhaps, also, because of the poverty of those persons that have to watch over the education, and almost the same is to be found among the other people of Gotho-German race. Everywhere we find the greatest accumulation of persons of unsound mind, in those countries and in those provinces that are most distant from the different centres of civilization, as, for instance, in Norway, the isles of Fœroe, the Alps of Italy, and where the schools are of new date, or rather scattered and little frequented.

It is true civilization that saves, but the false one that ruins man.

6. *Circulation in the Population*.—It is rare in Denmark, that the business and professions are transmitted in a long line in the same family; after two or three generations they grow tired of the same sort of life, and at last they become enfeebled. When this happens, they are obliged to make way for immigrants from the Duchies or from foreign countries, who, being in possession of capital or talent, for the most part fix their abode in the great towns or fertile pro-

vinces. Those that have lost their situation are obliged to emigrate or spread themselves over the sterile provinces; and this is what happens the most frequently in Denmark, the emigration not being frequent enough there. In spreading themselves over the provinces of the north and west, they, in their turn, dislodge other individuals, who then go either among the inhabitants of the Duchies, or into foreign lands, to seek their future subsistence, by the help of their robust arms.

Thus, there exist always two currents in the population, one of immigrants, who come to the great centres of population to turn to account their spirit, their knowledge, their manners, and their civilization; the other composed of such as have at their command only their physical strength and their youthful inexperience. One of the currents flows from the south to the north, and from the east to the west, fulfilling in the body of the state the arterial functions, and the other from the north to the south and from the west to the east, fulfilling the venous functions. After some generations, the individuals who constituted the arterial current becoming enfeebled, give way, and spread themselves into the venous current, as their predecessors before them, whilst those composing the venous current, ameliorated by hardships and labour, in short arterialized anew, go to increase the arterial current in Denmark, or in another country. These two currents are easily to be shown in Denmark, for some centuries, as we have done in our treatise on this subject,* and undoubtedly the same thing is to be observed in other countries.

If, then, the patients are accumulated in a greater number in the sterile or less fertile provinces, it is certainly because a great number of their inhabitants are displaced individuals, half overcome, and who are then doubtless much more apt to fall under the influence of the disease.

7. *Poverty*.—If riches will not shelter men from sickness, poverty, whatever be its form, exposes them more directly to its attacks. When the physical and moral strength is enfeebled, then comes poverty, and with it, too often the disease. In the fertile provinces much labour is necessary for gaining a livelihood, but that labour is not without a certain recompense; but in the sterile provinces a much greater amount of labour is required, and it is but too often badly requited, or even fruitless. Labour, well recompensed, strengthens both the body and the mind; whereas a fruitless toil exhausts these two elements of human life.

In the provinces of the west of Denmark, the inhabitants, whose minds are but little developed, struggling against an arid soil and inclement climate, are overloaded with toil and care; and naturally their physical and mental powers are more rapidly exhausted. And it is just in these provinces that we find the greatest poverty, and the greatest number of patients. It is not possible always to judge of the actual state of the provinces in this respect after the official reports of

* J. R. Hübertz om Pevægelsen iden danske Befolkning, (on the Movement of the Danish Population,) Copenhagen, 1840. Translated in Falk's Archiv. vol. i., Hamburg, 1844, under the title *Über die Bewegung in der dänischen Bevölkerung*, (on the Movement of the Danish Population).

the assistance given to them, because the public benevolence is extended in proportion to the wealth of the country. Private benevolence, on the contrary, restrains its resources in the rich provinces, and augments them in the poor ones, where there are even to be found parishes without any established public assistance, on account of the general indigence of the inhabitants.

However, the public tables are not without interest; and they show, to a certain degree, that poverty and mental diseases go oftentimes hand in hand. If the Loland Falster (Amt of Maribo), one of the most fertile and richest provinces, has many relieved persons, it is probably because the public charity is exercised there on a larger basis than elsewhere.

The Number of Persons Relieved in 1,000 Inhabitants during the Years 1837, 1845, and 1850.

Amts, &c.	1837.	1845.	1850.*
Town of Copenhagen			20
Amt and Town of Copenhagen.....	130·00	33·49	} 23 to 24
" Frederiksborg	34·08	21·38	
" Holbek	31·11	21·59	
" Sarö	38·66	25·42	
" Præsto.....	34·70	30·56	
" Barnholm	24·75	19·51	18
" Maribo	41·23	32·73	29
" Odense	47·16	27·89	} 22
" Svendborg	31·49	25·42	
" Hjörriug	31·97	27·23	23
" Thisted	54·81	43·22	32
" Aalborg	44·24	30·90	26
" Viborg.....	30·73	23·22	17
" Randers	37·20	29·81	22
" Aarhus	37·53	21·81	17
" Skanderborg	31·79	23·22	15
" Veile	25·86	19·31	16
" Ringkjöbing	46·36	34·71	27
" Ribe.....	38·83	27·69	22
Denmark—Average	50·92	28·04	23

* We have calculated ourselves the first two columns, the last is copied from a public work.

8. *The Sexual Relations.*—Love always figuring among the causes of insanity, it will easily be thought necessary not to pass the intercourse between the two sexes in silence.

That marriage has not been destined to all adult persons, Providence itself has indicated, through the inequality of the distribution of the sexes, and the still greater inequality of the distribution of food, the necessary foundation of domestic economy. It also should be borne in mind, that science, the arts, and other business, sometimes will exact the whole of the bodily and mental power of the man; domestic duties all the care of the woman, without leaving them

the leisure, or giving them the means that would enable them to think of marriage.

The distribution of the sexes seems to be regulated after that of the food. From the provinces with an unfertile soil, where the capital is small, and labour ill-paid, young men, sensible of their strength, will go into the more fertile provinces to seek a better remuneration for their labour. Women, certainly, will follow the same course; but not having the same facility of travelling, and afterwards of finding work, a great part will be obliged to stay in their native parishes. This is, if we are right, the cause of the predominance of the females in the poorer provinces; as, for instance, at Bornholm, in Jutland, &c., of the males in fertile ones. In the *amts*, the difference of the sexes, in 1845, reached to 4 in 100; but in the *herreds*, or lesser districts, and in the parishes, the difference attained even 15 and 20 in 100.

The individuals of the two sexes, not finding themselves in equal number, marriages of course must vary. At Bornholm, in the isles of Fœroe, and in Jutland, there were found 320 or 330 married women in 1,000 females; but in Seeland, the number reached 342 in 1,000 females. In Iceland 277, and in Norway 273, in the towns, and 313 women in the country, in 1,000 females, were married.

From these statements, it would seem to result, that frequent marriages, and frequent cases of mental disease, are found in inverse proportions. It must be owned, however, that, at Funen, only 317 women, and in the duchy of Lanenberg even but 310, in 1,000 females were married without a notable increase in the proportions of the insane. In the last named provinces, a free intercourse between the sexes replaces marriage; but, as connexions of this sort are devoid of the harmony and tranquillity of marriage, they are not able to exercise the same salutary effects on the mind. It, perhaps, therefore, would seem strange to find the disease so little influenced by the less frequency of marriage; yet we must recollect, that the sexual relations are only to be reckoned among the causes of the disease, to an extent not as yet actually defined; and, that what is wanting may be supplied through means that are yet to be found out.

It is generally admitted, that the widowed state is one of the causes of insanity, but opinions vary as to its influence on the two sexes. The Table III has been made chiefly with a view of finding out the exact proportion on this subject. In some *amts*, the widowers suffered more from the disease than the widows; in others the proportions were found in the contrary sense; but, on the whole, in Denmark, the proportions for both sexes were nearly the same, with a slight increase on the female side. We adduce the proportions of married, unmarried, and widowed lunatics in two of the most distant *amts*, viz., Copenhagen and Ribe, and afterwards in Denmark and the Duchies, and for further comparison we add the proportions for 1845.

Happy marriages certainly preserve from many evils; but disastrous unions, to all the other torments, add the disease of insanity. A little table at the end of this chapter will show the number of cases in which the disease was attributed to unhappy unions; and another will contain the number of persons of unsound mind divorced.

Lunatics Married, Unmarried, and Widowed, in 1,000 Inhabitants, respectively, in the Amts of Copenhagen and of Ribe, as well as in Denmark and the Duchies, &c.

Amts, &c.	1845.		1847.	
	Males.	Females.	Males.	Females.
<i>Amt of Copenhagen—</i>				
Married	1·64	1·60	1·29	1·42
Unmarried	2·30	3·20	2·15	3·02
Widowed	1·57	3·00	4·80	3·26
<i>Amt of Ribe (Jutland)—</i>				
Married	0·91	1·21	0·69	1·97
Unmarried	1·67	1·24	1·63	1·71
Widowed	5·62	3·65	1·83	3·56
<i>Denmark—</i>				
Married	0·69	0·99	0·59	0·82
Unmarried	1·41	1·50	1·35	1·41
Widowed	2·71	3·20	3·00	3·02
<i>The Duchies—</i>				
Married	0·85	1·07		
Unmarried	1·46	1·13		
Widowed	2·15	3·07		

The Cases of the Disease attributed to unhappy Marriages.

	Males.	Females.	Total.
In Seeland, Lolland-Falster	5	14	19
„ Funen	1	3	4
„ Jutland	3	17	20
Totals	9	34	43

Divorced.

	Males.	Females.	Total.
In Seeland, &c.	9	13	22
„ Funen	1	2	3
„ Jutland	7	8	15
Totals	17	23	40

9. *Abuse of Spirituous Liquors.*—The abuse of strong liquors has always been looked upon as a frequent cause of insanity, but it is very difficult to verify the existence of this cause by general researches. It is very easy to know the quantities of spirits that have paid the duty in a town or in a district; but certain quantities being required for industrial use, and clandestine importation or fabrication being not altogether unfrequent, it is not easy to state how much has been consumed. On the whole, we shall find grounds to bear us out in the assertion, that as long as the evils of the war, 1807—

1814, oppressed the population of Denmark, they generally made pretty free with the use of spirituous liquors, and even abuse of the same was not seldom to be met with; but time having mitigated their sufferings, and rich harvests and a flourishing commerce having enriched the country, an almost universal sobriety succeeded.

The quantity of brandy that had paid the duty in 1845, will be found in the following table:—

Amts.	Litres per Person.	Amts.	Litres per Person.
Amt of Copenhagen	22·62	Amt of Aalborg	20·34
„ Frederiksborg	17·57	„ Viborg	9·13
„ Holbek	13·61	„ Randers	21·56
„ Sorø	18·43	„ Aarhus	23·86
„ Præstø	16·76	„ Skanderborg	19·64
„ Maribo	19·23	„ Veile	14·77
„ Odense	18·87	„ Ringkjøbing	7·77
„ Svendborg	13·86	„ Ribe	3·58
„ Hjørring	10·10		
„ Thisted	12·20	Whole of Denmark	16·51

According to the preceding table, the quantity of brandy for which the duty had been paid, and which, probably, had been to a great extent consumed in Jutland, was the same as that of the islands; and if in some *amts* the quantity was less, it most certainly was because of the control being more difficult, and being exercised in a less vigorous manner in these *amts* than in others. Jutland had also other means of procuring the brandy necessary for its consumption.

The fabrication of brandy has been subject to duty in Denmark for a period of about 200 years; but at Bornholm and in the Duchies it was under no control. But the peasants of Jutland having been taught the art of distillation some time before the duty was imposed, a great part of them continued the fabrication in a clandestine way. Thus, a great number of stills were found in the province, and they occasionally were made use of or concealed. The government at times connived at these doings, but now and then it fell upon one or other with heavy fines. At length, in 1843, it was resolved to put an end to these unlawful proceedings; and a general pardon was proclaimed on condition that all the clandestine stills were surrendered to an officer appointed for the purpose, and who was to pay the value in ready money. Of the number of stills in this way surrendered, amounting to some hundreds or thousands, a repartition on the *amts* is made in the following table:—

Amts.	Stills surrendered on 1,000 Families.	Amts.	Stills surrendered on 1,000 Families.
Amt of Hjørring	87·36	Amt of Skanderborg	108·10
„ Thisted	96·85	„ Veile	12·51
„ Aalborg	126·76	„ Ringkjøbing	129·43
„ Viborg	47·73	„ Ribe	132·29
„ Randers	78·58		
„ Aarhus	6·18	Whole of Denmark	84·26

The brandy fabricated by the said stills was generally of a very bad quality, and for this reason seldom an object of commerce; so that the greatest part was consumed in the houses or the parishes where it was made.

The use of spirituous liquors must thus have been rather great; and it is probable that it has not been without influence on the propagation of the disease. We have yet to learn if the suppression of the furtive distillation will improve the health of the province.

10. The following table contains what has been reported on the special causes.

Causes of the Disease.	Men.	Women.	Total.	Proportion in 1,000.
Effects of age	1	5	6	6.58
Excess of labour	1	2	3	3.29
Hereditary	73	62	135	148.03
Contusions	10	6	16	17.54
Abuse of spirituous liquors	62	15	77	84.43
Abuse of spirituous liquors in the parents	3	7	10	10.96
Debauchery during youth	9	6	15	16.45
Epilepsy	16	32	48	52.63
Chronic maladies	31	43	74	81.14
Acute	18	17	35	38.38
Inflammation of the brain	7	8	15	16.45
Isolation	3	3	6	6.58
Poison		2	2	2.12
Accouchement		38	38	41.67
Irregularity of menstruation		14	14	15.35
Onanism	12	...	12	13.16
Syphilis	1	...	1	1.10
Vices of education	9	12	21	23.02
Grief	5	25	30	32.89
Affections of the mind, more often de- pressing (once the excess of joy in a woman)	51	58	109	119.52
Love	35	102	137	150.22
Anger	2	13	15	16.45
Pride	2	2	4	4.39
Anxiety for a livelihood	22	26	48	52.63
Misunderstood religion	24	12	36	39.47
Frustration of the right of primogeniture	4	1	5	5.48
Totals	401	511	912	1000.00

MISCELLANEA.

PROCEEDINGS OF THE STATISTICAL SOCIETY.

*Second Ordinary Meeting. Twentieth Session.**Monday, the 20th day of December, 1852.*

The Right Hon. Lord Overstone, President, in the Chair.

The following gentlemen were elected Fellows of the Society :—

Christian Alhusen, Esq.

Edward Bascome, M.D.

William Bridges, Esq.

Alexander Colvin, Esq.

G. G. Kirby, Esq.

Horace Mann, Esq.

The following Paper was read :—

"On the Relation of the Price of Wheat to the Revenue." Communicated by Dr. Guy.

*Third Ordinary Meeting.**Monday, the 17th day of January, 1853.*

The Right Hon. Lord Overstone, President, in the Chair.

The following gentlemen were elected Fellows of the Society :—

Jeremiah Lodge, Esq., B.A.

G. G. Macpherson, Esq.

The following Paper was read :—

"On the Income Tax." By William Farr, Esq., M.D., F.S.S.

*Fourth Ordinary Meeting.**Monday, the 21st day of February, 1853.*

The Right Hon. Lord Overstone, President, in the Chair.

Sir James Emerson Tennent was elected a Fellow of the Society.

The following Paper was read :—

"On Mental Diseases in Denmark." By Dr. Hübertz, of Copenhagen.

The discussion on Dr. Farr's Paper was renewed.

THE MARRIAGES, BIRTHS, AND DEATHS,

REGISTERED IN THE DIVISIONS, COUNTIES, AND DISTRICTS OF ENGLAND.

The Marriages for the Quarter ended December, 1852, and the Births and Deaths for the Quarter ended March, 1853,

AS PUBLISHED BY AUTHORITY OF THE REGISTRAR-GENERAL.

This return comprises the births and deaths registered by 2,190 registrars in all the districts of England during the Winter quarter ended March 31st, 1853; and the marriages in more than 12,000 churches or chapels, about 3,373 registered places of worship unconnected with the Established Church, and 624 superintendent registrars' offices, in the quarter that ended December 31st, 1852.

The return of marriages is not complete; but the defects are inconsiderable, and approximative numbers have been supplied from the records of previous years.

The marriages in the last quarter, and in the whole of the year 1852, have greatly exceeded in number those of any previous return. But the mortality at the close of the year 1852, as well as in the winter of the present year, has, notwithstanding the activity of trade, been unusually high, through the inclemency of the season, the prevalence of epidemics, and perhaps the partial destruction of the potato crop.

Marriages, Births, and Deaths, returned in the Years 1841-53 and in the Quarters of those Years.

YEARS.....	1841	1842	1843	1844	1845	1846	1847	1848	1849	1850*	1851	1852	1853
Marriages	122496	118825	123818	132249	143743	145664	135845	138230	141883	152738	153740	158489	...
Births	512158	517739	527325	540763	543521	572625	539965	563059	578159	593422	616251	624171	...
Deaths	343847	349519	346445	356933	349366	390315	423304	399633	440839	368986	395933	407938	...
MARRIAGES.													
Quarters ended the last day of													
March	24447	25860	25285	26387	29551	31477	27480	28398	28429	30567	32619	33933	...
June	32551	30048	31113	34268	35300	37111	36197	34721	35844	39204	38498	40007	...
September	29397	27288	28847	31675	35003	35070	32439	32995	33874	37636	37165	38391	...
December	36101	35629	38573	39919	43889	42068	40729	42116	43736	45351	45468	47306	...
BIRTHS.													
March	133720	136615	136837	143578	143090	145108	146453	139736	153772	144551	157374	161776	161598
June	129684	134096	131279	136941	136853	149450	139072	149760	153693	155865	159138	159136	...
September	123668	123296	126161	130078	132359	138718	127173	140359	135223	146911	150594	151193	...
December	124686	124732	131048	130166	131219	139349	127267	133204	135471	146095	149165	152606	...
DEATHS.													
March	99069	96314	94926	101024	104664	89484	119679	120032	105670	98418	105446	106582	118241
June	86134	86538	87234	85337	89149	90231	106718	99727	102153	92875	99639	100813	...
September	75440	82359	76792	79708	74872	101663	93435	87638	135227	85546	91600	100497	...
December	83204	84328	87493	90864	80681	108937	103479	92436	97589	91847	99248	99946	...

* The numbers up to 1850 have appeared in the Annual Reports.

MARRIAGES.—94,416 persons were married in the last quarter of the year 1852, the three months after harvest, the Christmas quarter, in which, according to the customs of England, the greatest number of weddings are celebrated. This number, however, exceeds the numbers in the corresponding quarter of any previous year; and if the whole year is taken, it shows a proportional excess. There were 158,439 marriages in the year 1852, 153,740 in 1851, and, only ten years ago, 118,825 in the year 1842. The marriages in the five years 1838-42 were 605,219, in the five years 1848-52 they were 745,030. The marriages in England from 1843 to 1852 were at such a rate that 1 in 60 people married annually; the proportion in 1852 was 1 in 57; while in the last quarter of the year 1852 it was 1 in 48. The increase is greatest in London, where 7,101 marriages took place in the last quarter of 1852. The increase in the other divisions is less remarkable; and in the South Midland, as well as the Eastern Counties, the rate of marriages was below the average.

BIRTHS.—161,598 births were registered in the quarter ended March 31st, 1853. The number is slightly less than the number registered in the corresponding quarter of the year 1852, but in excess of the number registered in the winters of any previous years. The greatest number of births is registered generally in the spring, but in 1852 it happened exceptionally that the births in the winter exceeded the births in the spring quarter. The annual proportion of births since 1843 has been 1 in 30; in the winter quarter the average rate is 1 in 29; in the winter quarter of the present year it has been 1 in 28.

INCREASE OF POPULATION.—As the births registered in the winter quarter were 161,598, and the deaths 118,241, the natural increase of which we have an account is 43,357. The natural increase of population, owing to the high rate of mortality, is less than usual, and less by 12,000 than it was in the winter quarter of 1852. The tide of emigration still rolls on, and in the winter 57,729 persons left the ports of the United Kingdom at which there are Government Emigration Agents.* 43,493 emigrants sailed from Liverpool, 7,249 from London, and 2,129 from

* Return with which the Registrar-General has been favoured by the Emigration Commissioners.

Plymouth; but it must be borne in mind that a large number of the emigrants from Liverpool are Irish, who resort to that port for the convenience of embarkation.

PRICE OF FOOD.—The price of provisions has still further advanced; wheat, which in the winter quarter of 1852 was 40s. 10d., is in the present season 45s. 7d.; beef, by the carcase, at Leadenhall and Newgate markets, has risen from 4½d. to 4¾d. a pound; mutton, from 4¾d. to 5¾d. a pound; and potatoes (York Regents), which were 70s. in the winter of 1852, are 127s. 6d. a ton in the winter of 1853, a price which, it is to be feared, places this esculent beyond the reach of many poor families. It may be here stated, that the potato cannot be replaced by bread, beans, or pease alone, and that in its absence an extra allowance of fruit, green vegetables, or herbs, is required. Scurvy, in consequence of the neglect of this precaution, prevailed extensively in the spring of the year 1847, after the first great destruction of the potato crop.

The Average Prices of Consols, of Wheat, Meat, and Potatoes, also the Average Quantity of Wheat sold and imported Weekly, in each of the seven Quarters ended March 31st, 1853.

Quarters ended	Average Price of Consols.	Average Price of Wheat per Quarter in England and Wales.	Wheat sold in the 290 Cities and Towns in England and Wales making Returns.	Wheat and Wheat Flour entered for Home Consumption at Chief Ports of Great Britain.	Average Prices of Meat per lb. at Leadenhall and Newgate Markets (by the Carcase).		Potatoes (York Regents) per Ton at Waterside Market, Southwark.
					Beef.	Mutton.	
1851							
Sept. 30.	96½	40s. 7d.	74,714	91,040	3d.—5d. Mean 4d.	3¾d.—5¾d. Mean 4¾d.	90s.—110s. Mean 100s.
Dec. 31.	97½	36s. 7d.	109,506	47,986	3d.—5d. Mean 4d.	3¾d.—5¾d. Mean 4¾d.	65s.—75s. Mean 70s.
1852							
Mar. 31.	97½	40s. 10d.	95,532	27,540	3½d.—5d. Mean 4½d.	3¾d.—5¾d. Mean 4¾d.	60s.—80s. Mean 70s.
June 30.	99½	40s. 10d.	87,949	54,675	3½d.—4¾d. Mean 4d.	3¾d.—5½d. Mean 4½d.	85s.—110s. Mean 97s. 6d.
Sept. 30.	100	41s. 2d.	78,712	67,912	3½d.—5d. Mean 4½d.	4d.—6d. Mean 5d.	80s.—100s. Mean 90s.
Dec. 31.	100½	40s. 5d.	111,224	72,870	3d.—5d. Mean 4d.	4½d.—6½d. Mean 5½d.	90s.—120s. Mean 105s.
1853							
Mar. 31.	99½	45s. 7d.	95,115	63,530	3¾d.—5½d. Mean 4½d.	4¾d.—6¾d. Mean 5¾d.	110s.—145s. Mean 127s. 6d.

Note.—The total number of quarters of wheat sold in England and Wales for the 13 weeks ended September 30th, 1851, was 971,276; for the 13 weeks ended December 31st, 1,423,582; for the 13 weeks ended March 31st, 1852, 1,241,921; for the 13 weeks ended June 30th, 1,143,339; for the 13 weeks ended September 30th, 1,023,251; for the 13 weeks ended December 31st, 1,445,906; for the 13 weeks ended March 31st, 1853, 1,236,493. The total number of quarters entered for Home Consumption was, respectively, 1,183,523; 671,803; 358,024; 710,780; 882,850; 947,310; and 825,886; the second total, however, embraces the returns of 14 weeks.

STATE OF THE PUBLIC HEALTH.—118,241 deaths have been registered in the first three months of the present year, a number exceeding by 11,559 the deaths in the winter quarter of 1852, and by still more the deaths in any previous winter, except the winters of 1847 and 1848, when influenza and cholera prevailed. The annual mortality in England has, within the last ten years, been at the rate of 2·252

per cent.; on an average of the ten winter quarters, the rate has been 2·467 per cent.; in the winter of the present year, 2·620 per cent. The annual rate of mortality was raised in both the town and the country; in 117 districts, comprising the chief towns, from 2·759 to 2·888 per cent.; in 507 country and small town districts, from 2·246 to 2·397 per cent. The ratio is increased by the season more in the country than it is in the towns, which, however, still maintained their fatal pre-eminence, destroying by their dirt and imperfect sanitary arrangements, out of the same population, 5 lives to every 4 who die in the open country.

Small-pox, scarlatina, typhus, influenza, or bronchitis, have prevailed in many places, and are the proximate causes of the excessive mortality.

The excess of mortality has been general, but it has been greatest in the South-Western Division (V.), in the Division (VI.) on the Severn, in Wales, and in Lancashire; on the whole, the western side of the island appears to have sustained the heaviest losses.

London has latterly been unusually unhealthy, but the excess of deaths is chiefly referable to the depression of the temperature in February and March; and in the 13 weeks the deaths, allowing for increase of population, have not exceeded the numbers in the winter quarters of 1849 and 1851. Of the zymotic class of diseases, scarlatina (574), hooping-cough (702), and typhus (662), were the most fatal. Consumption has been unusually fatal, and the deaths were 1872 to 1630 in the winter quarters of 1849. Bronchitis was fatal to a greater number of persons (1880) than consumption, or to 600 more than died of that disease in the winter quarter of 1849—1850. Carbuncle has been unusually fatal; the deaths in the last five winter quarters have been 1, 2, 3, 17, 20. There is no decline in the deaths from delirium tremens, or intemperance, or poison. The deaths by fractures and contusions exhibited a remarkable increase; they have been in the five last winter quarters, 114, 139, 163, 161, and 181.

Deaths in the Winter Quarters.

	1843	1844	1845	1846	1847	1848	1849	1850	1851	1852	Total 1843-52	1853
In 117 Districts, comprising the chief towns	43748	46136	49996	43850	56105	57710	51017	46066	52333	52408	499369	57092
In 507 Districts, comprising chiefly small towns and country parishes	51178	54888	54668	56634	63567	62332	55053	53541	53113	54274	547237	61149
Total	94926	101024	104664	89484	119672	120032	106069	99607	105446	106682	1046606	118241

Population, Deaths, and Mortality per cent. in the Winter Quarters, 1843-53.

	Population Enumerated.		Deaths in 10 Winter Quarters, 1843-52.	Annual Rate of Mortality of 10 Winter Quarters, 1843-52.	Annual Rate of Mortality in the Winter Quarter 1853.
	June 6-7th, 1841.	March 31st, 1851.			
In 117 Districts, com- prising the chief towns	6,612,958	7,795,882	499,369	2·759	2·888
In 507 Districts, com- prising chiefly small towns and country parishes	9,301,190	10,126,886	547,237	2·246	2·397
All England	15,914,148	17,922,768	1,046,606	2·467	2·620

MORTALITY OF THE METROPOLIS.

A Table of the Deaths in London from all Causes, Registered in the March Quarters of the Four Years, 1850-53.

CAUSES OF DEATH.	Quarters ended March,				CAUSES OF DEATH.	Quarters ended March,			
	1850.	1851.	1852.	1853.		1850.	1851.	1852.	1853.
ALL CAUSES.....	13,219	15,410	14,481	15,364	III. Scrofula.....	72	87	131	96
SCURFIED CAUSES.....	13,186	15,323	14,399	15,718	Tabes Mesenterica..	158	175	198	185
I. Zymotic Diseases....	2,126	2,999	2,702	2,891	Phthisis or Con- sumption.....	1,626	1,792	1,811	1,872
SPORADIC DISEASES.					Hydrocephalus....	379	418	448	433
II. Dropsy, Cancer, and other Diseases of un- certain or vari- able Seat.....	606	631	605	640	Cephalitis.....	135	138	160	140
III. Tubercular Diseases.	2,226	2,472	2,588	2,586	Apoplexy.....	376	314	296	360
IV. Diseases of the Brain, Spinal Marrow, Nerves, and Senses	1,638	1,634	1,625	1,905	Paralysis.....	368	280	316	326
V. Diseases of the Heart and Blood-Vessels	544	665	656	643	Delirium Tremens..	21	30	29	42
VI. Diseases of the Lungs and of the other Organs of Respiration....	2,802	3,522	2,840	3,565	Chorea.....	7	2	8	2
VII. Diseases of the Sto- mach, Liver, and other Organs of Digestion.....	763	815	819	821	Epilepsy.....	75	82	82	110
VIII. Diseases of the Kid- neys, &c.....	165	166	194	188	Tetanus.....	4	7	6	2
IX. Childbirth, Diseases of the Uterus, &c.	122	106	112	118	Insanity.....	19	32	28	30
X. Rheumatism, Dis- eases of the Bones, Joints, &c.....	101	109	110	122	Convulsions.....	482	572	551	617
XI. Diseases of the Skin, Cellular Tissue, &c.	24	22	40	42	Disease of Brain, &c.	158	177	154	176
XII. Malformations.....	43	42	50	53	Pericarditis.....	32	47	35	28
XIII. Premature Birth & Debility.....	320	306	391	405	Aneurism.....	24	20	19	28
XIV. Atrophy.....	277	283	300	366	Disease of Heart....	488	595	603	592
XV. Age.....	690	666	676	791	Laryngitis.....	54	73	67	79
XVI. Sudden*.....	234	218	127	126	Bronchitis.....	1,284	1,612	1,422	1,890
XVII. Violence, Privation, Cold, and Intem- perance.....	455	573	563	576	Pleurisy.....	41	71	39	49
					Pneumonia.....	1,011	1,244	968	1,083
I. Small Pox.....	95	275	389	62	Asthma.....	300	383	266	357
Measles.....	303	363	151	184	Disease of Lungs, &c.	112	139	138	187
Scarlatina.....	199	206	366	574	Teething.....	139	194	178	175
Whooping Cough.....	442	761	587	702	Quincy.....	17	18	6	23
Croup.....	79	109	97	93	Gastritis.....	28	18	19	17
Thrush.....	25	34	34	26	Enteritis.....	88	87	83	79
Diarrhoea.....	207	223	225	221	Peritonitis.....	57	54	65	40
Dysentery.....	43	30	28	25	Ascites.....	30	33	32	38
Cholera.....	8	7	18	7	Ulceration of In- testines, &c.....	23	27	34	34
Influenza.....	38	206	40	51	Hernia.....	37	40	46	43
Purpura and Scurvy.....	8	9	10	15	Heus.....	30	30	27	39
Ague.....	8	3	7	3	Intussusception.....	13	9	10	14
Remittent Fever.....	20	32	26	23	Stricture of the In- testinal Canal.....	14	9	10	7
Infantile Fever.....	11	18	14	15	Dis. of Stomach, &c.	76	64	84	76
Typhus.....	404	521	527	662	Disease of Pancreas	..	4	..	..
Metria, or Puer- peral Fever, see Childbirth.....	60	47	62	44	Hepatitis.....	44	55	39	47
Rheumatic Fever, see Rheumatism	21	19	18	15	Jaundice.....	30	40	42	40
Erysipelas.....	119	81	120	86	Disease of Liver.....	134	131	139	147
Syphilis.....	32	32	36	42	Disease of Spleen ..	3	2	4	2
Noma or Canker, see Mortification	8	4	1	5	Nephritis.....	6	9	7	11
Hydrophobia.....	1	..	..	..	Nephria (or Bright's Disease).....	34	40	46	54
II. Haemorrhage.....	55	45	63	46	Ischuria.....	2	5	3	2
Dropsy.....	214	231	220	236	Diabetes.....	10	9	13	11
Abscess.....	30	24	17	32	Stone.....	12	4	5	11
Ulcer.....	12	21	12	16	Cystitis.....	7	12	14	8
Fistula.....	3	7	3	6	Stricture of Urethra	13	12	13	13
Mortification.....	59	56	44	46	Dis. of Kidneys, &c.	51	65	98	81
Cancer.....	213	236	231	243	Paramenia.....	4	3	3	2
Gout.....	20	11	15	15	Ovarian Dropsy.....	16	8	12	10
					Childbirth, see Metria	66	65	62	68
					Dis. of Uterus, &c.	36	30	35	38
					X. Arthritis.....	3	3	8	6
					Rheumatism.....	60	60	60	69
					Disease of Joints, &c.	38	46	42	49
					Carbuncle.....	2	3	17	20
					Phlegmon.....	7	5	9	10
					Disease of Skin, &c.	15	14	14	12
					XVII. Intemperance ..	18	28	19	22
					Privation.....	8	13	12	10
					Want of Breast Milk, see Privation	40	56	64	56
					Neglect.....	2	1	..	2
					Cold, see Privation..	1	4	4	5
					Poison.....	20	29	23	24
					Burns and Scalds ..	105	100	88	98
					Hanging, &c.....	45	71	76	72
					Drowning.....	48	70	72	68
					Fractures and Con- tusions.....	139	163	161	181
					Wounds.....	19	34	35	25
					Other Violence.....	9	9	11	13
					Causes not specified	83	87	82	146

* Under the head of "sudden deaths," are classed not only deaths described as sudden, of which the cause has not been ascertained or stated; but also all deaths returned by the Coroner in vague terms, such as "found dead," "natural causes," &c. &c.

METHEOLOGICAL TABLE for the Quarter ended December 31st, 1892.

NAMES OF THE PLACES.	Mean Pressure of Dry Air reduced to the level of the Sea.	Mean Temperature of the Air.	Highest Reading of the Thermometer.	Lowest Reading of the Thermometer.	Mean Daily Range of Temperature.	Mean Monthly Range of Temperature.	Range of Temperature in the Quarter.	Mean Temperature of Evaporation.	Mean Temperature of the Dew Point.	Wind.		Cloud.	No. of Days on which it fell.	Rank.	Mean Weight of Vapour in a Cubic Foot of Air.	Mean additional Weight required to saturate a Cubic Foot of Air.	Humidity.	Mean whole Amount of Water in a Vertical Column of Atmosphere.	Mean Weight of a Cubic Foot of Air.	Height of Clouds above the level of the Sea.
										Mean estim.	General Direction.									
Jersey	30.56	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Guernsey	30.57	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Helston	30.57	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Falmouth	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Penryn	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0	S.W. & N.W.	6.0	13.0	13.0	4.0	0.6	80.0	4.0	13.0	13.0
Truro	30.58	53.0	67.0	37.0	10.0	13.0	34.0	45.0	45.1	2.0										

REVENUE.

Abstract of the Net Produce of the Revenue of Great Britain in the Years and Quarters ending 5th July, 1852 and 1853; showing the Increase or Decrease thereof.—(Continued from page 190.)

[Compiled from the "London Gazette."]

Sources of Revenue.	Years ended 5th July.			
	1852.	1853.	Increase.	Decrease.
	£	£	£	£
Customs.....	19,011,774	18,954,362		57,412
Excise.....	13,226,404	13,737,599	531,195	
Stamps.....	6,002,860	6,477,347	474,487	
Taxes.....	3,149,702	3,201,047	51,345	
Property Tax.....	5,363,910	5,589,079	225,169	
Post Office.....	1,041,000	1,066,000	25,000	
Crown Lands.....	220,000	392,888	172,888	
Miscellaneous.....	302,948	159,862		143,086
Total Ordinary Revenue	48,298,598	49,578,184	1,480,084	200,498
Imprest and other Moneys.	595,004	758,789	163,785	
Repayments of Advances....	842,886	1,322,469	479,583	
Total Income.....	49,736,488	51,659,442	2,123,452	200,498
Deduct Decrease			200,498	
Increase on the Year			1,922,954	

Sources of Revenue.	Quarters ended 5th July.			
	1852.	1853.	Increase.	Decrease.
	£	£	£	£
Customs.....	4,502,164	4,943,337	441,173	
Excise.....	3,443,516	3,795,617	352,101	
Stamps.....	1,626,826	1,675,148	48,322	
Taxes.....	1,503,707	1,510,483	6,776	
Property Tax.....	1,056,991	1,053,027		3,964
Post Office.....	230,000	251,000	21,000	
Crown Lands.....	60,000	200,888	140,888	
Miscellaneous.....	202,189	90,537		111,652
Total Ordinary Revenue	12,625,393	13,520,037	1,010,260	115,616
Imprest and other Moneys.	212,688	256,759	44,071	
Repayments of Advances....	216,652	424,573	207,921	
Total Income.....	13,054,733	14,201,369	1,262,252	115,616
Deduct Decrease			115,616	
Increase on the Quarter			1,146,636	

Consolidated Fund Operations.—The total income brought to this account in the quarter ended 5th July, 1853, was 14,529,380*l.* The total charge upon it was 8,364,718*l.*, leaving a surplus of 6,164,662*l.*

CORN.

Average Prices of Corn per Imperial Quarter in England and Wales, during each Week of the First Quarter of 1853; together with the Monthly and Quarterly Average—(Continued from p. 191.)

[Supplied by the Controller of Corn Returns.]

Weeks ended on a Saturday, 1853.		Weekly Average.					
		Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
		<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
April	2	44 4	31 6	19 0	30 5	34 8	32 5
	9	44 9	31 4	18 9	31 10	34 5	32 10
	16	44 10	31 11	19 0	29 10	34 3	33 7
	23	44 7	31 5	19 0	27 3	34 9	31 11
	30	44 4	31 6	18 8	30 0	35 3	33 3
Average for April		44 6	31 6	18 10	29 10	34 8	32 9
May	7	44 6	31 4	19 0	30 7	35 2	33 3
	14	44 7	31 5	18 8	29 8	35 5	33 3
	21	43 11	30 11	19 1	35 8	36 0	32 1
	28	43 9	30 6	18 7	33 2	36 7	32 7
Average for May		44 2	31 0	18 10	32 3	35 9	32 9
June	4	43 3	29 6	19 0	34 0	36 9	33 8
	11	43 11	29 10	18 10	34 9	38 1	34 9
	18	45 0	29 1	18 11	30 11	38 11	34 6
	25	46 11	29 3	20 1	32 8	39 5	34 9
Average for June		44 9	29 5	19 2	33 1	38 3	34 5
Average for the Quarter ..		44 6	30 8	18 11	31 7	36 1	33 3

Foreign and Colonial Wheat and Wheat-Flour imported in each of the Months ended 5th April, 5th May, and 5th June, 1853; the Quantities Entered for Home Consumption during the same Months; and the Quantities remaining in Warehouses at the close thereof.—(Continued from p. 191.)

[Compiled from the "London Gazette."]

WHEAT.

Months ended	Imported.			Quantities entered for Home Consumption.			In Bond at the Month's end.		
	Foreign.	Colonial.	Total.	Foreign.	Colonial.	Total.	Foreign.	Colonial.	Total.
1853.	qrs.	qrs.	qrs.	qrs.	qrs.	qrs.	qrs.	qrs.	qrs.
5th April	286,477	..	286,477	287,153	..	287,153	711	1	712
5th May	343,277	..	343,277	343,401	..	343,401	588	1	589
5th June	525,236	..	525,236	525,236	..	525,236	589	1	590

WHEAT-FLOUR.

Months ended	Imported.			Quantities entered for Home Consumption.			In Bond at the Month's end.		
	Foreign.	Colonial.	Total.	Foreign.	Colonial.	Total.	Foreign.	Colonial.	Total.
1853.	cwts.	cwts.	cwts.	cwts.	cwts.	cwts.	cwts.	cwts.	cwts.
5th April	762,170	36	762,206	762,170	36	762,206	8	7	15
5th May	535,606	138	535,744	535,606	138	535,744	8	7	15
5th June	339,742	2,222	341,964	339,742	2,222	341,964	8	7	15

Fluctuations in the Stock and Share Market during the Months of April, May, and June, 1853.

Stocks and Shares.	Amount of Share.			Amount Paid.			Price on the			Highest Price during the Months of			Lowest Price during the Months of		
	April.	May.	June.	April.	May.	June.	1st April.	1st May.	1st June.	April.	May.	June.	April.	May.	June.
Consols	99½	100½	101½	99½	100½	101½	99½	100½	101½	99½	100½	101½	99½	100½	101½
Exchequer Bills	99½	100½	101½	99½	100½	101½	99½	100½	101½	99½	100½	101½	99½	100½	101½
RAILWAYS—															
Bristol & Exeter	Stock	Stock	Stock	100	100	100	100	100	100	100	100	100	100	100	100
Great Northern	Stock	Stock	Stock	100	100	100	100	100	100	100	100	100	100	100	100
London and North-Western	Stock	Stock	Stock	100	100	100	100	100	100	100	100	100	100	100	100
Midland	Stock	Stock	Stock	100	100	100	100	100	100	100	100	100	100	100	100
North Staffordshire	Stock	Stock	Stock	100	100	100	100	100	100	100	100	100	100	100	100
South-Eastern	Stock	Stock	Stock	100	100	100	100	100	100	100	100	100	100	100	100
York, Newcastle, & Berwick	Stock	Stock	Stock	100	100	100	100	100	100	100	100	100	100	100	100
York and North Midland	Stock	Stock	Stock	100	100	100	100	100	100	100	100	100	100	100	100
Northern of France	20	20	20	16	16	16	16	16	16	16	16	16	16	16	16
East Indian	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20

Average Price of Meat as sold in Smithfield Market in the Months of April, May, and June, 1853.

[Supplied by the Board of Trade.]

Description.	June.			May.			April.			Description.	April.			May.			June.
	April.	May.	June.	April.	May.	June.	April.	May.	June.		April.	May.	June.	April.	May.	June.	
Inferior Beasts	3 0	3 2	3 2	3 0	3 2	3 2	3 0	3 2	3 2	Coarse Calves	3 8	3 8	3 8	3 8	3 8	3 8	3 8
2nd class	4 2	4 2	4 2	4 2	4 2	4 2	4 2	4 2	4 2	Small Prime Calves	4 6	4 6	4 6	4 6	4 6	4 6	4 6
3rd class	4 6	4 6	4 6	4 6	4 6	4 6	4 6	4 6	4 6	Large Hogs	3 6	3 6	3 6	3 6	3 6	3 6	3 6
4th class (Scots)	4 6	4 6	4 6	4 6	4 6	4 6	4 6	4 6	4 6	Small Neat Porters	4 6	4 6	4 6	4 6	4 6	4 6	4 6

N.B.—Price of Meat at the rate of 8 lbs. Avoidupois to the stone, sinking the offal.

CURRENCY.

BANK OF ENGLAND.

An Account, pursuant to the Act 7th and 8th Victoria, c. 32, for each Week ended on a Saturday, for the Second Quarter of 1853.

[Compiled from the "London Gazette."]

ISSUE DEPARTMENT.

Date.	Notes Issued.	Notes in hands of Public.	Government Debt.	Other Securities.	Gold Coin and Bullion.	Silver Bullion.
1853.	£	£	£	£	£	£
April 2 ...	32,570,030	22,387,170	11,015,100	2,984,900	18,550,876	19,154
" 9 ...	32,816,460	22,976,715	11,015,100	2,984,900	18,797,306	19,154
" 16 ...	32,619,885	23,613,165	11,015,100	2,984,900	18,500,731	19,154
" 23 ...	31,992,475	23,408,330	11,015,100	2,984,900	17,973,321	19,154
" 30 ...	31,808,965	23,124,555	11,015,100	2,984,900	17,789,811	19,154
May 7 ...	31,744,240	23,469,845	11,015,100	2,984,900	17,725,086	19,154
" 14 ...	31,591,025	23,162,805	11,015,100	2,984,900	17,571,871	19,154
" 21 ...	31,372,785	22,638,755	11,015,100	2,984,900	17,353,631	19,154
" 28 ...	31,453,890	22,581,030	11,015,100	2,984,900	17,434,736	19,154
June 4 ...	31,790,405	23,423,435	11,015,100	2,984,900	17,771,251	19,154
" 11 ...	31,991,065	23,083,080	11,015,100	2,984,900	17,971,911	19,154
" 18 ...	32,115,995	22,695,780	11,015,100	2,984,900	18,096,841	19,154
" 25 ...	32,194,885	22,631,530	11,015,100	2,984,900	18,175,731	19,154

BANKING DEPARTMENT.

Date.	Proprietors' Capital.	Rest.	Public Deposits.	Other Deposits.	Seven Day and other Bills.	Total Dr.
1853.	£	£	£	£	£	£
April 2 ...	14,553,000	3,635,929	8,234,115	12,690,303	1,366,690	40,469,937
" 9 ...	14,553,000	3,106,886	4,733,108	14,933,897	1,469,737	38,796,628
" 16 ...	14,553,000	3,110,471	3,780,216	13,622,965	1,419,595	36,486,250
" 23 ...	14,553,000	3,114,339	3,712,989	13,206,923	1,412,479	35,999,730
" 30 ...	14,553,000	3,120,987	3,934,322	12,922,620	1,427,737	35,958,666
May 7 ...	14,553,000	3,146,809	4,265,469	12,201,614	1,418,032	35,584,924
" 14 ...	14,553,000	3,151,746	5,095,691	12,011,402	1,383,202	36,195,041
" 21 ...	14,553,000	3,156,577	5,815,477	11,953,493	1,326,133	36,804,685
" 28 ...	14,553,000	3,110,204	5,606,412	11,935,583	1,303,685	36,508,884
June 4 ...	14,553,000	3,106,195	4,635,454	12,902,839	1,390,023	36,587,511
" 11 ...	14,553,000	3,111,594	3,737,044	14,033,701	1,332,238	36,767,577
" 18 ...	14,553,000	3,114,532	4,615,831	13,174,519	1,307,045	36,764,927
" 25 ...	14,553,000	3,116,211	5,532,113	12,332,410	1,323,394	36,857,128

Date.	Government Securities.	Other Securities.	Notes.	Gold and Silver Coin.	Total Cr.
1853.	£	£	£	£	£
April 2 ...	13,464,538	16,385,120	10,182,860	437,419	40,469,937
" 9 ...	13,671,382	14,875,627	9,839,745	409,874	38,796,628
" 16 ...	13,221,382	14,085,037	9,906,720	273,111	36,486,250
" 23 ...	13,221,382	13,632,497	8,584,145	561,706	35,999,730
" 30 ...	13,221,382	13,606,745	8,684,410	546,129	35,958,666
May 7 ...	13,221,382	13,608,166	8,274,395	480,981	35,584,924
" 14 ...	13,124,653	14,014,176	8,428,220	627,992	36,195,041
" 21 ...	13,124,653	14,368,263	8,734,030	577,739	36,804,685
" 28 ...	13,124,653	14,021,714	8,871,880	490,657	36,508,884
June 4 ...	13,124,653	14,632,359	8,366,970	463,539	36,587,511
" 11 ...	13,124,910	14,246,232	8,907,985	488,460	36,767,577
" 18 ...	13,123,910	13,700,971	9,420,215	519,831	36,764,927
" 25 ...	13,118,010	13,705,389	9,563,325	470,404	36,857,128

CURRENCY.—Continued.

COUNTRY BANKS.

Average amount of Promissory Notes in Circulation in England and Wales in each week, ended on a Saturday, for the First Quarter of 1853.—(Continued from page 96.)

[Compiled from the "London Gazette."]

ENGLAND AND WALES.			
Date.	Private Banks.	Joint Stock Banks.	Total.
1853.			
Jan. 1.....	3,651,433	2,912,108	6,563,541
" 8.....	3,773,630	2,989,410	6,763,040
" 15.....	3,834,189	3,045,753	6,879,942
" 22.....	3,826,969	3,011,139	6,838,108
" 29.....	3,797,141	2,998,883	6,796,024
Feb. 5.....	3,744,785	2,976,548	6,721,333
" 12.....	3,669,947	2,946,939	6,616,886
" 19.....	3,710,947	2,961,956	6,672,903
" 26.....	3,649,567	2,961,645	6,611,212
Mar. 5.....	3,655,209	2,977,210	6,632,419
" 12.....	3,683,870	3,013,326	6,697,196
" 19.....	3,698,493	3,022,263	6,720,756
" 26.....	3,770,455	3,098,520	6,868,975

Fixed Issues—Private Banks, £4,655,619; Joint Stock Banks, £3,409,987.

Average amount of Promissory Notes in Circulation in Scotland and Ireland during the Months ended the 22nd of January, the 19th of February, and the 19th of March, 1853.

SCOTLAND.			
Date.	£5 and above.	Under £5.	Total.
1853.	£	£	£
Jan. 22.....	1,215,388	2,397,318	3,612,706
Feb. 19.....	1,211,296	2,328,685	3,540,001
Mar. 19.....	1,172,507	2,271,385	3,443,892

IRELAND.			
Date.	£5 and above.	Under £5.	Total.
1853.	£	£	£
Jan. 22.....	2,409,878	3,279,771	5,689,649
Feb. 19.....	2,405,439	3,275,997	5,681,436
Mar. 19.....	2,362,718	3,157,824	5,520,542

Fixed Issues—Scotland, £3,087,209; Ireland, £6,354,494.

CURRENCY.—Continued.

COUNTRY BANKS.

Average amount of Promissory Notes in Circulation in England and Wales in each Week, ended on a Saturday, for the Second Quarter of 1853.

[Compiled from the "London Gazette."]

ENGLAND AND WALES.			
Date.	Private Banks.	Joint Stock Banks.	Total.
1853.			
April 2.....	3,856,364	3,153,832	7,010,196
" 9.....	3,919,239	3,167,999	7,087,238
" 16.....	3,904,080	3,107,970	7,012,050
" 23.....	3,930,417	3,130,370	7,060,787
" 30.....	3,922,378	3,155,871	7,078,249
May 7.....	3,902,185	3,142,516	7,044,701
" 14.....	3,891,116	3,113,781	7,004,897
" 21.....	3,852,435	3,129,983	6,982,418
" 28.....	3,765,844	3,054,761	6,820,605
June 4.....	3,720,005	2,997,487	6,717,492
" 11.....	3,694,974	2,982,365	6,677,339

Fixed Issues—Private Banks, £4,655,619; Joint Stock Banks, £3,409,987.

Average amount of Promissory Notes in Circulation in Scotland and Ireland during the Months ended the 16th of April, the 14th of May, and the 11th of June.

SCOTLAND.			
Date.	£5 and above.	Under £5.	Total.
1853.	£	£	£
April 16.....	1,215,986	2,276,633	3,492,619
May 14.....	1,303,709	2,383,618	3,687,327
June 11.....	1,433,946	2,592,273	4,026,219

IRELAND.			
Date.	£5 and above.	Under £5.	Total.
1853.	£	£	£
April 16.....	2,435,756	3,079,876	5,515,632
May 14.....	2,539,682	2,968,864	5,508,546
June 11.....	2,511,754	2,854,413	5,366,167

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Analytical View of Railway Accidents. By F. G. P. NEISON, Esq.,
Honorary Secretary.

[Read before the Statistical Society, 18th April, 1853.]

THE unusual degree of public attention recently directed to the nature, cause, and extent of railway accidents, has induced me to submit the present paper to the consideration of the Society. The vital importance of the railway system to the commercial and social interests of this country, and its rapidly increasing magnitude, threatening to absorb every other means of intercommunication, render an investigation into the causes of accidents in railway traffic, and their effect on the loss of life and limb, one of no ordinary importance.

In order to accomplish as complete an analysis as possible of what will immediately appear to be a very complicated question, there has been embraced in the present inquiry the whole of the information contained in the documents issued by the Railway Department of the Board of Trade, from the 7th of August, 1840, until the most recent return, which brings the results down to the 1st of January, 1853.

Before entering into the inquiry as to the nature of accidents, it will be necessary to understand the extent of railway communication, and the degree to which the public have availed themselves of it.

The following table shows the number of miles open to traffic at various dates since the month of August, 1840 :—

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TABLE I.

DATE.	Miles open to Traffic.	Periodical Increase of Railway Communication.
		Miles.
August, 1840	1,330	
31st December, 1840	1,556	226 (increase of 5 months).
" 1841	1,717	161 (increase of 1 year).
" 1842	1,857	140 "
" 1843	1,952	95 "
" 1844	2,148	196 "
30th June, 1845	2,343	195 (half-yearly).
" 1846	2,765	422 (increase of 1 year).
" 1847	3,603	838 "
" 1848	4,478	875 "
" 1849	5,447	969 "
" 1850	6,308	861 "
" 1851	6,698	390 "
" 1852	7,076	378 "
31st December, 1852	7,336	260 (half-yearly).

From the third column of the above table, it will be seen that the five years immediately succeeding the 30th of June, 1845, were a period of the greatest activity in the construction of railways, nearly 4,000 miles having been opened to traffic in that time, or upwards of one-half of the whole extent of railway communication. The maximum extent of railway opened for traffic in any one year was in 1849; since then much less activity has prevailed, and the number of miles opened has gradually declined every year down to 1852. However satisfactory this activity and energy in developing the railway system may appear, it still contrasts very disadvantageously with the progress of our neighbours in the United States of America. From the seventh census, printed by order of the House of Representatives, it appears that

ABSTRACT A.

	Number of Miles open to Traffic.	Number of Miles in Progress.	Total Miles.
On the 1st of January, 1852	10,843	10,898	21,741
On the 1st of January, 1853	13,266	12,681	25,947
Increase in 1 year	2,423	1,783	4,206

This active spirit of railway extension is not confined to one or two of the States; but appears to be to a greater or less extent characteristic of at least twenty-one of them.

The following table contains a large amount of information on the extent of passenger traffic on the railways of this country; viz.:—

- (a.) The average fare per mile for each class of passengers for each year since the 7th of August, 1840.
- (b.) The number of passengers of each class who have travelled during each year.
- (c.) And the amount of money received for passenger traffic from each class during each year.

TABLE II.

Date.	Average Fare per Mile, in Pence.				Number of Passengers.					Receipts in £.				
	1st Class.	2nd Class.	3rd Class.	Parliamentary.	1st Class.	2nd Class.	3rd Class.	Parliamentary.	All Classes.*	1st Class.	2nd Class.	3rd Class.	Parliamentary.	All Classes.
7th August to Dec. 31st, 1840	2-5-16	1-8-26	1-2-97	..	..	..	..	..	6,027,866	..	..	..	..	766,810
June 30th, 1841	2-5-16	1-8-26	1-2-97	..	1,630,040	4,144,169	2,357,746	..	9,122,816	281,088	231,046	68,616	..	1,145,396
" 1842	2-5-31	1-8-03	1-2-49	..	2,926,980	7,611,966	6,332,601	..	19,000,000	..	..	..	..	2,970,000
" 1843	2-4-50	1-7-80	1-2-01	..	4,276,540	11,198,612	6,431,911	..	23,466,896	1,374,942	1,288,768	411,382	..	3,110,257
Average Fare of the 4 years	2-5-06	1-8-09	1-2-61	..	8,733,560	22,964,647	14,122,167	..	67,617,578	..	..	..	..	7,982,463
June 30th, 1844	2-3-49	1-6-99	1-1-45	..	4,875,332	12,235,686	8,583,085	..	27,763,602	1,432,688	1,875,679	433,069	..	3,468,294
" 1845	2-2-12	1-6-88	1-0-68	..	6,474,168	14,325,825	11,136,820	..	33,791,253	1,610,905	1,698,115	661,903	..	3,976,341
" 1846	2-0-08	1-4-65	1-0-63	9-28	6,160,354	16,981,065	14,569,516	3,946,922	43,790,984	1,661,898	1,937,947	738,474	263,732	4,725,216
" 1847	2-0-46	1-4-14	1-0-77	9-05	6,572,714	18,699,288	15,865,310	6,984,493	51,352,163	1,675,769	2,048,080	737,462	539,977	5,148,002
Average Fare of the 4 years	2-1-43	1-6-29	1-0-67	9-16	23,082,568	62,191,864	52,143,730	10,982,415	166,688,002	6,287,160	6,959,831	2,621,868	838,709	17,288,863
June 30th, 1848	2-0-89	1-6-95	1-0-63	9-89	7,190,779	21,690,510	15,241,629	13,022,489	57,965,070	1,792,533	2,352,153	661,088	902,851	5,720,382
" 1849	2-2-17	1-6-14	1-0-62	9-52	7,078,690	23,392,460	14,378,376	15,432,467	60,398,169	1,869,646	2,502,588	651,366	1,069,786	6,106,376
" 1850	2-1-83	1-5-84	1-0-61	9-38	7,734,728	24,226,668	15,647,749	19,249,974	60,840,175	1,969,247	2,594,817	688,407	1,211,684	4,465,576
" 1851	2-1-03	1-5-31	1-0-29	9-13	9,175,781	28,933,044	16,990,073	23,820,728	78,969,623	2,212,799	2,847,469	714,480	1,402,593	7,177,341
Average Fare of the 4 years	2-1-49	1-5-68	1-0-53	9-38	31,179,978	98,242,672	63,157,727	71,596,643	264,173,027	7,864,225	10,297,027	2,715,391	4,576,864	26,469,274
June 30th, 1852	2-1-26	1-5-50	1-0-23	9-05	10,143,442	30,967,613	16,642,137	29,973,553	86,758,997	2,399,971	3,010,921	662,230	1,809,183	7,984,653
Dec. 31st, 1852	2-0-36	1-4-86	1-0-47	9-01	6,859,214	17,524,061	9,522,318	16,962,553	49,886,123	1,308,973	1,630,349	440,916	919,686	4,354,831
Average Fare of the 4 years	2-1-49	1-5-68	1-0-53	9-38	31,179,978	98,242,672	63,157,727	71,596,643	264,173,027	7,864,225	10,297,027	2,715,391	4,576,864	26,469,274
June 30th, 1853	2-1-26	1-5-50	1-0-23	9-05	10,143,442	30,967,613	16,642,137	29,973,553	86,758,997	2,399,971	3,010,921	662,230	1,809,183	7,984,653
Dec. 31st, 1853	2-0-36	1-4-86	1-0-47	9-01	6,859,214	17,524,061	9,522,318	16,962,553	49,886,123	1,308,973	1,630,349	440,916	919,686	4,354,831
Average Fare of the 4 years	2-1-49	1-5-68	1-0-53	9-38	31,179,978	98,242,672	63,157,727	71,596,643	264,173,027	7,864,225	10,297,027	2,715,391	4,576,864	26,469,274
June 30th, 1854	2-1-26	1-5-50	1-0-23	9-05	10,143,442	30,967,613	16,642,137	29,973,553	86,758,997	2,399,971	3,010,921	662,230	1,809,183	7,984,653
Dec. 31st, 1854	2-0-36	1-4-86	1-0-47	9-01	6,859,214	17,524,061	9,522,318	16,962,553	49,886,123	1,308,973	1,630,349	440,916	919,686	4,354,831
Average Fare of the 4 years	2-1-49	1-5-68	1-0-53	9-38	31,179,978	98,242,672	63,157,727	71,596,643	264,173,027	7,864,225	10,297,027	2,715,391	4,576,864	26,469,274
June 30th, 1855	2-1-26	1-5-50	1-0-23	9-05	10,143,442	30,967,613	16,642,137	29,973,553	86,758,997	2,399,971	3,010,921	662,230	1,809,183	7,984,653
Dec. 31st, 1855	2-0-36	1-4-86	1-0-47	9-01	6,859,214	17,524,061	9,522,318	16,962,553	49,886,123	1,308,973	1,630,349	440,916	919,686	4,354,831
Average Fare of the 4 years	2-1-49	1-5-68	1-0-53	9-38	31,179,978	98,242,672	63,157,727	71,596,643	264,173,027	7,864,225	10,297,027	2,715,391	4,576,864	26,469,274
June 30th, 1856	2-1-26	1-5-50	1-0-23	9-05	10,143,442	30,967,613	16,642,137	29,973,553	86,758,997	2,399,971	3,010,921	662,230	1,809,183	7,984,653
Dec. 31st, 1856	2-0-36	1-4-86	1-0-47	9-01	6,859,214	17,524,061	9,522,318	16,962,553	49,886,123	1,308,973	1,630,349	440,916	919,686	4,354,831
Average Fare of the 4 years	2-1-49	1-5-68	1-0-53	9-38	31,179,978	98,242,672	63,157,727	71,596,643	264,173,027	7,864,225	10,297,027	2,715,391	4,576,864	26,469,274
June 30th, 1857	2-1-26	1-5-50	1-0-23	9-05	10,143,442	30,967,613	16,642,137	29,973,553	86,758,997	2,399,971	3,010,921	662,230	1,809,183	7,984,653
Dec. 31st, 1857	2-0-36	1-4-86	1-0-47	9-01	6,859,214	17,524,061	9,522,318	16,962,553	49,886,123	1,308,973	1,630,349	440,916	919,686	4,354,831
Average Fare of the 4 years	2-1-49	1-5-68	1-0-53	9-38	31,179,978	98,242,672	63,157,727	71,596,643	264,173,027	7,864,225	10,297,027	2,715,391	4,576,864	26,469,274
June 30th, 1858	2-1-26	1-5-50	1-0-23	9-05	10,143,442	30,967,613	16,642,137	29,973,553	86,758,997	2,399,971	3,010,921	662,230	1,809,183	7,984,653
Dec. 31st, 1858	2-0-36	1-4-86	1-0-47	9-01	6,859,214	17,524,061	9,522,318	16,962,553	49,886,123	1,308,973	1,630,349	440,916	919,686	4,354,831
Average Fare of the 4 years	2-1-49	1-5-68	1-0-53	9-38	31,179,978	98,242,672	63,157,727	71,596,643	264,173,027	7,864,225	10,297,027	2,715,391	4,576,864	26,469,274
June 30th, 1859	2-1-26	1-5-50	1-0-23	9-05	10,143,442	30,967,613	16,642,137	29,973,553	86,758,997	2,399,971	3,010,921	662,230	1,809,183	7,984,653
Dec. 31st, 1859	2-0-36	1-4-86	1-0-47	9-01	6,859,214	17,524,061	9,522,318	16,962,553	49,886,123	1,308,973	1,630,349	440,916	919,686	4,354,831
Average Fare of the 4 years	2-1-49	1-5-68	1-0-53	9-38	31,179,978	98,242,672	63,157,727	71,596,643	264,173,027	7,864,225	10,297,027	2,715,391	4,576,864	26,469,274
June 30th, 1860	2-1-26	1-5-50	1-0-23	9-05	10,143,442	30,967,613	16,642,137	29,973,553	86,758,997	2,399,971	3,010,921	662,230	1,809,183	7,984,653
Dec. 31st, 1860	2-0-36	1-4-86	1-0-47	9-01	6,859,214	17,524,061	9,522,318	16,962,553	49,886,123	1,308,973	1,630,349	440,916	919,686	4,354,831
Average Fare of the 4 years	2-1-49	1-5-68	1-0-53	9-38	31,179,978	98,242,672	63,157,727	71,596,643	264,173,027	7,864,225	10,297,027	2,715,391	4,576,864	26,469,274
June 30th, 1861	2-1-26	1-5-50	1-0-23	9-05	10,143,442	30,967,613	16,642,137	29,973,553	86,758,997	2,399,971	3,010,921	662,230	1,809,183	7,984,653
Dec. 31st, 1861	2-0-36	1-4-86	1-0-47	9-01	6,859,214	17,524,061	9,522,318	16,962,553	49,886,123	1,308,973	1,630,349	440,916	919,686	4,354,831
Average Fare of the 4 years	2-1-49	1-5-68	1-0-53	9-38	31,179,978	98,242,672	63,157,727	71,596,643	264,173,027	7,864,225	10,297,027	2,715,391	4,576,864	26,469,274
June 30th, 1862	2-1-26	1-5-50	1-0-23	9-05	10,143,442	30,967,613	16,642,137	29,973,553	86,758,997	2,399,971	3,010,921	662,230	1,809,183	7,984,653
Dec. 31st, 1862	2-0-36	1-4-86	1-0-47	9-01	6,859,214	17,524,061	9,522,318	16,962,553	49,886,123	1,308,973	1,630,349	440,916	919,686	4,354,831
Average Fare of the 4 years	2-1-49	1-5-68	1-0-53	9-38	31,179,978	98,242,672	63,157,727	71,596,643	264,173,027	7,864,225	10,297,027	2,715,391	4,576,864	26,469,274
June 30th, 1863	2-1-26	1-5-50	1-0-23	9-05	10,143,442	30,967,613	16,642,137	29,973,553	86,758,997	2,399,971	3,010,921	662,230	1,809,183	7,984,653
Dec. 31st, 1863	2-0-36	1-4-86	1-0-47	9-01	6,859,214	17,524,061	9,522,318	16,962,553	49,886,123	1,308,973	1,630,349	440,916	919,686	4,354,831
Average Fare of the 4 years	2-1-49	1-5-68	1-0-53	9-38	31,179,978	98,242,672	63,157,727	71,596,643	264,173,027	7,864,225	10,297,027	2,715,391	4,576,864	26,469,274
June 30th, 1864	2-1-26	1-5-50	1-0-23	9-05	10,143,442	30,967,613	16,642,137	29,973,553	86,758,997	2,399,971	3,010,921	662,230	1,809,183	7,984,653
Dec. 31st, 1864	2-0-36	1-4-86	1-0-47	9-01	6,859,214	17,524,061	9,522,318	16,962,553	49,886,123	1,308,973	1,630,349	440,916	919,686	4,354,831
Average Fare of the 4 years	2-1-49	1-5-68	1-0-53	9-38	31,179,978	98,242,672	63,157,727	71,596,643	264,173,027	7,864,225	10,297,027	2,715,391	4,576,864	26,469,274
June 30th, 1865	2-1-26	1-5-50	1-0-23	9-05	10,143,442	30,967,613	16,642,137	29,973,553	86,758,997	2,399,971	3,010,921	662,230	1,809,183	7,984,653
Dec. 31st, 1865	2-0-36	1-4-86	1-0-47	9-01	6,859,214	17,524,061	9,522,318	16,962,553	49,886,123	1,308,973	1,630,349	440,916	919,686	4,354,831
Average Fare of the 4 years	2-1-49	1-5-68	1-0-53	9-38	31,179,978	98,242,672	63,157,727	71,596,643	264,173,027	7,864,225	10,297,027	2,715,391	4,576,864	26,469,274
June 30th, 1866	2-1-26	1-5-50	1-0-23	9-05	10,143,442	30,967,613	16,642,137	29,973,553	86,758,997	2,399,971	3,010,921	662,230	1,809,183	7,984,653
Dec. 31st, 1866	2-0-36	1-4-86	1-0-47	9-01	6,859,214	17,524,061	9,522,318	16,962,553	49,886,123	1,308,973	1,630,349	440,916	919,686	4,354,831
Average Fare of the 4 years	2-1-49	1-5-68	1-0-53	9-38										

From the above table it appears that, in the year ending the 30th June, 1842, the total number of passengers travelling by railways was 19,000,000; but in the year ending the 30th of June, 1852, just ten years after, the number of passengers was no less than 86,758,997, being an increase of about 457 per cent., while, in the same ten years, the number of miles of railway in operation had increased from 1,787 miles to 7,076 miles, being an increase of nearly 396 per cent., so that the passenger traffic has increased to a much greater extent than the line of railway communication.

With respect to the revenue from passenger traffic on railways, it is remarkably curious to observe the fluctuations in the receipts from the different classes. The parliamentary trains cannot be considered to have been in proper operation prior to the years 1846-7; and since then the following very striking fluctuations in the passenger traffic of each class manifests itself:—

ABSTRACT B.

In the Year ending the	The Number of Passengers by the			
	First Class.	Second Class.	Third Class.	Parliamentary Class.
30th June, 1847	6,572,714	18,699,288	15,865,310	6,985,493
30th June, 1852	10,143,442	30,967,913	15,642,137	29,973,553
Increase of Traffic per annum in the above 5 years	3,570,728	12,268,625	— 223,173	22,988,060
Or, an Increase in each Class of	54·3 per cent.	65·6 per cent.	— 1·4 per cent.	329·1 per cent.

It thus appears that, while there has been a pretty uniform rate of increase, in the first and second classes, of 54·3 per cent. and 65·6 per cent. respectively, there has been actually a slight decrease in the number of passengers travelling by the third class carriages; in fact, it will be seen from the figures in Table II. preceding, that ever since the year 1846, the number of passengers travelling by third class carriages has been very uniform, notwithstanding that the line of railway communication has since then increased 156 per cent., the greatest number, in any one year, being 16,990,073, in 1851, and the least being 14,378,376, in 1849; but, viewed in connection with this, will be seen the wonderful increase in the number of persons travelling by the parliamentary trains: ranging from 6,985,493, in 1847, to no less than 29,973,553, in the year 1852, being an augmentation of 329·1 per cent. This very remarkable result in the increase of passengers by the parliamentary trains will be hereafter referred to; but it is now necessary to direct attention to the receipts from each of these classes.

ABSTRACT C.

In the Year ending the	Receipts from the			
	First Class.	Second Class.	Third Class.	Parliamentary Class.
	£	£	£	£
30th June, 1847....	1,675,759	2,048,080	737,452	539,977
30th June, 1852....	2,389,971	3,010,921	662,230	1,809,163
Increase of Receipts yearly in the above 4 years)	714,212	962,841	-75,222	1,269,186
Or, an Increase in each Class of)	42·7 per cent.	47·0 per cent.	-10·2 per cent.	235·00 per cent.

These results follow in somewhat the same order as those deduced in Abstract B, with regard to the number of passengers; but a further abstract of the facts furnished in Table II. is calculated to throw some additional light on the increase of receipts in recent years from the parliamentary trains.

ABSTRACT D.

During the Years	Average Fare per Mile, in Pence.			
	First Class.	Second Class.	Third Class.	Parliamentary Class.
1840—43	2·506	1·809	1·261	
1844	2·349	1·699	1·145	
1845	2·212	1·588	·968	
1846	2·008	1·465	·953	·926
1847	2·046	1·414	·877	·905
1848	2·089	1·695	·953	·939
1849	2·217	1·614	·982	·952
1850	2·183	1·584	·951	·933
1851	2·103	1·531	·929	·913
1852	2·126	1·550	1·023	·905

From this abstract it will be seen that, in the first and second classes the minimum rate of fares was charged in the years 1846-7, until which period the scale of charges pretty uniformly and gradually decreased; but since then they have fluctuated at considerably higher prices, and have recently shown a very decided tendency to increase.

It may be interesting to observe in this place, the difference in the rates of fares charged in different parts of the kingdom. The form of the returns of the railway department do not admit of this being done prior to the year 1850; and the following figures embrace, therefore, only the three years 1850-2;—

Place.	Average Fare per Mile during 1850-52, in Pence.			
	First Class.	Second Class.	Third Class.	Parliamentary Class.
England and Wales	2·257	1·567	0·983	·916
Scotland	2·022	1·565	1·120	·936
Ireland	1·698	1·298	0·751	·844

These results are calculated to throw some light on this branch of railway management. In Ireland, it will be seen, the fares are for every class less than in either England or Scotland. What is also worthy of remark is, the fact that in Ireland the fares for every class of passengers have, during the above three years, been uniformly decreasing, the rates, in 1852, being about 5 per cent. less in the first, and 8 per cent. less in the parliamentary class than they were in 1850. In Scotland, on the other hand, there has, in the same period, been a decided increase of fares in every class; while in England the fares in the second and third classes only, have increased. If the object of this paper admitted of an extension of this part of the inquiry, it would be important to trace the connexion of cheap fares and the fluctuations in the passenger traffic. The scale of fares on the Scotch lines is very peculiar. The first-class fares are intermediate between those for England and Ireland; the second class almost precisely the same as on the English lines, but quite 20 per cent. higher than those on the Irish lines; the third class fares are 14 per cent. above the English, and 49 per cent. above those of the Irish lines; and the parliamentary trains charge fares 2 per cent. above those of the English, and 11 per cent. above those of the Irish railways.

It is, however, in the parliamentary trains that the evident advantages and effects of cheap travelling are to be witnessed. Nothing can be more conclusive on this head, than the facts contained in Abstracts B and C; for if any evidence were wanted of the adaptation of the railway system to the locomotive necessities of the population of this country, it is furnished in the magical effects which the cheap and convenient parliamentary trains, stopping at every station, have had on the amount of passenger traffic since the years 1846-7, and the consequent increase of revenue to railway companies. But the introduction of parliamentary trains shows a still more wonderful result on the passenger traffic of recent years, and of a character but very imperfectly understood by even those supposed to be giving attention to railway matters. This interesting feature will be seen in the following table, in which will be found for each year—

- (a.) The total mileage of each class of passengers, deduced from the data contained in Table II.
- (b.) The average distance, or number of miles, travelled by passengers in each class; also
- (c.) The average distance travelled by all classes of passengers taken collectively; and,
- (d.) Finally, the total distance, or number of miles travelled in the aggregate by the whole of the passengers.

TABLE III.

DATE.	Total Mileage of each Class.				Average Distance Travelled by Passengers in each Class.				Average Distance by each Passenger without distinction of Class.	Total Distance (or Mileage) by all the Passengers collectively.
	First Class.	Second Class.	Third Class.	Parliamentary.	First Class.	Second Class.	Third Class.	Parliamentary.		
1840...	...	...	...	...	...	...	...	...	17.5	105,487,661
1841...	26,812,846	30,367,492	12,678,180	...	17.5	7.3	5.4	...	17.5	159,649,280
1842...	...	...	...	...	...	...	...	...	17.5	332,500,000
1843...	132,524,530	173,765,124	82,207,893	...	30.9	15.1	12.8	...	17.5	410,670,680
Total	...	...	...	...	...	...	...	...	...	1,008,307,621
1844...	145,459,821	194,327,816	101,254,638	...	29.8	15.9	11.8	...	17.2	477,533,954
1845...	119,364,014	241,528,715	161,628,843	...	21.8	16.9	12.3	...	15.9	537,280,923
1846...	198,633,227	317,479,372	185,975,614	76,129,244	32.3	18.8	12.1	19.3	18.5	810,133,204
1847...	196,667,722	347,623,197	201,811,266	143,198,320	31.4	18.6	12.7	20.5	18.7	960,285,448
Total	650,134,784	1,100,959,100	650,670,361	219,327,564	28.6	17.7	12.5	20.1	17.7	2,785,233,529
1848...	205,939,646	333,048,212	166,473,368	230,760,639	28.6	15.3	10.9	17.6	16.3	944,830,641
1849...	204,562,490	372,132,045	159,193,320	267,172,941	28.9	15.9	11.1	17.3	16.6	1,002,609,439
1850...	216,499,899	393,154,091	173,730,473	311,674,341	28.0	16.2	11.2	16.2	16.4	1,096,178,870
1851...	252,530,552	446,370,059	184,580,409	368,699,146	27.5	15.4	10.9	15.5	15.9	1,255,617,005
Total	879,533,587	1,544,704,407	683,977,570	1,178,307,067	28.2	15.7	11.0	16.4	16.3	4,259,235,955
1852...	269,799,172	466,207,123	155,361,877	479,778,033	26.6	15.1	10.0	16.0	15.8	1,370,792,153

This table shows that the average distance travelled by the passengers of each class is yearly becoming less and less. This is observable in a remarkable degree in the second, third, and the parliamentary classes; and also to some extent in the first class. The following abstract gives a succinct view of these facts:—

ABSTRACT E.

During the Years	Average Distance in Miles travelled by Passengers in the				
	First Class.	Second Class.	Third Class.	Parliamentary Class.	All Classes.
1844—47	28·6	17·7	12·5	20·1	17·7
1848—51	28·2	15·7	11·0	16·4	16·3
1852	26·6	15·1	10·0	16·0	15·8

The figures given in this abstract disclose the remarkable feature connected with the introduction of cheap fares, and which, at first sight, may appear anomalous, viz., that of passengers by the parliamentary trains, travelling greater distances than those by either the second or third class carriages. An examination, however, of the facts given in Table II, with regard to third class passengers, will help to throw some light on this result. It will be there seen that, ever since the year 1846, little or no change has taken place in the amount of the third class traffic; in fact, the obviously absurd plan in use in this country, of having four classes or grades of passengers, has had the effect of almost neutralizing the third class and substituting the parliamentary; but this is evidently not the only effect which the cheap parliamentary fares have had on the character of the passenger traffic. The upper and middle classes, for whom the first and second class modes of conveyance are more particularly designed, are so circumstanced in their travelling excursions, as to be called on to go greater distances than those to whom the lower fares are a necessity. The avocations, business arrangements, and social relations of the wealthy and the middle classes are generally such as to involve the necessity of travelling to greater distances, and hence we should naturally expect the lessening average distance of each journey as shown in Abstract E, with respect to the first, second, and third classes; but whence the amount of the increased distances travelled by the parliamentary class beyond that by either the second or third class? It will be found in the circumstance of the immense disparity between the fares of the parliamentary trains and those of the first and second class, which induces a large number of persons, going distant journeys, to economise their expenses by the great saving in the prices of parliamentary trains. And this explanation will be fully understood by any one making a careful examination of the ninth column of Table II, and also the fifth column of Table III, in which it will be found, that during the year 1852 the traffic of the parliamentary class had so rapidly and so greatly increased, that

The total Mileage exceeded that of the Third Class by 324,416,156 miles.
 The total Mileage exceeded that of the First Class by 209,978,861 ,,
 The total Mileage exceeded that of the First and Third } 54,616,984 ;,
 Classes united by.....
 And even exceeded the total Mileage of the Second } 13,570,910 ,,
 Class by

Nothing more is needed to show the growing importance of cheap fares, and whence arises the unexpected result of the prolonged average journeys in the parliamentary classes beyond all the other classes except the first. It might almost, from an inspection of Column 5, Table II, and the last column of Abstract D, be affirmed, that even railway directors are themselves beginning to understand the importance of parliamentary trains and cheap fares; for while the fares of every other class show a very decided tendency to increase, the scale of the parliamentary class has been gradually lowering ever since the year 1849; and the legitimate consequence of this decrease in the rate of charge has been an increase of the revenue of that class, both absolutely and relatively, to the receipts from the whole passenger traffic.

ABSTRACT F.

During the Years ending	Amount of Revenue from		
	All Classes.	Parliamentary Classes.	Ratio of Receipts in Parliamentary Class to all Classes.
30th June, 1849	£ 6,105,975	£ 1,059,786	17·3 per cent.
30th June, 1852	7,984,652	1,809,163	22·7 per cent.
Increase	1,878,677	749,377	

It thus appears, that no less than 22·7 per cent. of the whole revenue from passenger traffic arises from parliamentary fares.

Apart from their financial interest and value, some of the conclusions arising directly out of the preceding tables and abstracts are of immediate importance in questions hereafter arising in this paper.

- 1st. The fact that, while since the year 1842, the extent of railway communication has increased 396 per cent., the number of passengers has increased at the higher ratio of 457 per cent.
- 2nd. Although the total mileage has increased from 332,500,000 miles to no less than 1,370,792,153 miles per annum in the same period, still the average distance travelled by each passenger, taking all classes collectively, has decreased from 17·5 miles to 15·8 miles each journey; and,
- 3rd. Consequently, this modification in the traffic of passengers must be attended with an increased number of arrivals and departures from the various railway stations, relatively to the whole amount of passenger traffic; a circumstance which will be found to have an important bearing on some of the results to be hereafter discussed.

Much has of late been written on the causes of railway accidents, and an endless variety of suggestions have been offered for their prevention for the future; but, almost without a single exception, the whole of what has been written, and all the remedies proposed, appear to have originated from observations on isolated, or at all events on a very partial number of cases, and nothing like a fair attempt has been made to analyse the whole of the accidents, so as to show the numerical frequency of each kind, or its tendency to occasion loss of life or limb. Some, while urging the necessity of improvement in the use and management of signals, will be found to assume that nearly all the accidents are due to causes which the suggested improvements would remove. Others again, while adopting the same view to a greater or less extent, take for granted that the bulk of all the accidents assume the form of collisions, and not contenting themselves with the simple aid of the telegraph and other station signals, bring before the public new forms of breaks and other kindred appliances calculated to stop, in a speedy manner, trains while in motion. These, and many other modes of looking at railway accidents, may, and very likely will, lead to improvements; but it still will be found that the majority of accidents would still be left untouched, and a great deal would remain to be done before anything like a considerable reduction in them is effected. By looking at so important a subject from such partial points of view, very little benefit is to be hoped for; and under this conviction, it has been believed necessary, prior to entering on the consideration of remedies, to ascertain, as correctly as possible, the true nature, extent, and causes of the various kinds of accidents.

A little reflection will suffice to show that all railway accidents may be so classified as to exhibit them—

- 1st. In relation to causes directly connected with the state and condition of the road and permanent way; and,
- 2nd. As connected with the construction and management of the rolling stock, namely, engines, carriages, trucks, &c. And this last branch of the classification is susceptible of many subdivisions; for even assuming that the permanent way, locomotive machinery, and appliances, were perfect in construction and durability, a large class of accidents will be found to take place from causes involving the considerations of skill in the management of the various details in the government of a railway and the working of trains and signals.

In the following analysis of the accidents, an attempt has been made to effect such a classification of them as would admit of showing to what extent they were due to causes beyond the control of the respective companies; and also to exhibit in what degree they were due to causes falling within the control or management of the companies.

By this mode of inquiry, results, it is hoped, will be arrived at to enable the public to judge and to distinguish to what extent the frequently occurring accidents are susceptible of diminution, either by

the exercise of greater vigilance on the part of the railway staff and the employment of greater intelligence, or by bringing into more prominent view the defects in the construction and maintenance of the permanent way and the machinery, to arrive at conclusions suggestive of improvements.

In such an analysis, considerable care is needed as to the precise form or kind of cause under which the accidents should be arranged; for it is evident that the same general form of accident might be repeated over and over again, but in a slightly modified form in regard to some of its details, thus rendering it quite possible to make many subdivisions in the general class or cause. It must, however, be obvious that subdivisions of this kind might be carried so far as to deprive the results of any practical value, unless each embraced a sufficient group of facts from which conclusions could be drawn, not only as to the characteristic results of that particular class of accidents, but also as to the permanency of the connecting circumstances usually giving birth to them: no importance could be attached to such minute subdivisions. In order to avoid the evils which would result from any attempt to deduce general principles from observations on a distinctive group of accidents of small numerical value in itself, several such groups have in many cases been combined, having one or more points of common agreement. Keeping considerations of this kind closely in view, and never losing sight of the urgent necessity, that the results to be arrived at should have a strictly practical bearing and application, the analysis made has recognized twelve principal causes or rather conditions under which accidents have taken place, six of which are assignable to circumstances over which the companies have no direct or certain control; the other six embracing causes which fall directly under the control of the companies, their officers and servants.

Having thus decided on a mode of inquiry which was deemed calculated to exhibit with sufficient precision for practical purposes the causes of the various accidents, it next appeared important to adopt a separate and distinct classification of them as they affected passengers, as they affected the public not passengers for the time being, and as they affected the officers and different servants of railway companies.

As it was also of importance to determine the variations, if any, at different periods in the frequency of railway accidents from different causes, the results will be found given for each year, for each cause, and for each class of persons.

In the following eight tables will be found a detailed record of the number of persons killed, and the number injured, in each year since 1840, from each of twelve different causes.

Table IV. has reference to passengers only.

Table V. has reference to the public not passengers, very often the friends of persons accompanying them to the station, or meeting them on arrival.

Table VI. has reference to trespassers on the lines.

Tables VII.—XI. inclusive, relate to the employés of the companies.

TABLE IV.—Number of Deaths and Injuries from various causes among PASSENGERS.

CAUSE.	Reference No.	1840.		1841.		1842.		1843.		1844.		1845.		1846.		1847.		1848.		1849.		1850.		1851.		1852.		Total.		
		Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.			
Collision	1	4	13	3	35	6	5	...	...	5	55	3	12	1	11	2	10	...	...	16	18	2	29	6	148	8	117	29	496	
Off line	2	9	27	5	7	5	...	...	...	...	...	...	...	...	17	6	18	...	...	...	...	...	...	...	...	...	...	35	202	
Running into station	3	1	7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13	54	
Axle breaking (a)	4	2	10	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6	15	
Machinery ditto (e)	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	2	
Falling from train (e)	6	2	4	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10	31	
Jumping from ditto (b)	7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16	16
Run over (f)	8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	34	64
Collision at station	9	4	68	1	13	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	32	2
Mounting train in motion (a)	10	...	...	1	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	35	807
Crushed	11	2	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	39	43
Miscellaneous	12	...	...	9	14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5	5
Total	...	24	142	26	83	5	26	6	9	10	70	10	87	17	120	31	93	20	135	23	96	28	181	36	373	80	381	266	1,796	

TABLE V.—Number of Deaths and Injuries from various causes among PUBLIC BY THEIR OWN NEGLIGENCE.

CAUSE.	Reference No.	1840.		1841.		1842.		1843.		1844.		1845.		1846.		1847.		1848.		1849.		1850.		1851.		1852.		Total.	
		Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Total.	Injured.
Collision	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Off line	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Running into station	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Axle breaking	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Machinery ditto	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Falling from train	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Jumping from ditto	7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Run over	8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Collision at station	9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mounting train in motion	10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Crushed	11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Miscellaneous	12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total	...	4	2	7	6	2	8	10	4	10	9	8	8	15	7	21	5	8	2	10	5	21	2	23	5	24	8	175	65

TABLE VI.—Number of Deaths and Injuries from various causes among
PASSENGERS.

CAUSE.	Reference No.	1840.		1841.		1842.		1843.		1844.		1845.		1846.		1847.		1848.		1849.		1850.		1851.		1852.		Total.	
		Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Total.	Total.
Collision.....	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1		
Off line.....	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
Running into station.....	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
Axle breaking.....	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
Machinery ditto.....	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
Falling from train.....	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
Jumping from ditto.....	7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
Run over.....	8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
Collision at station.....	9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
Mounting train in motion.....	10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
Crushed.....	11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
Miscellaneous.....	12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
Total.....	...	3	2	7	5	17	8	7	12	6	4	24	4	18	2	9	8	3	6	7	7	31	10	39	8	306	84		

TABLE VII.—Number of Deaths and Injuries from various causes among
ENGINE DRIVERS.

CAUSE.	Reference No.	1840.		1841.		1842.		1843.		1844.		1845.		1846.		1847.		1848.		1849.		1850.		1851.		1852.		Total.	
		Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Total.	Total.
Collision.....	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
Off line.....	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
Running into station.....	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
Axle breaking.....	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
Machinery ditto.....	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
Falling from train.....	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
Jumping from ditto.....	7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
Run over.....	8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
Collision at station.....	9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
Mounting train in motion.....	10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
Crushed.....	11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
Miscellaneous.....	12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
Total.....	...	1	6	1	4	2	4	3	4	7	6	3	5	7	14	11	6	6	11	6	8	4	11	5	10	73	94		

TABLE X.—Number of Deaths and Injuries from various causes among PORTERS.

CAUSE.	Reference No.	1840.		1841.		1842.		1843.		1844.		1845.		1846.		1847.		1848.		1849.		1850.		1851.		1852.		Total.	
		Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Collision.....	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
Off line.....	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Running into station.....	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Axle breaking.....	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Machinery ditto.....	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Falling from train.....	6	1	...	1	1	1	1	...	...	1	3	1	1	1	1	...	...	...	...	1	1	1	1	...	...	...	...	10	6
Jumping from ditto.....	7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Run over.....	8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Collision at station.....	9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mounting train in motion.....	10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Crushed.....	11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Miscellaneous.....	12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total.....	...	1	...	4	3	3	2	8	4	6	4	2	2	7	7	12	4	10	6	13	8	9	5	19	11	19	9	117	65

TABLE XI.—Number of Deaths and Injuries from various causes among OTHER SERVANTS.

CAUSE.	Reference No.	1840.		1841.		1842.		1843.		1844.		1845.		1846.		1847.		1848.		1849.		1850.		1851.		1852.		Total.	
		Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Collision.....	1	12	8	23	18	27	22	21	13	28	17	36	23	61	35	67	31	86	33	82	41	79	22	63	21	63	37	648	321
Off line.....	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Running into station.....	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Axle breaking.....	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Machinery ditto.....	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Falling from train.....	6	1	2	2	2	1	3	5	2	4	3	5	3	2	3	6	4	10	1	3	5	1	5	1	1	5	1	10	1
Jumping from ditto.....	7	1	1	2	2	1	3	1	2	3	1	2	2	2	3	4	4	4	4	4	1	3	1	2	3	4	5	24	31
Run over.....	8	9	2	19	11	17	11	11	4	16	1	19	5	42	8	38	14	45	4	41	5	39	1	25	3	32	6	353	70
Collision at station.....	9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mounting train in motion.....	10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Crushed.....	11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Miscellaneous.....	12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total.....	...	12	8	23	18	27	22	21	13	28	17	36	23	61	35	67	31	86	33	82	41	79	22	63	21	63	37	648	321

The following is a condensed summary of the results of the preceding eight tables:—

ABSTRACT G.

Deaths and Injuries amongst Different Classes, from all Causes, from the 7th August, 1840, to the 31st December, 1852.

CLASS.	Killed.	Injured.	Ratio of Injured to Killed.
Passengers	266	1,796	675·20 per cent.
Public, by their own negligence	175	65	37·14 „
Trespassers	306	84	27·45 „
Engine Drivers	73	94	128·77 „
Stokers	116	123	106·04 „
Guards	127	100	78·74 „
Porters	117	65	55·56 „
Other Servants	648	321	49·54 „
Total	1,828	2,648	144·86 per cent.

The last column of this abstract shows in one respect a most remarkable difference in the way in which the accidents affect passengers and the servants of the companies. The number injured amongst passengers exceeds that killed by 675·20 per cent.; but amongst railway servants, the number of injuries falls short of the number of deaths, the ratio of injuries being almost exactly 65 per cent. of the deaths. The cause of this distinction will hereafter appear.

On referring to Table II. preceding, it will be found, that within the same period to which the facts of the preceding abstracts relate, the total number of passengers has amounted to 615,133,727. And, consequently, $\frac{615,133,727}{266}$ or one in every 2,312,533 passengers has been killed since the 7th of August, 1840.

And in like manner $\frac{615,133,727}{1,796}$ or one in every 342,502 passengers has sustained serious bodily injury in the same time. So that, if the causes which have hitherto prevailed in producing railway accidents should remain constant, the preceding ratios would measure the risk of life and limb in railway travelling.

The following table gives the result of Tables IV. to XI., in a more condensed form, by omitting the causes of the accidents.

TABLE XII.
Total Number of Persons Killed and Injured on Railways.

	1840.		1841.		1842.		1843.		1844.		1845.		1846.		1847.		1848.		1849.		1850.		1851.		1852.		Total.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers	24	142	26	83	5	26	6	9	10	70	10	87	17	120	31	93	20	135	23	96	28	181	36	373	30	381	266	1,796
Public by their own Negligence)	4	2	7	6	8	2	10	4	16	9	8	8	15	7	21	5	8	2	10	5	21	2	23	5	24	8	175	65
Trespassers	3	2	7	5	17	8	12	7	6	4	24	4	18	2	37	9	36	8	37	7	31	10	39	10	39	8	306	84
Engine Drivers...	1	6	1	4	2	4	3	4	7	6	3	5	7	14	11	6	6	11	6	8	4	11	5	11	10	73	94	
Stokers	1	5	...	4	4	5	2	5	6	12	7	8	7	11	22	17	14	14	13	7	16	8	6	10	18	17	116	123
Guards	...	2	1	5	7	2	5	2	5	6	6	7	9	9	10	9	22	10	15	14	21	15	14	3	12	16	127	100
Porters	1	...	4	3	3	2	8	4	6	4	6	2	7	7	12	4	10	6	13	8	9	5	19	11	19	9	117	65
Other Servants...	12	8	23	18	27	22	21	13	28	17	36	23	61	35	67	31	86	33	82	41	79	22	63	21	63	37	648	321
Total	46	167	69	128	73	71	67	48	84	128	100	144	141	205	211	174	202	219	199	186	209	254	211	438	216	486	1,828	2,648

The following condensed summary of this table, in so far as passengers are affected, shows, in a very satisfactory way, the gradual diminution of railway accidents.

ABSTRACT H.

PERIOD.	Passengers.			Ratios.	
	Number.	Killed.	Injured.	One killed in	One injured in
1840-43.....	57,617,578	61	260	944,550	221,606
1844-47.....	156,698,002	68	379	2,304,382	423,508
1848-51.....	264,173,027	107	785	2,468,907	336,526
1852	86,758,997	30	381	2,891,966	227,714

It thus appears that, while in the years 1840-43, there was 1 killed in every 944,550 passengers, there was, in the years 1848-51, only 1 in every 2,468,907 passengers, being not one death for two which happened in the earlier period.

So also will a reduction be found to have taken place in the ratio of passengers injured.

In like manner will Table XII. furnish the means by which to determine the relative number of railway servants killed and injured in the same periods; but it is proposed, in the first place, to keep to that part of the inquiry which affects the passengers only. This, although really the least important branch of the subject, so far as loss of life is concerned, is, notwithstanding, that in which the general public is most interested; and, as the daily and periodical press have recently taken up the matter so warmly, as complete an analysis of it will be given in this paper as the available facts and data will admit of being accomplished; and, in order to carry out this view, the whole of the materials have been re-arranged in the following eight tables, from which a very distinct and complete knowledge of the intensity of each cause in producing accidents among all the classes of persons observed upon, in each year, and throughout the whole period, may be obtained.

It will be seen from Tables XIV. and XV., that the number of deaths from railway accidents among the public, not being either passengers or employés, is much greater than amongst passengers merely.

The number of passengers killed, according to Table XIII., is 266.

The number killed of the public (neither passengers nor employés), by their own negligence, and of trespassers, is 481.

But the consideration of the last group of deaths will be likewise reserved for discussion in the latter part of this communication.

TABLE XIII.
Number of Deaths and Injuries from various causes among
 PASSENGERS.

Year.	Collision.		Off Line.		Running into Station.		(d) Axle Breaking.		(e) Machinery Breaking.		(c) Falling from Train.		(b) Jumping from Train.		(f) Run Over.		Collision at Station.		(a) Mounting Train in Motion.		Crushed.		Miscellaneous.		Years.	Total.
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.		
1840..	4	13	9	27	1	7	2	10	4	4	2	2	6	8	1	68	1	1	2	2	6	2	6	24	142	
1841..	3	36	6	7	..	..	2	2	1	1	2	3	8	8	..	13	1	2	2	..	..	..	14	26	83	
1842..	..	6	..	..	..	..	1	3	..	..	..	1	5	5	..	1	..	2	2	..	..	..	2	5	26	
1843..	..	..	..	..	..	..	..	..	..	..	1	1	1	1	..	..	..	2	2	..	..	..	..	6	9	
	7	64	14	39	1	7	6	13	6	4	8	8	26	1	..	82	6	7	2	6	13	14	61	260		
1844..	5	55	..	3	..	..	1	..	..	1	1	2	4	4	..	6	1	1	..	..	..	..	..	10	70	
1845..	3	28	..	12	..	..	..	..	..	2	..	2	3	3	..	42	2	2	..	..	..	..	..	10	87	
1846..	1	11	..	17	..	..	..	1	1	1	1	5	9	7	..	3	74	2	4	..	..	..	6	17	120	
1847..	2	10	..	18	..	..	..	..	2	2	1	1	6	1	..	7	32	3	1	2	..	..	3	31	93	
	11	104	5	50	..	..	1	1	3	5	2	2	14	23	1	11	154	8	8	2	..	8	25	68	370	
1848..	28	12	2	12	..	6	..	..	..	1	2	2	3	3	1	7	81	3	1	..	..	2	2	20	135	
1849..	16	18	6	18	..	..	..	..	6	2	..	1	3	5	..	..	43	6	6	..	..	6	4	23	96	
1850..	2	29	..	18	..	8	..	..	7	2	2	8	1	4	1	6	97	3	8	..	..	3	10	28	181	
1851..	6	148	9	48	..	1	..	..	10	2	2	4	4	4	..	3	146	6	10	1	..	2	4	36	373	
	8	221	16	96	..	14	..	..	23	7	6	16	11	16	2	16	367	16	25	1	..	12	20	107	785	
1852..	3	117	..	17	4	33	..	1	..	..	..	2	4	4	..	2	204	10	3	..	..	5	2	30	381	
Totals	29	496	35	202	5	54	6	15	2	31	16	16	34	64	22	35	807	39	43	5	5	88	61	266	1,796	

TABLE XIV.
*Number of Deaths and Injuries from various causes among
 PUBLIC BY THEIR OWN NEGLIGENCE.*

Years.	Collision.		Off Line.		Running into Station.		Axle Breaking.		Machinery Breaking.		Falling from Train.		Jumping from Train.		Run Over.		Collision at Station.		Mounting Train in Motion.		Crushed.		Miscellaneous.		Years.	Total.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.		Killed.	Injured.
1840..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	4	1	..	..	..	..	..	..	..	..	1840..	4	2
1841..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	7	5	..	..	..	..	..	..	..	..	1841..	7	6
1842..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	8	1	..	..	..	..	..	..	..	..	1842..	8	2
1843..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10	3	..	..	..	..	..	..	..	..	1843..	10	4
	..	..	..	..	..	..	..	..	..	..	8	..	..	..	29	10	..	..	..	..	..	..	..	..		29	14
1844..	..	..	..	..	..	..	..	..	..	..	2	1	1	1	12	3	..	..	1	..	..	..	1	4	1844..	16	9
1845..	..	..	..	..	..	..	..	..	..	..	1	2	..	..	5	4	..	..	..	..	..	..	1	2	1845..	8	7
1846..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	12	6	..	..	..	..	..	..	1	1	1846..	15	8
1847..	..	..	..	..	..	..	..	..	..	..	2	..	2	..	15	8	..	..	..	..	1	..	2	2	1847..	21	5
	..	..	..	..	..	..	..	..	..	..	6	3	4	1	44	16	..	..	1	..	1	..	4	9		60	29
1848..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	1	..	..	..	..	..	..	2	1	1848..	8	3
1849..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9	..	..	..	..	..	1	..	1	4	1849..	10	5
1850..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	16	..	..	..	..	1	..	1	4	1	1850..	21	2
1851..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	16	..	..	..	..	..	1	..	6	5	1851..	23	5
	..	..	..	..	..	..	..	..	..	..	..	..	..	..	47	1	..	..	..	1	2	1	13	11		62	14
1852..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13	2	..	..	2	..	1	1	8	5	1852..	24	8
Totals	..	..	..	..	..	..	..	..	..	..	6	6	4	1	138	29	..	..	3	1	4	2	25	26	Grand Total	175	65

TABLE XV.
*Number of Deaths and Injuries from various causes among
 TRESPASSERS.*

Years.	Collision.		Off Line.		Running into Station.		Axle Breaking.		Machinery Breaking.		Falling from Train.		Jumping from Train.		Run Over.		Collision at Station.		Mounting in Train Motion.		Crushed.		Miscellaneous.		Years.	Total.
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.		
1840..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	2	6	..	..	..	..	1	..	..	..	1840..	3
1841..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	6	..	..	..	..	..	..	..	..	1841..	7
1842..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	13	6	..	..	..	..	..	..	..	..	1842..	8
1843..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	10	6	..	..	..	..	..	2	..	..	1843..	7
	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
	..	..	..	..	..	..	..	..	..	..	..	..	..	..	31	16	..	..	..	..	1	..	..	..		39
1844..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	6	..	..	..	..	..	..	..	..	..	1844..	6
1845..	..	..	..	..	..	..	..	..	..	..	1	2	..	..	22	3	..	..	2	1	..	..	..	..	1845..	24
1846..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	16	1	..	..	..	..	..	..	..	..	1846..	18
1847..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	37	8	..	..	1	..	..	..	..	..	1847..	37
	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
	..	..	..	..	..	..	..	..	..	..	2	3	..	2	80	12	..	..	3	1	..	..	..	1		85
1848..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	31	4	..	..	3	1	1	..	..	3	1848..	36
1849..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	34	..	..	..	1	1	2	..	..	6	1849..	37
1850..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	28	3	..	..	1	..	2	..	..	6	1850..	31
1851..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	30	7	..	..	..	..	2	..	6	3	1851..	39
	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
	..	1	..	..	..	..	..	..	1	..	1	1	1	1	121	14	..	..	6	2	7	..	7	16		143
1852..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	36	4	..	..	2	..	1	1	..	3	1852..	39
	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
	..	1	..	..	..	..	..	..	1	..	8	10	1	4	268	45	..	..	10	3	9	1	9	20	Grand Total	306
Totals	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		84

TABLE XVI.
*Number of Deaths and Injuries from various causes among
 ENGINE DRIVERS.*

Years.	Collision.		Off Line.		Running into Station.		Axle Breaking.		Machinery Breaking.		Falling from Train.		Jumping from Train.		Run Over.		Collision at Station.		Mounting Train in Motion.		Crushed.		Miscellaneous.		Years.	Total.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.		Killed.	Injured.
1840..	..	4	..	..	1	..	..	..	..	..	2	..	..	..	..	2	..	..	..	..	..	..	..	1840..	6	1	
1841..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	2	..	..	..	..	..	..	..	1841..	4	1	
1842..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	2	..	..	..	..	..	..	..	1842..	4	2	
1843..	..	..	..	..	..	..	..	..	1	..	3	..	..	..	..	..	..	..	..	..	..	..	..	1843..	4	3	
	..	4	..	..	1	..	..	..	1	..	6	..	..	..	..	1	4	..	..	1	..	..	..		18	7	
1844..	2	..	2	1	..	..	..	..	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1844..	6	7	
1845..	1	2	2	2	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1845..	6	3	
1846..	1	2	3	2	..	..	..	1	1	..	2	1	..	..	..	..	..	5	..	..	..	..	..	1846..	7	14	
1847..	1	1	4	3	..	..	..	..	..	..	1	..	1	..	3	1	..	..	..	..	..	..	..	1847..	6	11	
	4	5	11	7	..	..	..	1	..	4	3	4	2	2	3	1	2	6	..	..	..	1	3		31	28	
1848..	1	..	2	5	..	..	..	..	1	1	..	..	..	1	..	..	3	1	..	1	..	..	..	1848..	11	6	
1849..	1	2	2	..	..	..	..	..	2	2	..	..	..	..	..	..	..	..	..	2	3	2	..	1849..	6	6	
1850..	..	1	1	2	..	..	..	..	2	3	..	..	..	..	..	..	1	3	..	..	..	1	2	1850..	4	11	
1851..	..	..	1	2	..	..	..	..	2	1	3	..	..	..	..	..	..	1	1	..	2	1	..	1851..	6	11	
	2	3	5	9	..	..	..	..	6	7	3	..	..	1	..	..	1	7	2	..	3	6	5		35	27	
1852..	..	1	3	5	..	..	..	..	1	..	1	2	1	..	..	..	3	2	1	..	..	1	..	1852..	10	11	
Totals	6	13	19	21	1	..	..	1	7	11	10	12	3	3	4	6	6	14	4	1	3	4	10	9	Grand Total	94	73

TABLE XVII.
*Number of Deaths and Injuries from various causes among
 STOKERS.*

Years.	Collision.		Off Line.		Running into Station.		Axle Breaking.		Machinery Breaking.		Falling from Train.		Jumping from Train.		Run Over.		Collision at Station.		Mounting Train in Motion.		Crushed.		Miscellaneous.		Years.	Total.
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.		
1840..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1840..	6
1841..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1841..	4
1842..	1	1	..	..	..	..	..	..	..	..	1	2	..	1	..	1	..	..	..	..	..	..	..	..	1842..	6
1843..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1843..	6
1844..	1	1	..	..	..	..	..	..	..	..	2	8	..	1	3	2	..	..	1	..	..	..	..	2	1844..	19
1845..	..	2	1	1	..	..	..	..	1	2	2	2	..	..	..	..	..	..	..	..	..	2	2	..	1845..	12
1846..	1	1	1	1	..	..	..	..	..	1	2	2	1	..	..	1	..	..	..	..	..	..	..	..	1846..	8
1847..	1	1	1	1	..	..	..	..	1	2	7	4	1	..	2	1	2	4	1	..	2	1	4	2	1847..	17
1848..	2	5	4	6	..	..	..	..	3	6	11	9	3	..	3	2	2	8	1	1	6	4	6	6	1848..	48
1849..	..	2	1	3	..	..	..	..	2	1	4	..	1	1	2	1	..	2	..	..	4	3	1	2	1849..	14
1850..	1	..	2	..	1	..	..	..	3	..	3	4	..	..	..	..	1	..	2	1	..	2	4	..	1850..	13
1851..	1	..	2	1	..	..	..	..	..	1	2	1	..	1	..	..	2	..	..	..	1	1	..	3	1851..	8
1852..	3	2	5	5	1	..	..	..	7	3	14	6	2	2	4	1	2	6	2	1	5	6	5	6	1852..	10
1853..	2	1	4	3	..	..	..	..	1	1	1	3	..	1	1	..	1	4	2	1	3	3	2	1	1853..	17
Totals	8	9	13	16	1	..	..	..	11	10	28	26	6	4	11	5	5	16	7	3	13	17	15	14	Grand Total	123

TABLE XVIII.
Number of Deaths and Injuries from various causes among GUARDS.

Years.	Collision.		Off Line.		Running into Station.		Axle Breaking.		Machinery Breaking.		Falling from Train.		Jumping from Train.		Run Over.		Collision at Station.		Mounting Train in Motion.		Crushed.		Miscellaneous.		Years.	Total.		
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.		Killed.	Injured.	
1840..	..	..	..	..	..	..	..	..	..	..	1	2	..	..	..	..	..	..	..	..	..	2	1	1840..	..	2		
1841..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	2	1	1841..	..	6		
1842..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	1	2	1842..	7	2	
1843..	..	..	..	..	..	..	..	..	..	..	4	1	..	..	..	..	..	..	..	..	..	..	1	1	1843..	5	2	
1844..	..	..	..	..	..	..	..	..	..	..	5	6	1	..	1	1	..	..	..	..	1	2	5	3	1844.. 1845.. 1846.. 1847..	13	11	
1845..	..	1	..	..	..	1	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	4	4		1844..	5	6
1846..	..	1	..	3	..	..	..	..	1	1	4	1	..	..	2	1	1	1	1	1	1	2	1	2		1845..	6	7
1847..	2	1	1	1	..	..	..	..	..	..	2	2	..	..	..	1	2	2	1	..	1	2	3	..		1846..	9	9
	2	3	1	6	..	..	..	..	2	2	11	5	..	..	3	1	1	3	1	..	2	3	9	8	1848.. 1849.. 1850.. 1851..	30	31	
1848..	..	3	2	1	..	..	..	..	2	2	4	1	1	..	2	..	..	1	4	..	1	..	8	2		1848..	23	10
1849..	..	..	..	..	..	1	6	4	..	1	6	4	..	..	1	1	..	1	2	1	1	4	4	4		1849..	15	14
1850..	1	..	..	..	1	1	1	8	..	..	8	..	..	..	3	1	..	4	2	2	3	1	3	5		1850..	21	16
1851..	..	..	..	1	..	..	..	2	..	..	2	..	..	..	2	..	2	..	1	..	5	..	2	2	1851..	14	3	
	1	3	2	2	..	1	4	20	5	1	20	5	1	..	8	1	3	5	9	3	10	5	17	13	1852..	72	42	
1852..	..	2	3	3	..	..	..	1	2	..	1	2	..	..	1	1	..	..	..	..	1	2	6	6		1852..	12	16
Totals	3	8	6	11	..	1	..	..	1	6	37	17	2	..	13	4	4	8	10	3	14	12	30	Grand Total.	127	100		

TABLE XIX.
*Number of Deaths and Injuries from various causes among
 PORTERS.*

Years.	Collision.		Off Line.		Running into Station.		Axle Breaking.		Machinery Breaking.		Falling from Train.		Jumping from Train.		Run Over.		Collision at Station.		Mounting Train in Motion.		Crushed.		Miscellaneous.		Year.		Total.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Year.	Killed.	Injured.	Total.
1840..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	1	..	..	..	..	..	..	1840..	1	..	1
1841..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	1	..	..	..	..	..	..	..	..	..	1841..	4	3	7
1842..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	1	..	..	..	..	..	1842..	3	2	5
1843..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	1	1	..	1843..	8	4	12
1844..	..	..	..	..	..	..	..	..	..	..	3	2	1	..	2	1	1	..	2	1	6	3	2	1	..	16	9	25
1845..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	2	..	3	1	..	1844..	6	4	10
1846..	..	..	..	..	..	..	..	..	..	..	1	1	..	1	1	..	..	1	..	..	1	1	1	..	1845..	6	2	8
1847..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	5	1	..	4	1	..	4	1	..	2	1846..	7	7	14
1848..	..	..	..	..	..	..	..	..	..	..	4	..	3	..	7	6	2	4	1	..	10	3	4	4	..	31	17	48
1849..	..	..	..	..	..	..	..	..	..	..	..	1	..	3	..	..	..	..	3	1	4	4	..	1	1848..	10	6	16
1850..	..	..	..	..	..	..	..	..	..	..	1	1	..	6	..	..	..	..	..	..	3	1	4	..	1849..	13	8	21
1851..	..	..	..	..	..	..	..	..	..	..	1	2	..	1	3	..	1	1	1	1	2	1	2	3	1850..	9	6	15
1852..	..	..	1	..	..	..	..	..	..	..	2	3	1	1	16	..	1	1	4	2	18	10	8	13	..	61	30	91
1852..	..	..	..	1	..	..	..	..	..	..	1	..	1	1	6	1	1	1	2	..	7	2	1	3	1852..	19	9	28
Totals	..	..	1	2	..	..	..	..	..	..	10	6	6	2	31	7	4	7	9	3	41	18	16	21	Grand Total	117	65	182

TABLE XX.
*Number of Deaths and Injuries from various causes among
 OTHER SERVANTS.*

Years.	Collision.		Off Line.		Running into Station.		Axle Breaking.		Machinery Breaking.		Killing from Train.		Jumping from Train.		Run Over.		Collision at Station.		Mounting Train in Motion.		Crushed.		Miscellaneous.		Years.	Total.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.		Killed.	Injured.
1840..	..	..	..	..	..	..	..	..	..	..	..	2	1	1	9	2	..	..	..	..	2	3	..	..	1840..	12	6
1841..	..	..	..	1	..	..	..	..	..	..	..	1	2	2	19	11	..	..	..	..	..	3	1	..	1841..	23	18
1842..	..	2	..	..	..	..	..	..	..	..	3	3	2	1	17	11	..	..	2	2	..	2	1	..	1842..	27	22
1843..	..	1	..	..	..	..	..	..	..	..	6	2	1	..	11	4	..	..	2	4	2	..	2	..	1843..	21	13
	..	3	..	1	..	..	..	..	..	..	9	8	6	4	56	26	..	..	1	4	9	10	2	3		38	61
1844..	..	6	1	1	..	..	..	..	..	..	4	3	8	1	16	1	1	..	..	1	..	1	3	4	1844..	26	17
1845..	1	1	2	9	..	..	..	..	3	..	6	2	1	1	19	6	..	..	3	2	2	1	1	1	1845..	36	23
1846..	1	10	..	2	..	..	1	1	3	..	2	2	2	3	42	8	..	1	6	2	3	2	4	2	1846..	61	36
1847..	..	..	2	4	..	..	2	..	..	..	6	2	6	4	38	14	..	1	4	..	6	1	2	6	1847..	67	31
	2	16	6	16	..	..	2	1	4	3	17	8	11	9	116	28	1	2	13	6	12	6	10	12		192	106
1848..	1	10	..	..	..	..	..	..	3	10	1	1	3	45	4	4	6	1	6	3	14	6	4	3	1848..	66	33
1849..	1	3	..	..	..	..	..	..	1	3	6	2	1	41	1	..	..	..	6	6	9	8	20	17	1849..	82	41
1850..	1	..	..	..	..	..	..	..	1	6	3	3	1	39	..	..	1	3	2	13	1	14	13	1850..	79	22	
1851..	1	..	1	..	..	..	..	..	1	8	1	1	2	26	3	3	2	..	3	4	9	4	11	6	1851..	63	21
	4	13	1	..	..	..	2	..	1	6	26	10	7	7	160	8	7	2	18	14	45	18	49	39		310	117
1852..	5	2	..	..	..	..	..	..	..	1	4	6	..	1	32	6	..	6	3	..	6	..	13	16	1852..	68	37
Totals	11	34	6	17	..	..	4	1	5	10	56	31	24	21	853	70	8	10	35	23	72	34	74	70	Grand Total	648	321

The preceding eight tables have been given in the present very complete form, so as to admit of other inquirers who may happen to take a different view of the manner in which the subject should be treated, to make new combinations for themselves. The following Table, XXI., on next page, shows, for three different periods of years, the ratio of the mortality per cent. from each cause to the mortality from all causes; and, so far as passengers are concerned, some of the results are rather curious.

It will be seen from the first section of this table, that the deaths of passengers from collisions, and from trains running off the line, which constitute a large portion of the whole, have been gradually diminishing, while deaths from passengers falling from the trains have scarcely varied. Again, the deaths from axles breaking, in the four years 1840-3, formed 8 per cent. of the whole deaths in that period; but, since the year 1844, not a single death of a passenger has taken place assignable to that cause. And in regard to deaths from the breaking of other parts of the machinery none have happened since 1847.

In the latter part of 1840, one death of a passenger was occasioned by the running of a train into the station; but no other since that time, although 21 have been injured from the same cause at different periods. The deaths of passengers from collisions at stations increased subsequent to 1843, and have since remained nearly uniform at about 15 per cent. of the deaths from all causes.

The deaths occasioned by passengers jumping from trains while in motion have increased in a very remarkable manner ever since 1840, as well as the deaths from passengers mounting trains while in motion.

Results of the kind now enumerated, although given in strict accordance with the methods of many statistical inquirers, are, if given in such form only, liable to a serious objection, for in every case where the intensity of a variety of causes is being measured, the pressure of any one or more of the causes might actually be remaining constant, while the form of the preceding table is capable of making them appear as increasing or decreasing in intensity, and *vice versa*, the intensity of the same causes might in reality be undergoing great modifications, and at the same time appear uniform in the table. An attentive consideration of the principle on which the table is constructed will show this to be the case; and the actual facts contained in it furnish an excellent illustration of these remarks. It will be seen that, in the period 1848-51, no deaths have taken place among passengers from the causes placed third, fourth, and fifth in order; and the immediate effect of the exclusion of deaths from these causes is to give an apparent augmentation of intensity to the remaining causes in operation in that period; a similar effect would also be produced, although not in degree the same, by any fluctuations whatever in the intensity of one or more of the causes. The proper use of such a table as that now under consideration, is to direct attention to the fact of disturbing causes being in operation, but not to measure the degree or exact extent of the intensity of each cause, which must be determined by a different method.

It is not easy, in a short paper, to follow a course of argument keeping clearly in view the many fluctuations in the ratios of deaths among a great variety of causes; but it is obvious, that a number of

TABLE XXI.
Ratio of Mortality Per Cent. from each cause, to the Mortality from all causes, among each Class of Persons.

CAUSE.	Passengers.			Public by their own Negligence.			Trespassers.			Engine Drivers.		
	1840-43.	1844-47.	1848-51.	1840-43.	1844-47.	1848-51.	1840-43.	1844-47.	1848-51.	1840-43.	1844-47.	1848-51.
Collision	11.48	16.18	7.48	...	...	...	...	...	...	...	...	...
Off line	22.95	7.35	14.95	...	...	...	...	...	...	...	14.29	7.41
Running into station	1.64	...	...	...	...	...	...	...	...	...	39.29	18.52
Axle breaking	8.19	1.47	...	...	...	...	...	...	...	...	...	...
Machinery ditto	...	2.94	...	...	...	...	...	...	...	...	...	...
Falling from train	6.56	7.35	6.54	...	...	...	...	...	...	...	...	...
Jumping from ditto	4.92	20.60	14.02	...	10.00	...	...	...	...	...	...	...
Run over	1.64	1.47	14.95	...	6.67	...	...	...	...	...	...	...
Collision at station	9.84	16.18	14.95	100.00	73.33	75.81	79.49	94.12	84.61	14.28	10.71	...
Mounting train in motion	8.19	11.76	14.95	...	1.67	...	...	...	...	...	7.15	3.70
Crushed	3.28	2.94	9.94	...	1.67	3.22	2.56	3.53	3.49	14.29	...	7.41
Miscellaneous	21.31	11.76	11.22	...	6.66	20.97	5.13	...	4.90	...	...	11.11
											10.71	22.22
CAUSE.	Stokers.			Guards.			Porters.			Other Servants.		
	1840-43.	1844-47.	1848-51.	1840-43.	1844-47.	1848-51.	1840-43.	1844-47.	1848-51.	1840-43.	1844-47.	1848-51.
Collision	14.29	4.76	6.12	...	6.67	1.39	...	...	...	...	1.04	1.29
Off line	...	9.52	10.21	...	3.33	2.78	...	...	1.96	...	2.60	32
Running into station	...	...	...	...	...	...	...	...	...	...	...	...
Axle breaking	...	...	...	...	...	...	...	...	...	...	...	...
Machinery ditto	...	7.14	14.28	...	...	1.39	...	...	...	...	1.04	64
Falling from train	28.57	26.20	28.57	38.46	36.67	27.77	18.75	12.90	3.92	...	2.08	32
Jumping from ditto	...	7.14	4.08	7.69	...	1.39	6.25	9.68	1.96	10.84	8.86	8.39
Run over	42.85	7.14	8.16	7.69	10.00	11.11	12.50	22.58	31.37	7.23	59.90	2.26
Collision at station	...	4.76	4.08	...	3.33	4.17	...	6.45	1.96	67.47	52	48.39
Mounting train in motion	14.29	2.38	4.08	...	3.33	12.50	12.50	3.23	7.84	1.21	6.77	2.26
Crushed	...	11.91	10.21	7.70	6.67	13.89	37.50	32.26	35.30	10.84	6.25	5.81
Miscellaneous	...	19.05	10.21	38.46	30.00	23.61	12.50	12.90	15.69	2.41	5.21	15.81

the circumstances, under which railway accidents have taken place, are for many purposes susceptible of the very simple classification already more than once alluded to.

A large number of the deaths are assignable to causes over which it is evident the directors and managers have little, if any, control, such as—

- (a.) Passengers mounting trains while in motion.
- (b.) Passengers jumping from trains while in motion.
- (c.) Passengers falling from trains while in motion.
- (d.) Axles breaking.
- (e.) Machinery breaking.
- (f.) Passengers being run over.

And if all the remaining causes in the preceding tables were placed to the credit of the management of railways, and held as coming in some measure under the control of the railway officers and servants of the companies, little exception can be taken to the classification on the ground that it is calculated to underrate their responsibilities.

The following abstract will show the results thus arrived at:—

ABSTRACT I.

CAUSES.	Number of Passengers.	
	Killed.	Injured.
(A) Beyond control of the Companies	119	171
(B) Under control of the Companies (including miscellaneous group)	147	1,625
Ratio per cent. of (A) to the whole	44·7	9·5
Ratio per cent. of (B) to the whole	55·3	90·5

It will thus be seen, that about 44·7 per cent. of all the deaths has taken place from causes over nearly all of which the passengers themselves have control, the exception being the eight deaths included in causes (d) and (e), and for which the companies can scarcely be in any way held responsible. But in regard to the injuries, 9·5 per cent. only of the accidents are so circumstanced, which calls attention to a very remarkable feature in the results now under consideration.

- (a.) The deaths from causes beyond the control of the companies form 69·6 per cent. of the number of injuries from the same causes.
- (b.) The deaths from causes under the control of the companies are 9 per cent. of the number of injuries from the same causes; and

Hence the tendency of accidents, which may be considered to arise from details of management, is to inflict bodily injury rather than to occasion death; for in respect to every 100 injuries, 9 deaths take place from corresponding causes, while among the accidents due to causes within the influence of the passengers themselves, for every 100 injuries nearly 70 deaths occur.

This method of stating the results naturally leads to the inquiry, Do the accidents, falling within the class of causes assumed to come under the control of the companies, increase or diminish?

The classification in Abstract I., it will be seen, includes the deaths of the miscellaneous groups in Tables IV. to XI. inclusive, and also Tables XIII. to XX. inclusive, as coming under the control of the companies; but it must be obvious, that some of these accidents will be due to causes over which the companies cannot be supposed to have any control whatever. The more correct comparison will therefore evidently be that between ascertained causes only; and the following abstract is so corrected:—

ABSTRACT J.

CAUSES.	Deaths of Passengers during					
	1840-43.		1844-47.		1848-51.	
	Num- ber.	Per-Centage of Total.	Num- ber.	Per-Centage of Total.	Num- ber.	Per-Centage of Total.
Beyond control of Companies	18	37.50	31	51.67	54	56.84
Under control of Companies....	30	62.50	29	48.33	41	43.16

It will thus be seen, that the deaths from causes under the control of the companies have, in reference to the total deaths from all causes, been gradually diminishing ever since 1840.

In the period 1840-43 } the deaths from all { = 62.50 per cent. of all the deaths.
 " 1844-47 } causes under control of { = 48.33 "
 " 1848-51 } the Companies { = 43.16 "

So that it is evident, that the class of accidents under the control of the several companies is decreasing in relation to the total accidents in a most satisfactory and very rapid manner.

In order to avoid the objections which might be urged against the preceding mode of comparison, and prominently referred to in speaking of Table XXI. preceding, the following arrangement of the facts is referred to, which is faultless as a test, but establishes the same conclusion arrived at from a consideration of Abstract J.

ABSTRACT K.

CAUSES.	Period of Observation.		
	1840-43.	1844-47.	1848-51.
Number of passengers	57,617,578	156,698,002	264,173,027
Deaths from causes beyond control of Companies	18	31	54
Deaths from causes under control of Companies	30	29	41
Ratio of deaths beyond control of Companies	One in 3,200,977	One in 5,054,774	One in 4,892,993
Ratio of deaths under control of Companies	1,920,585	5,403,379	6,443,244

There is here evidence, not only of a great diminution of all kinds of accidents to passengers, but, what is exceedingly satisfactory, of those accidents which are due to causes assumed to be under the control of the companies, in a very remarkable degree compared with the remaining class of accidents.

For while deaths from causes beyond the control of the companies have, between the periods 1840-43 and 1848-51, diminished in the ratio of 49 to 30, those from causes under the control of the companies have diminished in the ratio of 64 to 19. This result is certainly one not generally understood by the public, for not only are all railway accidents supposed to be very much on the increase, but, those due to details of management, are believed to be rapidly and alarmingly so. The facts of the case do not support this view, for they disclose the truth, that railway management, so far as accidents producing deaths among passengers are concerned, has greatly improved, and apparently in a steady and high ratio.

In the period 1840-43	the deaths from	{ = One in 1,920,385 Passengers.
„ 1844-47	causes under the control	
„ 1848-51	of the Companies	
		{ = „ 5,403,379 „
		{ = „ 6,443,244 „

So that this class of accidents has since diminished to about 30 per cent. of its frequency and magnitude in the year 1843.

These results, viewed in connection with those of Abstract H, give birth to some interesting considerations. If regard be had to the causes of railway accidents, so far as they can be controlled by the companies, it is obvious that the increasing extent and complicated system of the railway communication, as it now exists in its ramified arteries over the country, together with the modifications in passenger traffic of recent years, enumerated in Clauses 1st, 2nd, and 3rd, of page 297, would, unless greatly improved management were keeping pace with the growing extent of railway traffic, lead to an immense increase in the number of accidents, not only absolutely, but relatively to the amount of that traffic.

If, therefore, the results of Abstracts H and K be borne in mind, which shows that the loss of life among passengers, from all causes, has decreased in recent years, and while it is, at the same time, evident that the class of deaths which has taken place, from causes under the control of the companies, has, in relation to the whole of these reduced deaths, been subject, year after year, to a greatly increased rate of reduction, as shown in Abstract K, every one must, notwithstanding the present popular outcry, be satisfied that means and influences are actively at work which are daily increasing the safety of life in railway travelling. Whether this change be due to the better general regulations enforced by the directors of the companies, or to the improved skill and intelligence of their officers and servants, still the results of this inquiry afford the most striking testimony, from the recent improvements and increased safety in railway travelling, that the same means will be persevered in to effect a still further reduction in the frequency and intensity of railway accidents.

An inspection of Tables XIII. and XXI. will show the relative number of deaths arising from each cause; and, in regard to those

accidents supposed to be under the control of the companies, the most important are those under the head of collisions and running off the line. It has been said of late, that the great bulk of all the railway accidents is due to collisions; but an inspection of Table XXI. will show that—

Collisions at stations constitute 15·0 per cent. of the whole deaths among passengers

Other collisions, not at stations,	7.5	"	"
------------------------------------	-----	---	---

In all 22·5 per cent. of all the deaths among passengers.

When, however, we arrive at that point of this inquiry in which the rate of deaths of all classes of persons, including employes, is considered, it will be found, that of a total of 1,828 deaths, not more than 119, or not one-fifteenth, has been occasioned by collisions of all sorts. Collisions do not, therefore, appear to affect railway servants so much as other causes. As they form, however, more than a moiety of all the accidents assignable to causes under the control of the companies, it may be important to view this group of casualties by itself. And the following abstract will show the ratio of collisions in different periods:—

ABSTRACT L.

PERIOD.	Number of Passengers.	Collisions, not at Stations.		Collisions at Stations.	
		Number of Killed.	Being one in	Number of Killed.	Being one in
1840-43.....	57,617,578	7	8,231,082	6	9,602,929
1844-47.....	156,698,002	11	14,245,273	11	14,245,273
1848-51.....	264,173,027	8	33,021,628	16	16,510,814
1840-1851	478,488,607	26	18,403,408	33	14,499,655

An examination of the fourth and sixth columns of this abstract shows, that even this class of accidents, on which so much importance has been placed, is rapidly diminishing in amount, the deaths by collisions at stations having, in the last period of observations above enumerated, decreased to about 58 per cent. of the ratio in the first period; and those by other collisions having actually been reduced in the most recent period, to only 25 per cent. of their ratio in the earliest period. These results are of great importance; and while they are very satisfactory in showing a diminution of deaths from all kinds of collisions, they are further practically useful in proving, that while the deaths have been reduced to one-fourth in one group of collisions, they have undergone a reduction to the extent of 42 per cent. only in the collisions at stations. This ought to awaken attention to this latter group of accidents; and those entrusted with the general superintendence of the stations should have the subject forced on their attention.

Collisions of railway trains being one of the many causes of accidents which come so obviously under the control and management of

the companies, they have been thought of sufficient importance to justify a very minute analysis of them, with the view of pointing out the peculiar circumstances under which they usually take place, and thereby to be suggestive of means for their prevention for the future.

In this part of the inquiry, it has been found impossible to pursue the subject further back than the beginning of 1844; and, therefore, the observations will be confined to the nine years 1844—52 inclusive. Collisions, as may be easily supposed, take place under a great variety of circumstances; and it is often a difficult matter to arrange them under any well defined system of classification; consequently, in the following tables, such cases only were included in the respective groups, as distinctly and unmistakably contained some common and important characteristic, and all anomalous cases are, therefore, placed in a miscellaneous group by themselves.

Heretofore, in using the word accidents, it has meant accident to life, and has been used synonymously with "loss of life" or death; but many collisions take place unattended with fatal consequences; and, although we shall hereafter show the loss of life consequent to each kind of collision, still it is important to discuss, in the first place, the conditions under which collisions of various kinds do take place,—therefore, in the following Table, XXII., no notice is taken of the number of persons killed and injured.

In treating of the deaths of passengers in the preceding part of this paper, it was assumed that all collisions were due to causes over which the company had control; but, in the following table, it will be seen, that of the 174 classified collisions, as many as 28 took place under circumstances which it is, to a very great degree, impossible to control, and, in fact, the collisions were of a nature, against which it would at all times be exceedingly difficult to use precautions which would effectually prevent them. They will be found in Section A of the following table, and are all more or less accounted for by the state of the weather. Fog-signals, and some other appliances, might, in a few of these instances, be made available; but in the majority of the cases it is difficult to suggest a certain remedy.

Sections B and C of this table may be considered to embrace collisions, the causes of which are certainly, to a very great extent, completely under the control of the companies; and it must appear to every inquirer that, of the 34 collisions in Section B, the great bulk were absolutely preventable by a sufficient amount of care. For example, of the 18 collisions enumerated in columns (a), (b), (c), and (d) of this section, 15 are due to portions of the trains becoming detached, and 3 to defective "breaks;" and it is difficult to conceive any sufficient reason to justify a continuance or repetition of accidents from these causes. No doubt the couplings of carriages may, under extraordinary circumstances, be found to give way, even when great vigilance has been used; but such an excuse can be of no avail in the face of so many accidents of this kind as are now under consideration, and there certainly does appear strong reason to condemn the system of management which permits a series of collisions from these causes. Again, it will be found, that no less than 16 collisions took place, owing to the trains having been retarded by accidents to some portion or other of the engine. It is, no doubt, sometimes difficult to deter-

TABLE XXII.

An Analysis of Causes of Collisions on Railways in Great Britain and Ireland, from 1844 to 1852, inclusive.

YEAR.	Not under Control of the Companies.		Partly under Control.		Entirely, or to a very great extent, under Control of the Companies.													
	A. State of the Weather.				B. Defects of Machinery.						C. Neglect.				D. Other Causes.			
					Coupling Chains.			Breaks.			Engine.							
	(a.) Fog or Storm.	(b.) Rails Slippery, generally caused by Fog.)	(c.) Train retarded by Wind, and overtaken.	(d.) Waggon or Parts of Trains Blown on to Line. Generally Neglect of Pointsmen.	(a.) Part of Train becoming detached on Incline and running back.	(b.) Part of Train coming detached and left on Line.	(c.) Train giving way in Middle. Hindering part running into Fore part by its own Impetus.	(d.) Faulty Breaks.	(e.) Train or Engine retarded or stopped by Accident to Engine.	(a.) Of Signals generally.	(b.) Of Engine Driver, either Neglecting Signals or Careless Driving.	(c.) Of Breaksman, (sometimes with Driver.)	(d.) Of Pointsmen, or Points not Acting.	(e.) Of Station-Masters, or sometimes in conjunction with others.	(f.) Waggon or Parts of Trains left on Line.	(g.) Train lost Speed and was overtaken.	(h.) Steam or Water Failed.	(i.) Miscellaneous, and not specified, but all attributable to Neglect on the part of Servants of the Companies.
1844	4	2	1	1	...	1	...	1	1	1	...	...	...	1	3	...	...	2
1845	1	1	...	2	...	...	...	...	1	2	7	...	...	...	1	1	...	11
1846	2	...	...	...	...	...	1	1	2	3	6	1	1	...	3	2	...	11
1847	...	3	...	...	...	...	...	...	3	4	6	2	5	1	2	...	3	10
1848	...	...	...	...	1	...	...	...	...	...	7	...	3	1	2	...	...	19
1849	1	...	...	1	2	1	...	...	...	3	1	...	1	...	2	...	1	15
1850	2	...	...	2	2	...	...	...	...	2	6	...	1	...	1	...	...	26
1851	1	1	...	...	1	1	1	...	5	1	5	...	2	...	1	...	...	19
1852	...	2	...	1	...	1	2	1	1	2	9	1	2	...	1	...	...	21
Totals	11	9	1	7	6	5	4	3	16	18	47	4	15	4	16	3	5	134

mine on inspection, the defects in the mechanism of an engine, still the collisions from this cause have been so many, that it is impossible to conceive a due amount of scrutiny to have been always exercised in the determination of the state of the locomotives. Greater precautions have of late years been taken to guard against this class of accidents, and greater knowledge also now exists as to what constitutes durability and efficiency in many parts of the machinery; it is, therefore, to be hoped, that still further improvements will, in these respects, yet take place, and prevent collisions from any such causes. In fact, an examination of column (c), Section B, of this table is sufficient to show, that during the last four years a marked improvement has taken place.

The collisions in the five years 1844-48, from the causes now } = 10, and
under consideration }
In the four years 1849-52 = 6

But in the former period, the extent of railway mileage was to that in the latter as 15,337 to 25,529, and consequently if this kind of collision had taken place in the latter period in the same ratio as in the former, the number would have been nearly 17, while, in fact, it amounted to only 6. And there appears no sufficient reason why this improvement should not continue until all such accidents, or nearly all, should disappear.

The next Section, C, of this table includes a class of collisions of a most serious character, and of an alarming extent. It is, perhaps, impossible to bring any direct charge against the directors and superior officers, on account of the culpable neglect on the part of the inferior servants, to which these accidents are immediately due; but the very enormous extent of them should call forth some more effective system of supervision for enforcing a faithful and certain observance of the regulations of the companies. Of the 174 collisions, of which the causes are classified in Table XXII., the extraordinary number of 104 have arisen out of what can be described as nothing but the most culpable neglect.

18 are due either to the neglect or mismanagement of signals.

47 have arisen from drivers neglecting signals, and other kinds of careless driving.

4 are due to the omission of the use of the "break."

15 are owing to pointsmen neglecting their duty.

4 are owing to the neglect or carelessness of station masters. And

16 have been occasioned by the inexcusable neglect of leaving waggons and portions of trains on the line, when the same line was in use by other trains; this last cause has, however, nearly disappeared during the three years 1850-52, not more than one collision yearly having taken place.

In Section D, the last of Table XXII., it will be found that column (c) contains no less than 134 cases of collisions, which it has been found impossible to classify in a satisfactory manner; but they are all attributable to neglect on the part of the servants of the companies.

The facts recorded in this table are of grave importance; and, although the directors of railway companies have done an immense deal in recent years to protect passengers against loss of life and limb, they are still imperatively called on to take the subject of the fre-

quently recurring collisions more thoroughly into consideration than they have yet done. When such most culpable neglect exists, as is evident by this table, the public have a right to demand more complete protection.

The next table to be considered is Table XXIII., which follows the same principles of classification as the table immediately preceding, only that in addition, the number of deaths and injuries due to each kind of collision is specified, for *employés* as well as passengers.

From this table a very clear notion may be formed of the danger to life and limb of passengers by collisions taking place from different causes. It would appear that—

(A.) The 28 collisions, from causes assignable to the state of the weather, produced	} 2 deaths and 69 injuries.
(B.) The 34 collisions, from defects and breakage of machinery, produced	
(C.) The 104 collisions, arising from classified causes of neglect in railway servants, produced	11 " 208 "
(E.) And the 134 collisions arising from unclassified causes, produced	21 " 305 "
	16 " 581 "

It hence follows, that in each of the above groups the ratios of deaths and injuries to passengers were as follows:—

In group (A), each collision produced	·071 deaths and 2·464 injuries.
" (B), "	·324 " 6·118 "
" (C), "	·202 " 2·933 "
" (E), "	·119 " 4·336 "

And Group B, or collisions arising from defects and breakage of machinery, has evidently the greatest tendency to occasion not only death, but likewise injuries to passengers, in relation to the number of collisions. This is not quite in accordance with the features attendant on railway accidents generally, in which it will be observed that those causes usually most fatal to life are accompanied with a reduced ratio of injuries. This will appear in a strong light when the part of this inquiry, relating to *employés*, is considered.

An examination of the final columns of Table XXIII. will show that the ratio which the number of injuries bears to the number of deaths arising from collisions differs very widely from that from accidents from all causes, as exhibited in Abstract G., both as regards passengers and servants of the companies.

Class of Accidents.	The Ratio of Injured to Killed among	
	Passengers.	Employés.
All causes in the aggregate.....	675·20 per cent.	65·03 per cent.
Collisions only	2301·96 " "	225·49 " "

It hence follows that the injuries greatly exceed the deaths amongst passengers in both of the above classes of accidents. On the other hand, the deaths amongst employés exceed the injuries from all causes in the aggregate; but in the class of collisions, the injuries, as with passengers, much exceed the number of deaths.

TABLE XXIII.

Showing the Number of Deaths and Injuries, to Railway Employés and to Passengers, due to each cause of Collision, on the Railways of Great Britain and Ireland, from the Year 1844 to the Year 1852, inclusive.

YEAR.	A. Weather.				B.				D.				Neglect.				Total.				Grand Total.											
	a, b, c. Not under Control of the Companies.				d. Partly under their Control.				Total.				Loss of Speed, or Steam or Water Failed.				C. From known Causes.				E. From Miscellaneous and unascertained Causes.				Total.				Grand Total.			
	Num-ber of Colli-sions.		Emp. Pass.		Num-ber of Colli-sions.		Emp. Pass.		Num-ber of Colli-sions.		Emp. Pass.		Num-ber of Colli-sions.		Emp. Pass.		Num-ber of Colli-sions.		Emp. Pass.		Num-ber of Colli-sions.		Emp. Pass.		Num-ber of Colli-sions.		Emp. Pass.		Num-ber of Colli-sions.		Emp. Pass.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.		
1844	7	1	12	1	8	1	12	3	1	1	4	...	...	5	5	2	35	2	1	2	9	7	...	6	4	44	18	1	7	5	60	
1845	2	...	4	2	4	...	4	1	...	...	...	1	...	10	3	4	36	11	...	3	...	21	3	7	3	62	27	3	7	4	66	
1846	2	1	4	...	2	1	4	4	1	4	2	6	3	15	...	15	...	11	...	6	2	26	...	21	2	67	35	2	28	4	77	
1847	3	1	2	1	3	1	2	4	1	...	...	...	11	20	1	8	23	10	4	...	7	30	5	6	7	29	40	6	9	41		
1848	...	...	...	...	...	...	...	4	1	2	...	...	...	13	4	12	6	52	19	2	8	32	6	20	7	86	36	7	32	7	106	
1849	1	1	...	1	2	1	1	3	1	1	6	1	...	7	2	3	...	2	15	2	...	22	4	5	...	60	28	6	7	...	66	
1850	2	1	19	2	4	1	31	2	4	...	1	...	...	10	...	4	...	12	26	6	9	36	6	13	8	105	42	10	14	8	137	
1851	2	1	...	...	2	1	...	4	...	...	...	...	...	9	3	...	28	19	3	1	153	28	6	4	1	181	38	7	4	9	301	
1852	2	2	13	1	3	2	13	5	3	...	...	...	...	15	4	8	79	21	2	7	2173	36	6	15	5	252	44	9	17	5	321	
Totals	21	8	6	2	28	3	6	2	69	34	12	7	11	206	8	...	134	19	37	16	561	238	36	99	37	896	308	51	115	51	1174	

The letters at head of the columns refer to those in the Analysis of Causes of Collisions. The accidents in (col. A.) would, probably, be always traceable to Neglect of Pointsmen. Those in (col. D.) would be, in general, attributable to Neglect.—See Analysis of Causes.

The letters at head of the columns refer to those in the Analysis of Causes of Collisions. The accidents in (col. A.) would, probably, be always traceable to Neglect of Pointmen. Those in (col. D.) would be, in general, attributable to Neglect.—See Analysis of Causes.

A curious and very interesting analysis of railway collisions will be found in the two next succeeding Tables, XXIV. and XXV.

TABLE XXIV.

Showing the Number of Collisions in each Year, from 1844 to 1852, inclusive, with Number of Employés and Passengers Killed and Injured thereby.

YEAR.	a. Passenger into Passenger.				b. Passenger into Other.				c. Other into Passenger.				d. Other into Other.				Totals.						
	Num-ber of Colli-sions.	Employés.		Passengers.	Num-ber of Colli-sions.	Employés.		Passengers.	Num-ber of Colli-sions.	Employés.		Passengers.	Num-ber of Colli-sions.	Employés.		Passengers.							
		Killed.	Injured.			Killed.	Injured.			Killed.	Injured.			Killed.	Injured.		Killed.	Injured.	Killed.	Injured.			
1844	4	...	5	34	10	1	2	2	17	3	...	...	7	1	...	...	2	18	1	7	5	60	
1845	4	...	...	6	13	1	3	...	24	8	1	2	3	2	1	2	...	27	3	7	4	66	
1846	2	...	...	...	19	1	14	2	39	3	...	3	1	11	1	1	...	35	2	28	4	77	
1847	6	...	1	...	18	2	3	9	19	3	...	...	5	13	4	5	...	40	6	9	9	41	
1848	7	...	2	23	17	5	11	6	62	6	1	2	...	18	6	1	7	...	36	7	22	7	105
1849	4	...	...	13	14	1	1	...	16	3	...	...	36	7	5	6	...	1	28	6	7	...	66
1850	8	...	1	52	16	3	7	1	55	13	5	1	...	29	5	2	5	2	42	10	14	8	137
1851	7	...	...	6	23	5	3	...	80	6	...	...	3	2	2	1	...	38	7	4	9	301	
1852	6	...	1	25	26	2	14	2	243	6	...	...	1	6	7	2	...	44	9	17	5	321	
Totals	48	...	10	18	156	21	58	22	555	51	7	8	39	53	23	3	6	308	51	115	51	1,174	

Of the 308 collisions recorded in Table XXIV., it will be found that—

- (a.) 48 have consisted of one passenger train coming into collision with another.
- (b.) 156 have consisted of collisions by passenger trains running into trains of another description, such as luggage, coke, mineral, contractors', &c., trains.
- (c.) 51 have been occasioned by other than passenger trains running into passenger trains. And
- (d.) 53 collisions happened by trains, not passenger trains, running into other trains, which were also not passenger trains.

It may be said, that in all the preceding four groups the public, as passengers, were interested, and even the last group, it will be found, records that three passengers were killed and six injured, although the trains were not passenger-trains. These deaths and injuries took place amongst persons in charge of horses and cattle.

A very characteristic distinction in the number of collisions, under Groups (b) and (c), is observable. Group (b) shows the number of passenger-trains running into others not passenger-trains, while group (c) is the converse kind of collision. Now as passenger-trains usually run at a higher speed than the other trains, the greater number of collisions is occasioned by the passenger-trains overtaking the others, the difference being almost exactly three times as great.

What is also somewhat curious to observe in the table under consideration is, the rather close approximation in the number of collisions with each other of trains of a similar kind. The collisions among exclusively passenger-trains were, in the nine years, exactly 48; and the collisions in the same period among trains, exclusively other than passenger-trains, were 53.

The following shows the ratio of deaths and injuries among passengers in each group of collisions in Table XXIV:—

In group (a),	each collision produced	·375 deaths and	6·854 injuries.
„ (b),	„	·141 „	3·558 „
„ (c),	„	·157 „	5·569 „
„ (d),	„	·057 „	0·113 „

The highest ratio of deaths, and also of injuries, in the above four combinations, will be found in Group (a); and for this there is a very obvious explanation, for the collision in this group consists of one passenger-train running into another; consequently, in every such collision, taking one with another, there will be double the number of passengers exposed to risk, which will be found exposed to such risks in collisions under Group (b); and it is rather singular to find, in an inquiry of this kind, so very positive a determination to the development of a law of mortality, when so many disturbing causes might have been considered to influence the results. If the ratio of deaths and injuries in Group (a) be divided by two, the results will be, ratio of deaths ·187, and ratio of injuries 3·427, not differing widely from the results of Group (b), nor from the results of Group (c), so far as regards deaths.

Another obvious and important result, arising out of this table, is the caution indicated in regard to the position of passenger to other trains on the line; for it is the mismanagement of this detail which occasions fully one-half of the whole collisions which take place.

TABLE XXV.

Showing the Number of Collisions occurring to each class of Passenger Train, as compared with those occurring to all Passenger Trains, and to each other, with the Deaths and Injuries occasioned thereby, from 1844 to 1852, inclusive.

Year.	a. Express.						b. Mail.						c. Ordinary Passenger Trains.						d. Excursion.						Total. (a + b + c + d.)											
	Number of Collisions.			Passen- gers.			Em- ployés.			Passen- gers.			Number of Collisions.			Em- ployés.			Passen- gers.			Number of Collisions.			Em- ployés.			Passen- gers.								
	Resulting in Injuries.			Killed.			Resulting in Injuries.			Killed.			Resulting in Injuries.			Killed.			Resulting in Injuries.			Killed.			Resulting in Injuries.			Killed.			Resulting in Injuries.			Killed.		
	Not resulting in Injuries.			Not resulting in Injuries.			Not resulting in Injuries.			Not resulting in Injuries.			Not resulting in Injuries.			Not resulting in Injuries.			Not resulting in Injuries.			Not resulting in Injuries.			Not resulting in Injuries.			Not resulting in Injuries.			Not resulting in Injuries.					
1844...	...	...	...	...	...	...	3	...	...	...	...	...	3	10	1	7	4	57	...	...	...	1	...	...	1	6	11	1	7	5	58					
1845...	...	...	...	...	...	...	...	2	...	...	...	4	4	19	2	5	4	62	...	...	...	...	...	...	4	21	2	5	4	66						
1846...	...	1	...	...	...	...	1	1	...	...	...	4	6	15	1	15	3	73	...	...	...	...	...	...	7	17	1	17	3	77						
1847...	1	1	...	...	...	...	3	...	...	...	...	...	6	15	2	4	9	32	...	...	...	1	...	...	10	17	2	4	9	41						
1848...	1	2	1	4	1	10	1	4	6	...	...	4	6	16	1	5	6	89	...	...	...	...	...	...	8	22	6	15	7	103						
1849...	...	...	...	...	...	...	...	...	...	...	...	1	7	11	1	1	...	62	1	1	...	...	...	2	8	13	1	1	...	65						
1850...	...	...	...	...	...	...	...	2	...	...	...	10	5	30	8	9	6	126	...	...	...	...	...	...	5	32	8	9	6	136						
1851...	...	1	...	...	...	...	...	1	...	...	...	2	3	27	5	3	9	235	...	...	...	4	...	...	63	3	33	5	3	9	301					
1852...	1	3	1	5	...	14	...	2	...	2	...	11	2	30	1	8	5	296	...	...	...	...	...	...	3	35	2	15	5	321						
Totals	3	8	2	11	1	26	8	13	4	8	...	36	42	173	22	57	46	1,032	1	7	...	1	74	54	201	28	76	48	1,168							

The next Table, XXV, gives a still further analysis of the passenger-trains, by showing the number of collisions to each kind of train, whether "express," "mail," "excursion," or ordinary train; and further distinguishes, among the collisions to each of these trains, the number which have resulted in injury to life or limb, and the number of collisions unattended with injury. Other than passenger-trains are excluded.

In this table, it will be observed, that the collisions of the "express" and "excursion" trains have occasioned but one death each throughout the whole period of nine years, while the collisions of "mail" trains were not attended with a single death to a passenger. So far as collisions are concerned, this ought to satisfy the minds of the timid of the safety of travelling by quick trains.

The following is a condensed abstract of Table XXV., in respect to passengers only:—

ABSTRACT M.

Trains.	Number of		Number of Passengers.		Ratio of Deaths and Injuries to			
	Non-serious Collisions.	Serious Collisions.	Killed.	Injured.	All Collisions.		Serious Collisions.	
					Killed.	Injured.	Killed.	Injured.
Express	3	8	1	26	·091	2·364	·125	3·250
Excursion	1	7	1	74	·125	9·250	·143	10·571
Mail	8	13		36		1·714		2·769
Ordinary	42	173	46	1,032	·214	4·800	·266	5·965
Total....	54	201	48	1,168	·188	4·580	·239	5·811

It will thus be seen, that the ordinary trains have been fatal to life above the average. It will, however, be observed, that although the excursion trains have occasioned fewer deaths than the ordinary trains, yet the ratio of persons injured is nearly double the average. It will, likewise, be observed, that one-fifth part of all the collisions with passenger-trains are unattended with injury.

The following Table, XXVI., which includes collisions by other as well as passenger-trains, is interesting.

One remarkable feature in this table is, the disparity in the frequency of collisions in different months of the year. It will be seen that, in the six months commencing with August and ending with January, the number of collisions is more than double of the number in the other six months of the year. This is, no doubt, to be in part accounted for by the state of the weather, as may be understood on referring to Section A of Tables XXII. and XXIII.; but this would still not of itself be sufficient to account for the remarkable difference observable in the preceding table, unless it be that the "neglect," recorded in Section C of Table XXII. and Section E of Table XXIII., be also to some extent occasioned by the trying nature of the weather at the same season. Another curious circumstance is the fact that in the last six months of this table, in which double the number of collisions have taken place, not quite so many lives of passengers have been lost, although the passenger traffic of the same six months is

TABLE XXVI.

Showing the Number of Collisions on the Railways of Great Britain and Ireland for the nine Years 1844—1852, for each Month of the Year, with the Number of Employés and of Passengers Killed and Injured thereby.

Month.	Number of Collisions.			Employés.		Passengers.	
	Total.	Not resulting in Injury to Life or Limb.	Resulting in Injuries.	Killed.	Injured.	Killed.	Injured.
February	13	4	9	2	6		15
March	15	4	11	2	2		30
April	10	3	7		4	6	110
May	21	4	17	4		11	75
June	15		15	3	8	7	57
July	25	4	21	3	17	2	127
Totals	99	19	80	14	37	26	414
August	37	7	30	3	12	11	200
September	32	4	28	7	7	9	137
October	35	8	27	8	18	4	102
November	36	8	28	5	16	3	177
December	41	11	30	7	15	4	103
January	28	12	16	7	10		41
Totals	209	50	159	37	78	25	760
Totals of 12 months....	308	69	239	51	115	51	1,174

greater than in the other six months. For the nine years now under consideration, the passenger traffic of the first six months was 240,307,731, the passenger traffic of the second six months was 302,959,421. And, consequently, the deaths from collisions, during the first six months, were 1 in every 9,242,605 passengers; and, during the second six months, were 1 in every 12,118,577 passengers. So that those figures represent the relative chances of loss of life from collisions in railway travelling during the respective seasons, assuming that such accidents should for the future observe the same order of distribution.

In respect of injuries to passengers, it will be observed, that in frequency they follow almost the precise order of the collisions themselves—the ratio to collisions in the different seasons being nearly the same. The facts in this table are well worth examination by those intrusted with the management of railways. It is scarcely possible to conceive that any intelligent superintendent of the trains of a railway, who thoroughly masters the facts in regard to collisions contained in Tables XXII. to XXVI. inclusive, could not devise some means which would prevent the recurrence of so many accidents of this class.

The only remaining table now to be brought forward on the subject of collisions is the following one, Table XXVII. in which are shown the places on the line at which the various collisions have taken place.

TABLE XXVII.

Showing the Localities where all Collisions, from 1844 to 1852, inclusive, occurred, with the Deaths and Injuries to Railway Employés and to Passengers caused thereby; also the Number of Collisions unattended or attended by Injury for each of the above Years.

Year.	a.						b.						c.						a + b + c.						On Open Line.						Grand Total.					
	At or near Station or Terminus.			At or near Junction.			At Sidings or Crossings.			Total of Stations, Junctions, and Crossings.			On Open Line.			Total of Stations, Junctions, and Crossings.			On Open Line.			Total of Stations, Junctions, and Crossings.			On Open Line.			Total of Stations, Junctions, and Crossings.			On Open Line.			Total of Stations, Junctions, and Crossings.		
	Number of Collisions.		Passen- gers.	Number of Collisions.		Em- ployés.	Number of Collisions.		Em- ployés.	Number of Collisions.		Passen- gers.	Number of Collisions.		Em- ployés.	Number of Collisions.		Passen- gers.	Number of Collisions.		Em- ployés.	Number of Collisions.		Passen- gers.	Number of Collisions.		Em- ployés.	Number of Collisions.		Passen- gers.	Number of Collisions.		Em- ployés.	Number of Collisions.		Passen- gers.
	Not resulting in Injury.	Resulting in Injury.	Killed.	Not resulting in Injury.	Resulting in Injury.	Killed.	Not resulting in Injury.	Resulting in Injury.	Killed.	Not resulting in Injury.	Resulting in Injury.	Killed.	Not resulting in Injury.	Resulting in Injury.	Killed.	Not resulting in Injury.	Resulting in Injury.	Killed.	Not resulting in Injury.	Resulting in Injury.	Killed.	Not resulting in Injury.	Resulting in Injury.	Killed.	Not resulting in Injury.	Resulting in Injury.	Killed.	Not resulting in Injury.	Resulting in Injury.	Killed.	Not resulting in Injury.	Resulting in Injury.	Killed.	Not resulting in Injury.	Resulting in Injury.	Killed.
1844	1	1	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1845	1	6	1	...	1	...	...	...	...	1	10	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1846	3	8	...	...	...	...	...	...	...	3	11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1847	2	6	2	...	...	...	...	...	...	2	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1848	2	14	...	...	...	...	...	...	...	1	4	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1849	2	6	1	...	...	...	...	...	...	1	2	9	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1850	1	21	2	9	6	100	...	...	...	1	22	3	9	6	100	4	15	7	5	2	37	5	37	10	14	8	187	...	...	...	...	...	...	...	...	...
1851	1	16	4	4	1	127	...	...	...	1	19	6	4	1	136	1	17	1	...	8	186	2	36	7	4	9	301	...	...	...	...	...	...	...	...	...
1852	1	18	5	9	2	169	...	...	...	2	23	5	10	3	198	3	17	4	7	2	183	4	40	9	17	5	381	...	...	...	...	...	...	...	...	...
Totals	14	96	15	42	18	632	2	10	3	2	1	44	3	18	2	13	7	44	19	124	20	56	26	670	56	115	31	59	25	504	69	239	51	115	51	1,174

It will be found that, of a total number of 308 collisions, no less than 110 have taken place at stations, or the very places where the greatest care and vigilance are required and might be exercised. Anything like fair attention to the use of well understood precautions, and a proper use of signals and telegraphs, should completely, or at all events to a great extent, prevent this class of accidents. The same remarks may be justly made in respect to the collisions recorded in Sections *b* and *c* of the same table. The collisions in the first three sections of this table constitute about 46 per cent. of the whole number, and are clearly of a kind that may be greatly diminished by a well devised system of management. The accidents from collisions on open lines, or rather at other places than stations, junctions, sidings, and crossings, amount to 165. The intensity of the different kind of collisions in this table, in death and injury, does not exhibit any very marked disparity.

The only other important class of accidents, from which passengers suffer, and assumed to be under the control or management of the companies, are those occasioned by trains, or portions of trains, running off the line.

Of the 228 defined causes of deaths of passengers, given in Table XIII., it will be found that 109 are attributable to causes under control of the companies. And then, again, Table XIII. shows that 35, or 32.1 per cent., were occasioned by "running off the line." In so far as the management of railways is concerned, in preserving the lives of passengers, this class of accidents is second only in importance to that arising from collisions. In fact, "collisions" and "running off the line" caused 91 per cent. of all the deaths of passengers for which the companies can be supposed responsible; and therefore, a thorough analysis of these two classes of accidents will complete the inquiry so far as the lives of passengers are concerned.

In the following Table, XXVIII., will be found the results of the investigation made into the immediate cause of engines, trains, and other parts of trains running off the line. The analysis will be found sufficiently minute and detailed for every useful purpose.

Of 156 cases of "running off the line," the immediate cause has been ascertained in 105 instances. And it is also found, that 105 of the accidents have been attended with injury to life and limb of passengers, and 51 resulted without any injury.

It will immediately appear on examination of Section A of the same table, as remarked in regard to the similar section of the tables of collisions, that it is impossible to hold the companies responsible for every one of this group of accidents. They are so clearly due to causes difficult to be foreseen, that they may for the present be passed over as such.

But in regard to Section B, which includes none but cases of running off the line from the breaking of machinery, there can be no doubt that greater precautions might generally be taken. The remarks offered on the "breaking of machinery," as the immediate cause of collisions, apply with equal force in this instance, and need not again be repeated; but it is certainly to be lamented that, of the 105 ascertained causes of "running off the line," no less than 43 should be due

TABLE XXVIII.

An Analysis of Causes of Engines, Trains, or Parts of Trains, running of the Rails, on Railways in Great Britain and Ireland from the Year 1844 to the Year 1853, inclusive.

Year.	A Weather.				B Machinery Breaking.										C Defects in Permanent Way.						D Obstructions on Road.		E	F	G	Total Number in each Year.																																																																																																																																																																																																																																																																																																													
	Floods or In- crease of water caused there- by. Heavy Rain.				Engines.				Tenders.		Carriages and Trucks.		Rail- roads.						Placed on Main Line.		Left on Main Line.	Fallen on Main Line.					Cross- ings.	Cross- ings.	Cross- ings.																																																																																																																																																																																																																																																																																																										
					Wheels.		Crank- ing.	Other Acci- dent.	Com- ing Rail.	Other Acci- dent.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.												Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.	Arise. Wh.

to "breaking of machinery." Frequent inspection by competent parties is the protection against this group of accidents, and strong measures should be enforced to secure the safety arising from this sort of supervision.

The accidents arising from causes recorded in Section C are certainly all, or at least to a very great extent, preventable. Nothing but the most culpable indifference to the public safety can permit a continuance of this group of accidents, which forms upwards of 28 per cent. of all the classified accidents in this table.

The accidents included in Columns 2 and 3, of Section D, cannot in general be attributable to negligence of the companies.

The four cases in Section E are due to reckless driving.

Sections B and C of this table should be well considered by railway directors.

The next, Table XXIX., will show how the various groups of accidents of "running off the line" affected life and limb of passengers.

What is strange in the record of accidents contained in this table is, that the 51 cases, included in Sections A and B, did not occasion a single death of a passenger, while the 30 in Section C,

TABLE
Showing the Number of Deaths and Injuries, to Railway Employés and to Passengers, due in Great Britain and

	A.				B. Machinery Breaking.												C. Defects in Permanent											
	Weather.				a.				b.				c.				d.				a.				b.			
					Engines.				Tenders.				Carriages, or Trucks, &c.				Totals.				Rails, Points, and Switches.				Bad Road, or under Repair.			
	Number of Accidents.	Killed.	Emp. Injured.	Pass. Injured.	Number of Accidents.	Killed.	Emp. Injured.	Pass. Injured.	Number of Accidents.	Killed.	Emp. Injured.	Pass. Injured.	Number of Accidents.	Killed.	Emp. Injured.	Pass. Injured.	Number of Accidents.	Killed.	Emp. Injured.	Pass. Injured.	Number of Accidents.	Killed.	Emp. Injured.	Pass. Injured.	Number of Accidents.	Killed.	Emp. Injured.	Pass. Injured.
1844.....	...	...	...	...	1	1	1	...	1	...	...	...	1	...	...	...	3	1	1	...	3	...	2	...	...	...	...	...
1845.....	...	...	...	...	2	...	...	...	...	...	...	...	1	...	...	1	3	...	...	1	3	...	5	...	5	2	1	...
1846.....	2	2	...	...	5	1	3	1	1	1	...	...	4	1	3	13	10	2	7	...	14	2	...	...	...	1	1	1
1847.....	1	...	...	...	6	2	3	...	1	...	...	...	4	2	...	...	11	4	3	...	6	2	2	...	2	...	2	
1848.....	2	1	2	4	4	1	3	5	...	...	...	...	1	...	...	...	5	1	3	...	5	3	...	2	...	...	...	
1849.....	2	...	1	...	1	...	...	...	...	...	...	...	2	...	...	16	3	...	...	16	...	...	...	...	...	...	...	
1850.....	...	...	...	...	1	...	...	...	...	...	...	...	2	...	1	2	3	...	1	2	4	...	...	...	6	...	...	
1851.....	...	...	...	...	1	1	1	...	1	...	...	...	1	2	...	...	3	3	1	...	3	...	6	23	...	...	...	
1852.....	1	2	...	...	2	3	2	...	...	...	...	...	...	...	...	...	2	3	2	...	1	...	...	2	...	...	...	
Totals ...	8	1	7	4	23	9	13	6	4	...	1	...	2	16	5	4	...	32	43	14	18	...	40	25	2	11	6	36

Column A contains all those accidents which were not under the Company's control.

Column C₂ includes open, or was

attributable to defects in the "permanent way," produced 8 deaths of passengers.

The number of deaths of passengers from obstructions on the line was 3, but no passenger lost his life under Section E, reckless driving, or excessive speed.

The miscellaneous group, Section F, it will be seen, includes 55, or upwards of one-third, of all the cases of trains running off the rails, to which unascertained causes nearly one-half of the whole deaths of passengers from running off the line is due, but the returns of the railway department were either defective as to these cases, or the accidents themselves were of so peculiar a kind as not to admit of a satisfactory classification.

When that part of the subject, which has reference to the manner in which railway accidents have affected the employes, is considered, the effects of trains running off the line will be more fully discussed. From Tables XXIV. and XXVI., preceding, it will be observed that collisions killed an equal number of employes and passengers; but the cases of running off the line have, as will be seen by the last columns of Table XXIX., relatively a much more fatal effect on the servants of the companies.

XXIX.

to each Cause of Trains, or Parts of Trains, or Engines running off the Rails of Railways Ireland, from 1844 to 1852.

Way.				D. Obstructions on Line.												E.				F.				Grand Total.									
Totals.				a. On or between Rails.				b. Contact with Cattle.				c. Totals.				Reckless Driving, or Excessive Speed.				Miscellaneous, and not ascertained.													
Number of Accidents.		Emp.		Pass.		Number of Accidents.		Emp.		Pass.		Number of Accidents.		Emp.		Pass.		Number of Accidents.		Emp.		Pass.		Number of Accidents.		Emp.		Pass.					
Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.				
3	...	2	...	1	2	...	...	2	1	...	...	3	8	...	...	1	...	...	...	...	...	...	10	4	3	...	8						
5	1	5	...	5	3	...	3	6	1	...	...	4	...	3	6	...	...	3	3	6	...	...	15	4	14	...	13						
3	1	1	...	2	1	...	...	...	...	...	...	1	...	...	...	2	2	1	...	5	1	4	...	1	23	6	15	...	17				
8	2	2	2	1	2	...	...	...	...	...	...	2	...	...	...	...	...	9	3	8	3	17	31	9	13	5	18						
3	...	2	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	11	5	5	2	3	22	7	12	2	13						
...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	4	4	...	5	1	19	4	1	5	18						
4	...	...	...	6	2	...	2	1	...	...	...	2	...	2	1	...	...	5	...	1	...	9	14	...	4	...	18						
3	...	6	23	...	2	2	...	3	3	...	...	2	2	...	3	3	...	8	3	4	...	22	16	8	5	9	48						
1	...	...	2	...	1	...	...	...	...	...	...	1	...	...	...	...	...	10	7	7	...	15	15	10	11	...	17						
30	4	12	8	39	12	4	5	8	10	4	1	...	...	16	5	5	3	10	4	9	1	...	2	55	26	35	10	68	156	53	78	21	163

cases of neglect in leaving points open, the effect on the train being manifestly the same whether they were left defective, &c.

TABLE XXX.

Showing the Number of Accidents, by Trains Running off the Line, unattended and attended with Injury, in each Year, from 1844 to 1862, inclusive, occurring to each Species of Train, with the Number of Employés and Passengers Killed and Injured thereby.

Year.	Express.				Mail.				All other Passenger Trains.				Engines.				Goods, &c., Trains.				Trains not Specified.				Totals.									
	Number of Acci- dents.		Em- ployés.	Passen- gers.	Number of Acci- dents.		Em- ployés.	Passen- gers.	Number of Acci- dents.		Em- ployés.	Passen- gers.	Number of Acci- dents.		Em- ployés.	Passen- gers.	Number of Acci- dents.		Em- ployés.	Passen- gers.	Number of Acci- dents.		Em- ployés.	Passen- gers.										
	Not result- ing in Injury.	Resulting in Injury.	Killed.	Injured.	Not result- ing in Injury.	Resulting in Injury.	Killed.	Injured.	Not result- ing in Injury.	Resulting in Injury.	Killed.	Injured.	Not result- ing in Injury.	Resulting in Injury.	Killed.	Injured.	Not result- ing in Injury.	Resulting in Injury.	Killed.	Injured.	Not result- ing in Injury.	Resulting in Injury.	Killed.	Injured.										
1844...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...										
1845...	...	2	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...										
1846...	...	2	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...										
1847...	1	3	1	2	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...										
1848...	1	3	...	2	1	2	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...										
1849...	...	1	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...										
1850...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...										
1851...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...										
1852...	...	4	2	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...										
Totals	2	16	8	10	4	15	4	3	2	3	5	1	27	59	22	40	12	147	4	5	2	5	...	...	...	...	...	...	52	104	52	78	21	163

In the preceding Table, XXX., it will be seen in what manner the different kind of trains were affected by the class of accidents now under consideration.

It was found in Table XXV. that the passengers by "express" trains suffered less from the collisions which occurred, than the passengers by other trains. But in regard to the class of accidents in the preceding table, the case is very different; for, from the 18 cases of "running off the line" by express trains, 4 deaths of passengers happened, while from the 93 cases taking place among "mail" and other passenger trains, the number of deaths was 17. In regard, however, to injuries only, the ratio was also less in the case of "express" trains.

The preceding portion of this paper has been confined chiefly to an examination of the manner in which railway accidents have affected passengers, although the tables themselves contain the results of the analysis for employes and other persons not passengers for the time being. Already a large space of the present part of the *Journal* has, however, been devoted to this communication, to the exclusion of some other contributions of an important nature; but this subject will be continued in the next Number, and that portion of it, which was submitted to the Statistical Section of the British Association at Hull brought forward, in which will be investigated, as completely as the data will admit of, the manner in which railway accidents in the United Kingdom during the twelve years, 1840-52, have affected railway servants, and other persons not passengers.

Although the general public is naturally most alive to the manner in which passengers suffer from accidents, still every earnest inquirer must at once sympathize with the dreadful amount of accidents and fearful loss of life to which the servants of Railway Companies are exposed. It is quite impossible not to regard this latter branch of the inquiry as really the more grave and important of the two. Table XII. shows that while in the twelve years ending 1852 the loss of life amongst passengers was 266, that 1,081 deaths took place amongst the employes. This statement is of itself sufficient to prevent the next portion of this Paper from being regarded with indifference.

When the two series of facts have, therefore, been fully brought forward, both as they affect passengers and servants of the companies, it may be then possible to throw some further light on such points as may be calculated to suggest means for lessening a large number of the accidents, and saving the lives of many who would otherwise become victims of the present system of railway management.

Freehold Land Societies. By THOMAS BEGGS, F.S.S.

[Read before the Statistical Society, 20th June, 1853.]

It has been suggested that a brief history of the rise and progress of freehold land societies, with a description of the mode of working them, would be interesting to the Society. As I have paid considerable attention to this class of institutions, and have had, from the accident of position, many opportunities of observing their operations, I have ventured to throw together a sketch, which, fragmentary though it be, may give a pretty accurate idea of the principles upon which they are founded, and furnish data by which to estimate the advantages likely to accrue from their formation.

These societies were first suggested by an effort that was made, for a purely political purpose, by the Anti-Corn-law League, during its active existence. In 1843, Lord Morpeth, the present Earl of Carlisle, who had been one of the most popular candidates ever returned for the West Riding of Yorkshire, was defeated on the question of free trade. The League felt this as a serious blow, in a constituency which, from its size and importance, had been taken as an index to public feeling on all great questions. Besides, the West Riding of Yorkshire comprises some of the largest, wealthiest, and most prosperous seats of manufacture, and therefore such a defeat told most powerfully against them.

Mr. Cobden, whose attention had been previously directed to the forty-shilling-freehold qualification as the basis of a powerful machinery to be put in motion in case of emergency, went down and proposed to the men of the West Riding that they should at once set about the purchase of freeholds to the number required to constitute a free-trade majority. It was found that 5,000 votes would be required. In the space of two years, this number were created, and at the next election his lordship was returned without opposition. Free-trade candidates were returned by the same means for East Surrey and South Lancashire; and the members of the Anti-Corn-law League were moving in every part of the country where counties or divisions of counties returned members opposed to their views, when Sir Robert Peel, by carrying his measure for the repeal of the corn-laws, put an end to this creation of votes, and to the existence of the Anti-Corn-law League. The freeholds themselves, in this case, were little valued by the possessors, except as a means of securing a vote, and the freehold vote possesses considerable elasticity and adaptability to a political purpose of this kind. It is the oldest kind of suffrage, and exists in several forms. It is simply necessary to show that the person claiming to be put upon the register has a clear annual interest in freehold property to the amount of forty shillings; it is independent of residence or payment of rates. A person may reside in London and qualify for Northumberland; in fact, he can, if he chooses, qualify for every county in England and Wales. In some cases, members of the League qualified for five or six places. The favourite form of the qualification for the League men was that of rent-charges and chief rents, as these were

more easily manufactured to order than any other. One hundred persons may unite in the purchase of one estate, and, supposing that each of them can prove an interest in the estate to the full value of forty shillings per annum, he can claim to be put upon the register; or any owner of an estate can sell off rent-charges to the whole annual value of his estate. This was, no doubt, very convenient to the League, as the value of the votes depended upon their immediate applicability. Little care was taken as to the commercial value, and when the plea for their creation was withdrawn, some had difficulty in finding the exact locality of their freeholds; others found that they had purchased dilapidated cottages and buildings worth no more than the market price of the old materials of which they were composed; and others, again, found that it would have been an inconvenient and troublesome process to have enforced the payment of the annual rents. All that can be said of the experiment is, that it answered the main purpose, but in other respects its success was so very equivocal, that it encouraged no speculation in freeholds. I find, however, that the mode of purchasing land on a perpetual ground-rent or chief rent has been very generally in use in Manchester, and it confers a vote upon a succession of proprietors. For example, A sells a building-site to B for 40*s.* a-year perpetual ground-rent, upon which B erects a cottage worth 8*l.* a-year, and thus both A and B are entitled to county votes. But it sometimes happens that five or six persons claim to be registered upon the same property. C buys a plot of land in an improving district for a perpetual rent of 50*l.*, which he sells to D for 55*l.*; E buys it of D for 60*l.*, and sells it to F for 65*l.*; thus, as each proprietor has a clear annual value of more than 40*s.* for ever, they are all entitled to vote.

Almost immediately after this, a movement was started by Mr. Feargus O'Connor, but which must not be confounded with the freehold land movement. This was intended to create independent peasant proprietors, and the subscribers were induced to believe that they could with advantage change their ordinary occupations, and in possession of two or three acres of land, cultivate it to advantage. The whole scheme was a failure; but I need not enter upon that history, as the movement and its results are matters of familiar knowledge. In a short time after the breaking up of the League, Mr. James Taylor, of Birmingham, a working man, and who had taken a very active part in temperance and building societies, made an effort to establish a freehold land society in Birmingham. He had a double object in view—that of creating county votes and of promoting the welfare of the working classes, by stimulating them to save their money and invest it in allotments of land or in cottage-houses. Mr. Taylor having been known as an intelligent, useful, and honest man, soon found influential supporters, and in 1847, he founded the first freehold land society in Birmingham. I obtained from Mr. Taylor some returns in January last, and at that time there were five societies in that town, comprising 3,000 members, nearly the whole of them being working men. The payments are 6*s.* per month per share, and the sums now paid in amount to 70,000*l.* They have purchased 19 estates for division among the members, and 2,300 allotments have been made. It is worthy of observation that only one of the societies is held at a

public-house, and that has been the least successful. The inference I draw from this fact is, that these societies are supported by the more thrifty and sober portion of the working-classes. In a few weeks after the announcement of the formation of the Birmingham Freehold Land Society, the National Freehold Land Society commenced operations, under the auspices of Mr. Cobden and other leading members of the League, with the avowed object of creating votes to secure a majority of Reform members in the counties where Conservatives were returned. The fact is, the society was commenced to aid a movement which was then making to alter the basis of the representation. The first prospectus limited its operations to the home counties, which return twenty-one members to Parliament. Of this number, sixteen were said to be opposed to an extension of the suffrage, and the labours of the society were to be directed so as to change the relative position of the two parties, the Conservative and Liberal, and to give a majority in every constituency to the latter. This society afterwards enlarged its operations, and embraced the whole of England and Wales. As Scotland and Ireland do not possess the forty-shilling freehold qualification (the former having never possessed it, and in the latter case, the forty-shilling freeholders having been disfranchised by the Reform Bill), these parts of the empire were not included. It was held out as a possible thing that this work might be accomplished in five or six years. Several general statements were put forward to show how practicable and easy this was; but I fear they were founded upon very imperfect data. Some idea may be formed of the work to be accomplished, when it is seen that there are twenty-seven county constituencies with an average number of electors below 3,000, twelve more under 5,500, and twenty more with an average below 6,000. To ascertain the relative strength of the Conservative and Liberal voters, the last election may be referred to. It is not an unfair test, as, from the fact of the free-trade policy being considered in peril, the full strength of the Liberal cause was put in requisition; but it must at the same time be observed that, under such circumstances, many voted for Liberal candidates who would not have done so had a question of the suffrage been pending.

The commencement of the National Freehold Land Society was followed by many others throughout the country. In January last, I made special inquiries, and although the returns I obtained were very imperfect, I gathered the following particulars, viz., that the probable number of societies at that time existing was 130, about twenty of which were established in London; the probable number of members was 85,000, subscribing for 120,000 shares. The number of estates purchased amounted to 310, and these estates had been divided into 19,500 allotments. The sum actually subscribed for was not less than 3,600,000*l.*, of which 790,000*l.* had been actually received. I have found it no easy matter to get particulars of the various societies, or even to ascertain the existence of some of them. Many of them are doing a very small business, and seem to be very loosely conducted; others are increasing and prosperous. I have obtained returns from the National Freehold Land Society, which, with the exception of the one referred to as founded by Mr. James Taylor, is the oldest; and returns also from the Conservative Land Society, in the management

of which, I believe, one of the Fellows of this Society, Lord Alfred Churchill, takes a very useful and active part.

National Freehold Land Society.—Completed shares, 6,000; uncompleted ditto, 10,000; amount received, 500,000*l.*; estates, 115; acres, 3,000; purchase-money, 400,000*l.*; number of appropriated lots (some are 200*l.* lots), 5,000; supposed proportion of working classes, one-third; profits on completed shares, 5 per cent.; on uncompleted, 10 per cent. last year—now 5 per cent.; price of rights, 18*l.* highest; ditto ditto, 2*s.* 6*d.* lowest; the proportion of shares kept by those to whom they are drawn is about three-fourths, so that one-fourth of the shares drawn are on sale.

The Westminster Freehold Land Society is the next oldest freehold land society. Its progress has not been so great; it has enrolled 1,010 members, taking 1,602 shares. This society does not adopt the ballot, but disposes of the shares by rotation. Five estates have been purchased, and in every case they provide that houses not less than a certain amount in value shall be built upon them. Upon one estate, the minimum is fixed at 600*l.*

The Conservative Freehold Land Society has, since its formation, been very successful. This society has only been nine months in existence, but the total number of shares issued is about 4,500, representing a capital of 225,000*l.*, on which 35,000 have been paid. They have purchased ten estates, but they do not give the prices paid for them, nor the quantities in each. I observe, with great satisfaction, that they have a reserve fund. In this case, it will be seen, by reference to the conditions attached to the plan, that buildings of less value than 1,200*l.* shall not be erected in one case, 700*l.* in another.

Having given a rapid sketch of the rise and progress of these societies, I may now proceed to offer an explanation of the principles upon which they are formed and conducted. The freehold land societies are enrolled under the Benefit Building Societies' Act, and the shorter way to an understanding will be to examine what a building society really is. The societies which are, in compliance with the requirements of the act of Parliament, denominated building societies, are not building societies at all. They are compelled to assume a name which not only does not represent their business, but totally misrepresents it. A building society does not build, nor can the funds of the society be appropriated legally to the purposes of building. A building society is simply a mutual savings bank and loan society. A number of men unite together, and pay in a certain weekly or monthly sum, say six shillings per share per month, and when the accumulated payments have reached to a certain amount, say two hundred pounds, such sum is lent to any one of the members who is desirous to obtain such loan, on his giving security and paying interest to the society. The preference is decided by rotation, by competition, or more generally by ballot. If the money is put up to the highest bidder, the purchase-money—that which he gives for the appropriation—goes into the fund; if the preference is decided by ballot, the person who obtains it may sell it (it will have almost invariably a marketable value), to his own advantage, putting the profit in his own pocket. In most cases, the person obtaining the choice or preference, proceeds to build, or to buy, freehold or leasehold property. The solicitor to

the society manages the matter, and a mortgage-deed is executed to the society, and held by the trustees until the money advanced is repaid. It will not, I am sure, be considered foreign to the subject, if I make one or two remarks upon the character of these building societies. I am sorry to say that, from the inexperience of the members, and the designs, very often, of persons at the head of the management, they do anything but contribute to the interests of the class whose patronage they seek. Many of them put forth promises it is impossible they can fulfil; some of them are promoted by speculating solicitors and house and land agents, who, having properties to sell, obtain by this means much more than the actual value, and not a few have suffered from the wilfulness of an ignorant direction, and from the jobbing of the officials. Probably, by the next session, I shall be able to give to the Society the number of building societies, with an estimate of the amount of money paid into them by the working classes, and it will then be seen that the subject is one of great importance. All friends to improvement are anxious to see the men who labour, reaping and enjoying the fruits of their industry; and those who have given any attention to the habits of that class, will rejoice to perceive the many signs which exist of a growing disposition to provide for future exigencies, and to acquire a social position by the possession of a small property. But to direct that disposition aright is of great consequence. Mr. Neison has done very valuable service by his exposition of the erroneous calculations by which the payments to friendly societies are regulated; and I am sure that very many of the building societies are proceeding upon a course of action equally unscientific; and if the results are not likely to be so extensively injurious to the members as in the case of friendly societies, still the mischief ever and anon accruing from failures and loss, is calculated to check the growth of those thrifty and saving habits which are in such rapid and satisfactory development among the working classes. I have explained the business of a building society; and it is the principle of receiving small payments, accumulating a fund, and advancing it to the members on the security of small properties, that is adopted by the freehold land societies. As societies, they do not purchase property, nor have they legally the power to do so. The mode adopted is, however, simple enough. When an estate eligible for the purposes of the society presents itself, and the title has been fully examined, the trustees, or some other members of the direction, or perhaps some persons having no connection with the society, purchase it with their own money, and hold it at their own risk until it is subdivided and sold to such of the members as are entitled to advances of money, and who have approved of and selected one or more allotments, according to the number of shares they hold. There are two classes of shares—completed and uncompleted shares. Some members pay up the amount of their shares at once; others adopt the plan of paying one shilling per share per week. When an estate is laid out, it is subdivided in such a manner as to give the proportions due to the completed and to the uncompleted shares. The owners of the completed shares have the liberty of choosing from the number allotted to that class in the order they stand in the book, and they are at liberty to decline the allotments offered until they can be well suited. In the case of the owner of a completed

share making a choice, he receives his title-deeds at once, and the claim of the society and his obligation to it cease. Every owner of an uncompleted share having and exercising the right of choice, and receiving an advance of money to pay for his allotment, executes a mortgage to the trustees, the expense of which, by an arrangement entered into with the society's solicitor, is thirty shillings, besides the stamp-duty; and besides continuing his subscription on the sums advanced, pays interest on the money borrowed at the rate of sixpence per month for every five pounds advanced, but is entitled to his fair share of the profits made by the society. If a member has a right of choice accruing, and does not wish to make choice of a plot of land, he can dispose of his right of choice to any other person. It will be seen that the society does not purchase the land: that is done, so to speak, out of the society, the society merely advancing the money necessary to pay the price. The profits of these societies are considerable. In the first place, the land is bought in large estates, and sold to the members at so much advance upon the wholesale price as will cover establishment expenses, and the estimated cost of road-making, sewerage, &c. Thus a shareholder obtains a single allotment at the wholesale price, and the difference between the wholesale and retail price is found to be as great in land as other articles of sale. As a fair average example, I may quote one case at Birmingham. The first freehold land society established there bought a piece of freehold land suitable for cottage-houses and gardens, and within a working-man's distance from the centre of the town, at 1s. 3d. per yard, the price previously asked having been 3s. 6d. per yard, in separate allotments. Many of these allotments have since fetched large prices—one, which cost its first possessor only 17l. 10s., sold for 50l.; and in this case, nothing was due to novelty or other adventitious circumstances. The ground was particularly eligible for building the class of houses inhabited by working men and their families, and when roads had been made and the allotments laid out, it was eagerly sought.

It is urged from these circumstances, that the freehold-land societies form a most eligible investment for the small savings of the working-classes; and many argue the question as if it was desirable to induce them to choose these societies in preference to the sick societies and the savings banks. We expect to find the same tendencies to extravagance in the promoters of these societies as in all others; and, elated by a temporary success, which has been very remarkable, it is not much to be wondered at that they form exaggerated expectations of what may be effected by their favourite institutions. The value of any provision made by a working man for sickness or accident, to which he is always liable, depends almost entirely on its capability to be made available in the very hour of need, and to supply as much as possible the loss of his regular weekly income, and to be supplied to him in the same manner. A small freehold would not occur to me as the article that could be the most readily turned into money; and it is possible that, from pressing necessity, he might be compelled to dispose of the estate which had been purchased by the savings of years at an enormous sacrifice. Besides, I do not regard the freehold-land societies as anything more than an experiment. I have every confidence that those of them which are prudently managed, and conducted with a view to

the single purpose of providing for their members, at a cheaper rate than if they were to seek them out single-handed, a plot of ground for a garden, or on which to build a house, will succeed. But I believe that the sound policy is not to shake the reliance which the small trading and the working classes have had in life offices, sick societies, and savings banks, but to teach them the right principles upon which such institutions can alone be successfully conducted; to encourage the influential classes, who have more leisure to study the principles of such institutions, to lend aid and countenance in their formation, improvement, and management; and to induce the Legislature to surround them by proper safeguards, and to free them as much as possible from legal difficulties. Freehold-land societies, I admit, may be made eminently useful: the working man, however, should not be encouraged to invest the whole of his savings in them, but only to seek their aid as a means of obtaining a small property which he can appropriate to the purposes already mentioned.

I have pronounced these societies an experiment, and will now point out what I conceive to be the risks. The members have the power of selling the rights as they accrue. Very considerable sums are made by individuals in this way, in particular cases as much as 20*l.*, 25*l.*, and even 30*l.* Persons of small capital, encouraged by these profits, have invested considerable sums in some of the societies, and, by taking a large number of shares, have rights constantly accruing, which they sell to profit, and besides buy the rights of others, and thus become traders in shares. Directors and officers, in some cases, have fallen into the habit of buying and selling shares. When the managers of an institution are thus engaged in small speculations of this kind, various evils must necessarily arise, sooner or later. Dissensions will spring up—jobbing is inevitable, and there will be a tendency to put a false value upon the rights which are to be sold, and to depreciate those which have to be bought. The success of the institutions depends very much upon this kind of speculation being kept in check—for to prevent it I conceive impossible. Besides, such examples are tempting, and dangerously so to working men. All men are somewhat impatient of the slow steps to acquisition, and eagerly grasp at any quick means of securing desired ends. I should deplore any kind of speculation of this kind obtaining amongst the working-classes; it would be a serious injury to them. My experience has forced me to this conviction, that it is well not to place large sums, or great occasional gains, in the hands of men who have to depend upon wages, and who are unaccustomed to trading transactions or to the use of money in large sums. Immense evils have resulted from the facilities afforded to the humbler classes, by money clubs, and loan funds, for obtaining sums of money much beyond the sums they have ordinarily at their disposal. While, therefore, I should hail any machinery which enables the working man to make the most of his small savings, and that would give him facilities for acquiring a garden or house for himself; the possession of which, by feeding an honourable pride, could not fail to make him a better citizen, and which might be left as an inheritance to his children, I should think the advantage very dearly purchased, if, at the same time, it encouraged a speculating spirit, and, as in many painful cases I have known in relation to building societies, induced him to neglect the

steady sources of gain arising from his regular employment, for the more flattering, but very uncertain, profits arising from trading in shares and rights of appropriation. One objection to these societies, often urged, is not inherent in them, but the circumstances which have given rise to it have sprung from an oversight on the part of those who made the first arrangements. The objection is, that a race of squatters will be created. A friend of mine rather jocosely refers to some place where a gang of gipsies have located upon an allotment. This could not often occur, I apprehend; but I must say that one or two of the estates of the National Freehold Land Society cut a very odd appearance, as you whirl past them on the railway. I have observed on one, a villa-residence looking out upon a two-roomed cottage, and in another the first building occupied happens to be a beer-shop. But most of the societies now affix conditions similar to those I have referred to, as to the class of house to be built. Some such restriction is necessary in a sanitary and economical point of view, and the interests of the members will suggest the proper remedy.

I must notice that, although these societies were commenced for a political purpose, the political object has been lost sight of in the commercial. As a vote-creating machinery, they have not realized the objects of the projectors, as I know no case, except that of South Warwickshire, where the votes made have had any sensible effect at the poll-booth. I apprehend there are very few of the discreet managers of the societies who will not admit that it is better that they should be what they now are—merely trading companies—than political institutions. It is certain, however, that they never could be, in a strict sense, political societies. They have no power over the man who takes advantage of their machinery to acquire a freehold and a vote; they do not ask any man his political opinions, nor refuse any one because he may be assumed to hold opposite opinions to their own. Whatever may be the name adopted, for convenience or by predilection, the same rule applies in all cases: they could not, if they would—and, I believe, would not, if they could—apply any test. The Church of England Freehold Land Society will readily accept the Dissenter—his only qualification is that of paying his money, and obeying the rules and regulations of the society. The Conservative Land Society has, I know, Radicals among its members; and I have it on the best authority, that in the National Freehold Land Society an active Conservative got possession of an allotment upon one of their estates, and made use of the qualification, and the knowledge it gave him, to oppose the claims of his brother allottees upon the same estate in the revising barrister's court. In no case can they exert any power or undue influence over the member who has obtained his allotment. In fact, as it will be seen from the explanation I have given, the society does not sell him the land, nor is the land at any time in their possession—they merely advance him the money by which to purchase it. Any political test would be illegal.

The most favourable feature of the whole movement is, that it furnishes unmistakable evidence of a strong desire existing among the industrious classes to improve their condition, to acquire a stake in the country, and to rank themselves in a higher social position. This desire, by careful and prudent management, may be turned to profit-

able account. Mr. Taylor, of Birmingham, states that out of the 50,000*l.* paid into one freehold-land society in Birmingham, one-third was rescued from the public-house. This is very likely to be the case, from what I know of the matter. I should not, however, think that such is the case in the metropolis; but all such estimates must be very arbitrary. The officers of the societies can only give an opinion as to the number of the working-classes in proportion to other classes—they have no means of ascertaining the precise numbers. But whatever may be the actual facts of the case, there can be no doubt that all such institutions divert much from the channels of waste, and are, therefore, highly important and useful. I have only one or two practical remarks to add, or rather to repeat. There is a disposition among a large bulk of the people to acquire small properties, and all must rejoice at so favourable a sign of the times. It may be cultivated to the improvement of the people and to the security of the state, in a sanitary, social, and (using that word, not in its restricted, but in its highest and best sense) political point of view. It is therefore wise not to look coldly on so large and popular an effort, nor to neglect it; but to trace its workings, find out its imperfections, and to give a proper direction to the energies which have been called into active exercise. I know of nothing which would render a greater service to the working classes than that of giving them sound instruction as to the principles upon which freehold-land societies, and other kindred societies, may be safely and profitably conducted; and with the humble hope that I might be able to stimulate some fellows of this Society who are eminently qualified for such investigations and such labours, I have ventured to throw this hasty and imperfect sketch before them.

On the Cholera Mortality in Hull during the Epidemic of 1849.
By HENRY COOPER, M.D.

[Read before the Statistical Section of the British Association at Hull,
9th September, 1853.]

THE analysis of the mortality of the epidemic of 1849, so far as relates to this borough, which I now present to the Section, was projected with the concurrence, and has been effected through the kind assistance of the late lamented registrar, Mr. Thorney, and of the registrar for Sculcoates, Mr. Chatham, who readily acceded to my proposal to classify the cholera and diarrhoea deaths of the fearful period to which I allude, from the official records in their hands. Their returns have been the materials which I have analyzed and placed in a connected and synoptical form in the tables and diagrams which I now present, and from which I shall venture to draw some general inferences.

I have taken the four months, from July to October inclusive, as the period of the epidemic outbreak of the disease. Isolated cases had occurred for some weeks previously; and, as is usual, severe and intractable forms of diarrhoea preceded and accompanied the attack. The termination of the outbreak was abrupt, differing, in this respect, from its outset, which was gradual and insidious; and there was, to say the least, a *coincidence* between the disappearance of the disease and the adoption of preventive measures of treatment (house-to-house visitation and checking the early diarrhoea), which was very remarkable. The greatest mortality was attained in the first week in September; and the system of house-to-house visitation, of which I was superintendent in this district, was commenced on the 20th, from which time the disease rapidly declined, and ceased altogether in the second week in October.

Regarding the general character and extent of this outbreak, the Registrar-General, in his "Report on Cholera in England," states, that Hull, in proportion to its population, suffered more from cholera than any district in the kingdom. In Hull (*viz.*, the old town and Myton) it was fatal at the rate of 241 to every 10,000; in Sculcoates, at the rate of 152 to every 10,000. We shall, I believe, turn this awful lesson to the best account by investigating the circumstances and conditions under which this great mortality has occurred; and thus approach, as near as the nature of the subject will allow, to the causes of its extraordinary virulence.

It may be premised that the town stands on a surface practically level, and that this level is so little above the low water of the tidal rivers (the Hull and the Humber), which constitute the natural outfall, that efficient natural drainage is almost impracticable. The only irregularities of surface are caused by artificial works, *viz.*, the excavation of the docks and the mounds of earth thrown out of them on the one hand, and the hollows formed by digging out clay for bricks, on the other; for the subsoil is a stiff retentive clay, very well adapted for brick-making, and, therefore, almost impervious to water. There is a difference between the highest and lowest levels thus

formed of about 10 feet; but the fall obtained from the lowest levels into the adjoining rivers, which is only available for a limited period of each tide, is practically insufficient for their effective drainage; and accordingly, in the new plans for the drainage of the borough, recently sanctioned by the Board of Health, the sewage is to be pumped from a level many feet below the outfall of the present drainage system. Overcrowding is also a prevalent evil in many parts of the borough; and the mode of construction of tenements, and of the other lower classes of dwellings, has been, prior to the control now exercised by the Local Board of Health, very unfavourable to ventilation.

The first general analysis (see Table I.) which I have made of the mortality enumerates the total number of sufferers from cholera and diarrhœa, and states the proportion of these to the whole population, which has been assumed at that period to have been 80,000; the census of 1851 giving 82,000. The cases are further arranged according to sex, the numbers of males and females suffering from each disease being distinguished. The proportion between these numbers is further compared with that which obtains between the sexes in the whole population. This comparison corrects the first impression given by the tables, and which I believe to be the general one, that cholera is more fatal to females than to males. It is true that the female deaths exceed the male in the proportion of 975 to 885; but the female population exceeds the male in a still greater ratio—thus the deaths are 1 male to 1.1 female—the numbers living in this borough are in the proportion of 1 male to 1.14 female, giving a small difference in favour of female mortality.

And this corresponds with the observation of the Registrar-General, deduced from the whole field of cholera mortality. He states the deaths of males at 26,108, of females at 27,185; but correcting for the disproportion in numbers living of the two sexes, he gives, as the male mortality, 30.2 to every 10,000, or 1 in 331; the female, 30 to every 10,000, or 1 in 333. In the deaths from diarrhœa, the proportion between the sexes is more nearly balanced, so that, applying the same correction for numbers living, the result would be still more favourable for females; but the total number of cases I consider too small to furnish a safe deduction.

In the third table I have made an analysis of deaths from cholera and diarrhœa, according to the *Age* of the sufferers, dividing the ages in all but the upper and lower rows of figures into quinquennial periods. The same principle of correction must be applied here as in the case of sex, as there are a greater number of infants living under one year than of persons at any other age, and the mortality from all causes is also greater in proportion to numbers. This correction is attempted by introducing in the fourth column the annual mortality per cent. from all causes at each period of life, thus affording an opportunity of comparing the ordinary mortality with the mortality from cholera for the same age. The excess of infantile mortality is the most striking feature exhibited in this table; but great as it is, it is much understated when compared with other periods, inasmuch as it is a return of deaths taking place in one year of life only (*viz.*, under 1), while the others represent the numbers dying in five-year periods, and would require to be divided by five to make the comparison just.

I have, therefore, cut off this first row of figures from the rest of the table by an horizontal line. The same remark applies to the ages above 70, which are divided into decennial instead of quinquennial periods, and are, therefore, similarly separated.

Comparing the deaths at given five-year periods with the average mortality from all causes at the same age, as in the case of infant mortality just given, the next period of greatest mortality occurs from 30 to 35, a period at which the annual mortality is very low (1·160 for this borough). This mortality is remarkable, as occurring at a period when the powers of life are in their fullest vigour, and when, consequently, the most resistance is opposed by the system to the inroads of disease generally. It appears to afford another link of affinity between this mysterious disease and the fatal pestilences of bygone times, and the graver forms of fever in our own, which are seen to strike down the strongest and those least liable to ordinary forms of disease, if exposed to their influences in circumstances favouring the attack. Another period of great apparent proclivity, according to this table, occurs at a time a little beyond the grand climacteric, about 55 to 60, where we have a great mortality indicated compared with the annual ordinary rate shown in the fourth column. The greatest immunity seems to be enjoyed in the periods between 15 and 25, and between 40 and 60.

Turning to the Diarrhoea Age Table (No. IV.), although, perhaps, the numbers are too small to draw any safe deduction from, we cannot but be struck with the enormous excess of infant deaths, the immunity of the middle periods of age, or those of greatest resistance, and the excess again in advanced life, where the powers are failing. In this respect, diarrhoea, even when connected with cholera (and therefore assumed to partake of its specific character), seems to follow the ordinary law of disease, though far in excess of that law, and separates itself from cholera and other fatal epidemics.

In the second table, the influence of occupation and station in life on the mortality of cholera is approximately shown. It will not be necessary to do more than refer generally to the table itself, which carries on its face the information it is calculated to convey. A division is made first into the labouring and the well-off classes, each of which is analyzed; the former into out-door and sedentary workmen (some of the most important of which are specified) into sailors, and into the wives, females, and children of these classes; the latter is shortly divided according to employment. The general result is that 1,738 of the labouring classes, and 122 of the well-off classes, perished; and, if we assume that the borough contains 67,000 of the former, and 13,000 of the latter, we shall have a proportion of 1 death to every 38·55 of the labouring classes, and 1 to 106·55 of the middle and upper.

TABLE I.

Mortality from Cholera and Diarrhoea in the Borough of Kingston-upon-Hull, from June to October, 1849, (inclusive).

Total Deaths, 2,115,	Cholera..... 1,860	Males..... 885	Or 1 male to 1·1 females. (The proportion of <i>all</i> living being 1 male to 1·14 females.)
or 1 in 37·82	or 1 in 43·01.	Females 975	
of the	Diarrhoea..... 255	Males..... 129	
entire population.	or 1 in 113·72.	Females 126	

TABLE II.
Analysis of Cholera Deaths, according to Occupation.

LABOURING CLASSES.		
Paupers and Prisoners	27	
Out-door Labourers	237	
Cabmen and Police	22	
Sedentary Labourers (not specified).....	120	
		406
Specified Artizans.		
Joiners	61	
Blacksmiths and Engineers	56	
Tailors and Shoemakers.....	74	
Painters	15	
		206
Sailors.....		110
Wives, widows, and children of the same class.....	734	
Spinsters of same class	153	
Unclassified, chiefly children of same	129	
		1,016
		1,738
WELL-TO-DO CLASSES.		
Clerks	16	
Tradesmen	60	
Retired, Pensioners, &c.	18	
Professional (2 medical)	6	
Gentry.....	22	
		122
		1,860
		Death. Living.
Estimated number of Labouring Classes in borough	67,000	= 1 to every 38.55.
" " Well-to-do " "	13,000	= 1 " 106.55

TABLE III.
Ages of Cholera Deaths.

Periods of Life.	Whole Number Dying at each Period.	Per-Centage of Deaths at each Age to whole Deaths (1,860).	Annual Mortality per Cent. at each Period. (For Comparison.)
Under 1	84	4.51 (× 5 = 22.5)	24
1 to 5	174	9.46	1.16
5 " 10	136	7.36	.508
10 " 15	82	4.43	.780
15 " 20	59	3.17	
20 " 25	124	6.66	1.104
25 " 30	160	8.60	
30 " 35	161	8.65	1.160
35 " 40	104	5.55	
40 " 45	130	6.98	1.95
45 " 50	103	5.53	
50 " 55	101	5.43	3.21
55 " 60	158	8.59	
60 " 65	84	4.51	6.99
65 " 70	72	3.87	
70 " 80	67	3.59	15.89
80 " 90	48	2.58	
Above 90	13	.69	33
Total	1,860		

TABLE IV.
Ages of Diarrhoea Deaths.

Periods of Life.	Whole Number of Deaths at each Period.	Per-Centage of Deaths at each Age to whole Deaths (356).	Annual Mortality per Cent. at each Period. (For Comparison.)
Under 1	90	35.55	24
1 to 5	59	23.04	1.16
5 „ 10	21	8.28	.508
10 „ 20	6	2.34	.784
20 „ 40	10	3.90	1.295
40 „ 60	26	10.05	3.99
Above 60	44	17.23	
Total	256		

I have attempted, though I fear very ineffectively, to show in the map which I exhibit the localities in which the disease was most fatal. The shading indicates, by its relative intensity, the lowness of the level and consequent presumed inefficacy of the drainage. The dots or dark marks are placed wherever cases of cholera occurred, each mark indicating a death by cholera in the street or court where it took place; these dots will, by their aggregation, show strikingly the spots of greatest mortality. It is obvious that the preponderance of these dots exhibits, in many cases, merely the excess of population in a given district, for where the greatest number are living, the number of deaths will also be the greatest, supposing there is no disturbing cause determining the mortality to one place in preference to another. But beyond this obvious cause of excess, and not accounted for by it, we have on this map three principles indicated as influencing the prevalence of cholera in any particular locality. First, the influence of low position and deficient dryness; second, the effect of over-crowding even in well-drained districts; and lastly, the influence of the habits of the inhabitants, their means of sustenance, and general social condition. Unfortunately, these causes so constantly co-exist, that it is extremely difficult to find instances in which they can be clearly separated, and the effects of each satisfactorily estimated. Some of the districts here depicted will, however, afford illustrations of each principle. In the Drypool district, for instance, we have a deep blotch of accumulated deaths—here we have all the above causes in operation, but especially defective drainage and damp and filthy surface. In Leadenhall Square and its neighbourhood the drainage belongs to the best system of sewerage in the town, and is, on the whole, good; but the overcrowding of tenements and lodging-houses is great, and the social habits deplorably bad. In Mill Street (the quarter of the low Irish), the same two causes are in operation, but particularly over-crowding. The Pottery districts suffered dreadfully, as the dark marks sufficiently attest. It will also be seen by the deep tints of the shading, that the levels are very low; the drainage is wanting, or so bad as to be worthless, as the recent underground survey has abundantly proved; the two other elements of excessive mortality are not present. But there is a marked freedom from disease in the more elevated districts which surround the docks, and which enjoy other favourable hygienic conditions, which, taken in connexion with the instances above noted, sufficiently prove the correctness of my positions.

On the Relative Prevalence of Diseases in Hull, and the Effects of Season upon Disease. By HENRY COOPER, M.D.

[Read before the Statistical Section of the British Association, at Hull,
9th September, 1853.]

BEFORE entering on the special subject of this essay, I wish to say a few words on the annual rate of mortality of the borough.

In assigning a rate of mortality to Hull, it has been the practice of the Registrar-General to separate the returns of death in different parts of the borough, and give them under several distinct heads; and the same mode of stating the mortality has been adopted in all observations and calculations founded on these reports.

The mortality of the borough is given under the several heads, "Hull," including the town and the two Mytons; "Sculcoates," including the two registration districts of that name; and "Sulton," "Drypool," and "Southcoates," parts only of which districts are included within the limits of the borough. But as the town is known only as "Hull," the mortality of the portion included under that term is assumed by the public as the mortality of the whole, an error of some importance, as leading to a very exaggerated estimate of the rate of mortality. For the district thus designated as "Hull," includes little more than half the borough, and comprises the most densely populated parts, at the lowest levels, and the least favourably circumstanced as regards hygienic conditions. It contains, besides the general hospital, the gaol and the workhouse. Hence, its mortality is disproportionately high; it is stated in the Registrar-General's Reports, on an average of seven years, terminating 1846, to be 1 death in 33, or 3·008 per cent. of all ages. The infant mortality, now generally accepted as the most sensitive test of the force of morbid influences, ranges also very high; it is, on an average of the same period, 29·026 per cent. annually, under 1 year, and 10·184 per cent. under 5 years. But in Sculcoates, we have a mortality of only 1 in 40 males, and 1 in 44 females; or 2·487, and 2·240, per cent. respectively, instead of 3·008, as just quoted for the other portion of the borough. The infant mortality of Sculcoates is 26·886 under 1 year, and 8·617 under 5, against 29·026 and 10·184 in Hull. The mortality of the other parts of the borough, east of the river, cannot, from being included in the parishes and townships of which they respectively form a part, be obtained from the Registrar's Reports, or any other official documents. Their hygienic condition is deplorably bad; the mortality is intermediate between that of Hull proper, and Sculcoates, being 2·47 per cent. Thus it is clear that, in assuming the mortality of the Hull district alone to be that of the whole borough, we attribute to the whole the rate of the most unhealthy portion only.

The mortality of the three years succeeding to 1846, though not so favourable to the borough generally, exhibits the same difference between its different parts. The Hull district had 1 death to 29 living; the Sculcoates, 1 to 37; and, in West Sculcoates, the most healthy, 1 to 42;—the average of the whole borough being 1 to 33·17.

The mortality due to the epidemic of 1849 has been made the subject of a separate memoir. For the three subsequent years it

stands as follows :—The population at the census of '51 was 82,502; taking this as the mean of the number living in the three years, '50, '51, '52, we have a mortality for the whole borough for that period of 1 to 32·79, the average number of deaths being 2,522; and the returns of the two first quarters of the present year raise the rate again to something above 1 to 33 for the whole borough.

In investigating the question, which is the proper subject of my paper, viz., the order of prevalence of disease in Hull, *irrespective of fatal issue*, we have not the ready data furnished by the Registrar's reports, or by any official local record, for our guidance. The medical charities of the town have, however, for a greater or less period, and with more or less exactness, recorded the name, ages, and diseases of applicants for relief; and it is from their books that the tables now before us have been compiled. In the first table are classified 21,712 cases from the books of the infirmary and dispensary of this town; extending over a period of 10 years in the former institution, and of 3 in the latter. The sources from which the cases have been derived (*i. e.*, the out or in patients) have been separated, as indicating different classes of cases as well as intensity of disease. The cases have, in this table (A), been further analysed into years, shewing what diseases are liable to assume an epidemic character, and in what years they have done so—thus, fever was prevalent in 1840; rheumatism in 1842 and '46, &c., &c. The cases are classified in eight divisions, which show, at a glance, the great tendency to pulmonary, rheumatic, and dyspeptic disorders; and the comparative exemption from fever, from which Hull suffers, perhaps, less than any other town of its size. This is the more remarkable, as we have had too fatal evidence that the town is liable to those epidemic influences which have always been considered closely analogous to fever in their laws of origin and propagation. The proclivity to pulmonary and rheumatic diseases will excite no surprise when the geographical position of the town, and the large quantity of water by which it is surrounded and intersected, are considered. It will not be necessary that I should particularize the other less prevalent diseases: the last column of this table is, however, remarkable, as indicating a much less amount of susceptibility of the alimentary mucous surfaces under ordinary conditions than would have been anticipated.

I have been compelled to omit from the enumeration the zymotic diseases generally, because they are specially excluded from the hospital treatment, and only casually become dispensary cases. Their number, as recorded in these books, is, therefore, so small as to give a most inadequate representation of this most important and numerous class of diseases. In Table A, the relative prevalence of each form of disease is indicated by its per-centage of the *whole number of cases observed*, which is placed at the foot of each column respectively. The totals, with their proportion per cent. to the whole observed cases, appear in the lowest line of the table; to them I would direct attention, as illustrating the above remarks.

A diagram* has been compiled from the whole series of 21,702 cases, extending over 10 years, and may, therefore, be presumed to give a tolerably near approximation to truth. We remark the high

* Want of space precludes the possibility of printing this diagram.

TABLE showing the Relative Prevalence of Different Diseases in Hull, the Prevalence of each Disease in different Years, and Proportion Per Cent. of each Disease to whole Number of Cases observed.

Return for 10 Years.	Total Cases.	Fever.	Pulmonary Diseases.	Rheumatism.	Dyspepsia.	Neurosis.	Uterine.	Cachexia.	Diarrhoea.
Infirmary. O. P.	1842.....	63	187	102	207	167	59	37	33
	1843.....	34	196	72	192	116	85	23	24
	1844.....	28	188	79	193	141	81	88	24
	1845.....	16	168	58	104	90	89	49	18
	1846.....	53	111	105	203	60	65	42	33
	1847.....	53	155	87	197	53	44	39	23
	1848.....	75	133	69	204	61	84	52	38
	1849.....	35	139	74	162	56	58	53	33
	1850.....	45	161	82	143	78	60	59	27
	1851.....	41	160	80	159	82	73	53	30
Total per cent.	13,891	443 3.19	1,588 11.43	808 5.81	1,764 13.00	904 6.50	698 5.02	495 3.56	283 2.03
Infirmary. I. P.	1849.....	57	65	74	19	12	19	22	10
	1850.....	34	50	73	21	29	20	21	9
	1851.....	44	82	75	13	27	27	19	7
	Total per cent.	135 6.00	197 8.66	222 9.76	53 2.33	68 3.00	66 2.9	62 2.72	26 1.14
Dispensary.	1849.....	178	190	131	147	108	68	32	100
	1850.....	149	213	125	153	90	81	32	99
	1851.....	231	314	111	163	114	69	38	114
	Total per cent.	558 10.05	717 12.92	367 6.61	463 8.34	312 5.62	218 3.93	103 1.83	313 5.61
Grand Total—10 years Per cent.	21,712	1,136 5.23	2,502 11.52	1,397 6.43	2,280 10.5	1,284 5.88	982 4.52	659 3.03	622 2.86

point at which pulmonary diseases start at the commencement of the year, and which they maintain, with slight fluctuations, till the end of May, when they fall very rapidly to the minimum, in August, and rise again equably through the autumn months to the winter level in December. Dyspepsia begins low in the winter, runs rapidly to its culminating point in May, in which it coincides with pulmonary affection; it attains, however, a much greater height than the latter, and then falls rapidly through the autumn, finishing at the medium winter level. Rheumatism has its maximum in winter, with an exacerbation in August and November, which coincides well with actual observation; it takes a rapid rise from December to January. Fever maintains the most equable course of the four curves; it also culminates in May (which should, so far as these three diseases are concerned, be a very unhealthy month), has a sudden depression in July, rises above the level in the autumn months, and again sinks to the winter level in December.

I believe that these results correspond accurately with the experience of practical men in this town, both as to the relative prevalence of diseases and the seasons at which their greatest developments take place; and it is a satisfaction to have confirmation and exactness given to practical views by the application of the numerical method.

A few words on two or three important forms of disease, our records of which do not furnish materials for numerical illustration. Ague was, 25 years ago, very frequently seen in our hospital, the cases being principally supplied from the low wet clays of Holderness and the fens of Lincolnshire. For 10 or 15 years, however, ague has been a rare disease, a fact which was attributed, no doubt correctly, to the greatly improved drainage of both these districts, particularly of Holderness, in which a very complete system has been carried out.

But we have remarked, within the last year or two, that these cases have ceased to be uncommon; and that there has been a great disposition, in certain depressed states of the system, to take on an intermittent character of disease. And, what is still more singular, I have succeeded in tracing several cases, within the last few months, to their origin in the *badly drained portions of the borough itself*, individuals, who have not been out of the town for many months, having been attacked, and resisting treatment for a time, as if still under the influences which produced the disease. Is it possible that the town is now more saturated with moisture than the country district? And if so, of what character must that moisture be, with what materials charged, and what the nature of exhalations from it?

An examination made by me in 1845, at the request of Mr. B. Phillips, who was then preparing his work on Scrofula, showed a very large per-centage of children exhibiting marks of that disease frequenting the public schools of the town, and generally of the lower orders. I regret that I have not the papers by me, but I believe that they indicate a prevalence above the average given by Mr. Phillips, viz., 24½ per cent.

On certain Statements contained in a Communication to the Statistical Section at Belfast, in September, 1852, entitled "Statistics of Portsea and Portsmouth Dockyard." By LADY BENTHAM.

[Read before the Statistical Section of the British Association, 13th Sept., 1853.]

THE *Quarterly Journal of the Statistical Society* for this month contains the "Statistics of the Island of Portsea." The article had been communicated in the year 1852 to the British Association for the Advancement of Science; but as there are a few inaccuracies in that statement, I take the liberty of submitting to the British Association a few facts relative to the dockyard at Portsmouth, confining myself to occurrences of the end of the last, and beginning of the present century. I should not venture thus to encroach upon the time of the Association, were it not that, having had confided to me the copying of most of the private papers that passed between the then First Lord of the Admiralty and the Inspector-General of Naval Works, as also many of his official papers, I became acquainted with particulars not generally known at the time, and of others which, after the lapse of half a century, seem not likely that other persons should be acquainted with.

The *Journal* (p. 205) states, that "Apprentices continued to be a source of emolument to the professional officers down to the date when the Board of Revision sat, early in the present century." It must be observed, that the first report of the Commissioners of Naval Revision was not made till 13th June, 1805, whereas the Order in Council of 21st May, 1801, increased the salaries of dockyard officers, and at the same time decreed, "that on the commencement of the salaries under the new establishment, all pay on account of apprentices should cease, excepting only in those cases where it appears, by the indentures, that the master has engaged to make an allowance to the apprentice, in which case," &c., those increased salaries became payable on the 1st day of July, 1801.

To ascertain the approximate amount of the wine, sugar, groceries, &c., usually received by dockyard officers, General Bentham obtained from a master shipwright's assistant the quantities of these articles he had received within the year. From this document it appeared, that their cost at moderate prices would have exceeded the augmentation in his salary, independently of the great emoluments derived from apprentices. It must be remarked, that in this instance, at least, these presents were not on account of any particular service rendered to contractors, but were considered by them as authorized dues to dockyard officers.

In the same page, 205, of the *Journal* is a paragraph respecting the allowance of chips to artificers. The various abuses consequent upon this privilege were amongst the earliest ameliorations in dockyard management to which the Inspector-General of Naval Works directed his attention. Besides giving to Lord Spencer his opinion, that the privilege of chips should be abolished, he communicated to the chairman of the Committee of Finance, sitting in 1798, the mischievous consequences of the practice; the chairman, thereupon, issued

Note.—Some observations on Lady Bentham's letter, by John Fincham, Esq., late Master Shipwright of Her Majesty's Dockyard, have been forwarded by the Secretary of the Portsmouth and Portsea Literary and Philosophical Society, but want of space prevents their insertion in this No. of the *Statistical Journal*.—[Ed.]

an order to the Inspector-General, 17th April, to give his opinion upon the subject, which accordingly he gave as follows: "I am very decidedly of opinion, that it is highly expedient that the practice of carrying out of the dockyard any article whatsoever, under the denomination of chips, should be abolished;" he then entered into various particulars on which this opinion was grounded: amongst others, that he had "caused bundles of chips to be purchased as they came out of the dockyard, the price of which has been from 2*d.* to 8*d.* a bundle, whereas the pieces when put together have, in some instances, fitted so as to show that a spar, a deal, or a plank had been cut up for this purpose, and that the portion brought away in a single bundle could not have cost the public less than from two to eight shillings." He further stated the reasons which rendered it impossible for dockyard officers to prevent abuse of the privilege, and gave an instance where an officer, who had attempted it, was, in consequence, obliged "for some time to be guarded on his way to and from the dockyard." After noticing many collateral mischiefs, he concluded by saying: "I am convinced that, by abolishing the privilege of chips in all the naval establishments, great savings would arise to the public, far beyond what would defray the expense of the ample addition which it seems just and necessary to make to the pay of the artificers." From this time the abolition of the privilege was determined on by the Board of Admiralty, and the Inspector-General was looked to for an indication of the rate of allowance to be accorded in lieu of it. It was in conformity to his suggestions, that the rates of compensation were fixed upon by the Admiralty, and sanctioned by the King in Council, 21st May, 1801, namely, 6*d.* a day to shipwrights; to caulkers, joiners, and house-carpenters, 4*d.*; to scavengers and labourers, 3*d.* It was on this occasion, that the Inspector-General exhibited the facility with which weekly, instead of quarterly, payment might be made to the operatives. The paragraph in the Order in Council says: "this additional daily allowance, under the denomination of chip-money, should be paid *weekly* every Saturday, *after* the working-hours." The Navy Board were apprehensive of an outbreak of the operatives in consequence of this regulation; but they, as a body, were well pleased to be exempted from this necessity, as it were, of thievery, and no disturbance ensued.

Page 208 of the *Statistical Society's Journal* mentions the introduction of General Bentham to Portsmouth Yard. It had happened that the General, having in operation a system of machinery of his invention it was visited by many of His Majesty's Ministers, amongst others by the First Lord of the Admiralty, who, in the course of repeated conversations, elicited several of the General's ideas respecting the dockyards; a wish was, in consequence, expressed that he could visit them, and that he should propose to do so. He accordingly addressed a letter to the Secretary of the Admiralty. The next day he received the following authority for visiting those establishments:—

"Admiralty Office, 22nd April, 1795.

"SIR,—Having taken into our consideration your letter to our Secretary of the 21st inst., wherein you propose to undertake a visit to the dockyards, in order to form a judgment of the instances in which any parts of your system of machinery might be introduced with advantage, and also for the purpose of enabling you the better to mature and point out the means of carrying into execution any further

ideas that might suggest themselves to you; and having in consequence thereof, given directions to the Commissioners of His Majesty's Navy to order their several officers to permit your having free admission into the said dockyards at all reasonable times, for the purposes above-mentioned, and to furnish you with such information and assistance as you may stand in need of, we do hereby authorize and allow you to repair to the several dockyards belonging to His Majesty, to examine into the several works and branches of business carried on there, and desire you to report to us your observations and ideas concerning all improvements of which the said works and branches of business, and the modes of carrying on the same, may in your judgment appear to be susceptible.

"We are, sir, your most humble servants,

"Spencer, Arden, Charles S. Pybus, C. Middleton,

"H. Seymour, P. Stephens, J. Gambier,

"Brigadier-General Bentham."

The *Journal* (p. 209) says: "Soon after this time, General Bentham conceived the plans for very extended improvements in the dockyards," a statement perfectly correct; but although he was desirous of rendering this yard "as complete as possible," this could hardly be considered his "*primary*" object—his first consideration having been not to recommend any work which would not compensate fully for the cost of construction by the savings it was likely to produce, and to object to all that would not do so. Hence arose his objection to a mast-pond that had been carrying on in Portsmouth Yard for about six years, but which, at the same rate of progress, would not have been completed in less than 176 years, and at the astounding expense of 132 millions of money; that is taking into account the enormous increase of real, though concealed, expenditure incurred by interest on capital expended. This fact caused the Committee on Finance, during their examination of the Inspector-General, on the 8th May, to ask the witness, "Is there any account kept of the interest of money expended in naval works?" To which he replied, "None in the dockyards, nor yet, I believe, in any of the public offices." He then gave instances of the many evils consequent upon this disregard of the value of the interest of money. The immensity of loss incurred, by neglecting to take interest of money into account, induced him to recur frequently to the subject in his official communications, but ineffectually, excepting as far as they related to works of his proposal.

Brigadier-General Bentham made his first report to the Admiralty on the 29th May. The reasons on which were grounded the alterations he proposed were, an alteration of the jetties, so as to render them doubly efficient; the construction of single instead of double docks; two additional docks, so that, together with the alteration of the jetties, during the same tide six ships might be taken out of the dock, and as many others taken in; a considerable extension of the basin, in order that dockings and undockings might be performed at any time of tide. By these works provision was made for the fitting of twelve ships of the line, at one and the same time, within the precincts of the yard, under the immediate inspection of the officers, instead of ships, as they were up to that time, being fitted at a distance in the harbour, away from inspection, subject to embezzlement and waste of materials, and to idleness and misconduct of the operatives employed upon them. Another of the important improvements he proposed, and which has been productive of immense savings, was the deepening of the sill of the basin, in order that any ship might be taken into it that could float over the rocky bed at

the entrance of the harbour; thus "ships with their *lading* may be taken into the basin without obstruction; and, in respect to as many ships as the basin will hold, the time employed in taking out and replacing the guns, provisions and stores of all kinds, will be saved." The new docks he proposed should be made of sufficient depth for receiving a ship with *all in*, and the existing shallow docks be made adequate to the same purpose by pumping into them. "These improvements made," he added, "I see no reason why a number of ships, equal to that of the docks in the basin, may not come in from Spithead, have their bottoms inspected and cleaned, and go out again fit for sea in the course of three days." In fact, in consequence of these improvements, ships have been so dealt with, the time from one spring tide to the other, saved, and sometimes, indeed, two or three spring tides.

The General's views were highly appreciated, so that their Lordships induced him to relinquish foreign service, and to re-engage in that of his country as Inspector-General of Naval Works, an office created expressly on his account, and sanctioned by Order of Council, 23rd March, 1796: an appointment it is only worth reverting to on account of the very important influence it had on the statistics of the naval establishments in the Island of Portsea.

Page 210 of the *Statistical Society's Journal* gives an erroneous account of the wood mills. It may be seen by their Lordships' letter, 22nd April, 1795, that one of the objects in view, in authorizing his visit to the dockyards, was, that he might "form a judgment of the instances in which any parts of your *system of machinery* might be introduced with advantage." In private conferences with the First Lord, the General recommended the introduction of a considerable variety of the machinery of his invention, amongst others an adaptation of it to making blocks and to give motion by steam-engines. The Navy Board felt alarmed lest their introduction should cause strikes of operatives, feared that steam-engines would set fire to the dockyards, and be productive of other evils; so that, although many of the machines from the General's habitation were already on their way to Portsmouth, the Admiralty privately advised him to refrain from recommending *officially* either his machinery, or a steam-engine to work it, till the time when new pumping apparatus was required in Portsmouth Yard; then, on the 21st December, 1797, he officially proposed a steam-engine, with pumping apparatus, and machinery. This proposal specified in particular, sawing in general, both lengthwise and cross-cutting, edging, tonguing, and grooving, the making of treenails, saying that, "These, amongst various other instances, had occurred to me as giving occasion in His Majesty's dockyards for the substitution of the invariable accuracy of machinery for the uncertain dexterity of more expensive manual labour." The proposal was adopted: several of Bentham's machines were sent to Plymouth as well as to Portsmouth Yard, and by degrees put to work, the force employed being at first that of men. Some of these machines were seen in operation by the Board of Admiralty, in 1802, previously to the arrival of the first of Mr. Brunel's machines.—The model sent to the Admiralty of Mr. Brunel's machine was confined to the cutting and shaping of the shells of blocks, and was, in fact, little more than an adaptation to that particular purpose of several of the inventions the Inspector-General had specified in his patent of 1793. That same

paragraph of the *Journal*, in saying that "the machinery, already constructed in London, was transferred to Portsmouth," is altogether erroneous, if intended to imply that those machines were Mr. Brunel's, for, in point of fact, he never possessed, nor had had made, a single machine for making blocks of full size; his model, exhibited to the Admiralty, being capable of nothing more than shaping a shell of about an inch and a half long: one of its produce he presented to the writer of these lines. Machines used in block making were, indeed, sent from London; but they were General Bentham's machines, not one of them Mr. Brunel's—a fact which can be vouched for, all the bills for the block-making machinery having passed through the writer's hands in the year 1808, and having not long ago been re-examined.

The remuneration to be awarded to Mr. Brunel was considered extremely difficult, as, according to different calculations, it was made to amount to sums varying from about 6,000*l.* to above 20,000*l.* At length the investigation requisite was confided to Sir Samuel Bentham. The savings in the block manufactory resulted from very different sources: there were savings of contractor's profits; savings from the use of Bentham's machines, particularly all of those money-saving ones, all of them Bentham's, for sawing and preparing materials in readiness for the shaping of the blocks and making the sheaves; there were savings arising from good management of the concern, these, too, were consequent upon the mode of management Bentham introduced; and savings arising from the machines which Brunel had a prominent share in adapting to the particular purpose of making blocks. Sir Samuel, in his report, waived his own rights, and recommended that Mr. Brunel's remuneration should be the whole of the savings that were made in a year by the manufacturing of blocks in Portsmouth Dockyard.

The calculations that appear, page 211 of the *Journal*, can hardly have been from good authority, since none such were made in the wood mills, at least up to the end of the year 1812. The shot-rack machine was the invention of Mr. Barr, the master of the wood mills, under General Bentham; so many of the other machines enumerated in the same page are those which were taken from General Bentham's residence, or duplicates of them, or introduced in conformity to his specification of 1793.

The machinery in the wood mills has, in truth, proved of great advantage, since it is admitted that the display of it there, together with Bentham's patents of 1791 and 1793, have given rise to most of the machinery for working wood, and even metals, which, of late years, have added so much to the national wealth.

In a statistical account of Portsea, the metal mills in the dockyard should not be omitted, for therein the savings to Government greatly exceeded those derived from the block machinery and other products at the wood mills. In November, 1812, the savings made at the metal mills amounted to the sum of 40,954*l.* 12*s.* 8*d.* per annum, and this before copper bolts were melted there, on which the profits were more considerable than on sheathing. The wood mills, the metal mills, and the millwrights, were placed by the Admiralty under the Inspector-General's individual management in 1805, and remained as much so as if they had been his private concerns till the end of the year 1812. The operatives employed under the General were of

different descriptions, some few of them skilled workmen, most of them labourers at labourers' pay, others, especially in the wood mills, children. They were all paid weekly, none of their time was lost in musters, and, whenever practicable, the work done was paid for by the piece, so that the industrious skilful workman was amply remunerated according to his deserts, whilst others received pay for no more work than they had actually done.

The safety and the amplitude of Spithead as a roadstead, the facility with which it can be gained in stormy weather, renders Portsmouth the most important of our dockyards; and, during the whole of last war, very much more work was done there in quantity, and at less cost, than at any other of the royal naval establishments, an *esprit de corps* existed too in both officers and operatives, which preserved it from many of the mischiefs observable in other dockyards: so that no such abuses were observable at Portsmouth as were discovered by the Commissioners of Naval Inquiry at Plymouth, for example; Portsmouth was, therefore, well chosen as the source from which example should be drawn of the habitual waste and mismanagement that had place in the manufacturing concerns of the Navy. Lord Spencer, anxious to correct abuses, encouraged the Inspector-General to furnish instances of waste and unnecessary expenditure as they occurred at that port. Glaring extravagance took place in the manner in which timber was habitually converted, many examples of which were given to his Lordship, the Inspector-General, at the same time, pointing out that such abuses were unfailing consequences of *divided* responsibility, so that blame could not be attached to any individual. The First Lord perceived that half measures would be of no avail, and therefore charged the Inspector-General to mature his ideas respecting a *radical reform* of dockyard management, and, in conjunction with Sir Evan Nepean, to draw up a report on the subject, such as their Lordships could submit to the Privy Council; that report to be grounded on the fundamental principles held forth by the Inspector-General. These principles were the introduction of individual responsibility throughout; the entire separation of the accountant from the operative department, whereby the one might be a real check upon the other; the placing all operative concerns under one chief operative officer, making him individually responsible for all the manufacturing business of a dockyard; but, at the same time, placing, as the eye of the Admiralty, a superior officer to see what was going on, and to report his observations to their Lordships, he having also power, whenever a day's delay might be injurious, either to countermand any operation he might think so, or to order whatever he might look upon as beneficial; in all cases, however, of such interposition, the order to be given *in writing*, so that it might remain on record, and further, that the circumstance should, on the *same day*, be reported to the Admiralty. The first idea of this arrangement was given in the Inspector-General's evidence to the Committee on Finance; and the matured measure was, in 1800, printed by the Admiralty in their sketch of a Report to the Lords of the Privy Council. The whole of the measures therein proposed were under further consideration, when the Speaker intimated that the House of Commons would no longer admit of delay of their Lordships' Report on the measures proposed by the Commissioners of Inquiry, whereupon a short report was

hastily prepared by the Inspector-General, again in conjunction with Sir Evan Nepean, was signed by Earl Spencer's Board, 31st January, 1801; but before it could be submitted to the Privy Council, a change of administration took place, the Earl of St. Vincent being appointed First Lord of the Admiralty. His Lordship had, by Earl Spencer's desire, been consulted by the Inspector-General as to the proposed regulations, and had expressed himself convinced of their expediency; so that, when his Lordship came to preside at the Admiralty, he, without hesitation, presented to the Privy Council the Report as signed by the preceding Board.

This report stated, in the first paragraph, that their Lordships had "already made some progress in the preparation of a new system of management, founded on general principles of acknowledged efficacy," gave a general scheme of increased salaries to the several officers and clerks of the dockyards, and agreed with the Commissioners of Inquiry that chips should be abolished.—On the subject of timber, their Lordships expressed themselves to be "very fully convinced of the necessity of adopting some radical improvement in the management of this branch of business;" and proposed various regulations, all of them subservient to the making a single officer individually responsible for its management from the time of receipt to that of its being put to use, at the same time ensuring on its receipt conformity to agreement for it, and showing in the accounts in what service it had been employed. That report having been sanctioned by the King in Council, the carrying the new timber regulations into effect was confided to the Inspector-General, as were the new regulations relating to this store, the forms for accounts, details of management, and instructions to dockyard officers, from the first receipt of timber to its appropriation to use. For three months the introduction of the new mode of management was confided to him. There occurred no difficulty in the dockyards; but contractors found their interests damaged by the necessity they were under of conforming to the terms of contract. Immense savings resulted from these regulations: they continued in force for many years, but by degrees responsibility was done away with by dividing the duty of the timber master amongst several officers—at Portsmouth, the store-keeper, the store-receiver, the timber-inspector, as shown by the navy estimates for 1853–54.

It appears, however, that the fundamental principles on which the proposed reform of 1800 was grounded, are by degrees being acted upon, although Lord St. Vincent found opposition to them in many quarters. In a late investigation, the surveyor of the navy said he considered himself responsible for the number and qualifications of operatives employed in the dockyards; and, in the regulations of 3rd of last March, many officers are made individually responsible for their recommendations of apprentices, artificers, and officers for promotion; as is likewise the surveyor of the navy made responsible; even the superintendent, in his report, is to state "his own opinion of the capacity of the candidates;" and what is of first rate importance, on various occasions reports and recommendations are required to be in *writing*, thereby assuring that responsibility which verbal statements never afford.

MISCELLANEA.

Twenty-Third Meeting of the British Association for the Advancement of Science, held at Hull, 7th—14th September, 1853. Section F. Statistics.

President.—James Heywood, Esq., M.P., F.R.S.

Vice-Presidents.—Thomas Tooke, Esq., F.R.S.; F. G. P. Neison, Esq.

Secretaries.—William Newmarch, Esq.; Edward Cheshire, Esq.

Committee.—W. S. Ayrton, Esq., F.S.A.; Francis Bennoch, Esq.; Edward Barrington, Esq.; C. H. Bracebridge, Esq.; H. S. Bright, Esq.; E. F. Collins, Esq.; Henry Cooper, M.D.; Lord Hotham, M.P.; R. T. Jopling, Esq.; John Lee, LL.D., F.R.S.; John Locke, Esq.; Professor Moffatt, LL.D.; Henry Munroe, M.D., M.R.C.S.; William Neild, Esq.; Theodore W. Rathbone, Esq.; The Rev. James Selkirk; William Spence, Esq., F.R.S.; J. A. Tinné, Esq.; Joseph B. Yates, Esq., F.R.G.S.

The following Papers occupied the attention of the Section, viz. :—

1. Statistics of the Produce of the Northern Whale Fisheries, for the years from 1772 to 1852. By Henry Munroe, M.D., M.R.C.S.
2. Statement of a proposed plan of Decimal Coinage and Accounts. By Theodore W. Rathbone, Esq.
3. On the Results of the Census of Great Britain in 1851; with a description of the Machinery and Processes employed to obtain the Returns. By Edward Cheshire, Esq.
4. Electoral Statistics of the United Kingdom. By James Edwards, Esq.
5. Analysis of Mortality from Cholera in Hull, in the Autumn of 1849. By Henry Cooper, M.D.
6. Prevalence of Diseases in Hull. By Henry Cooper, M.D.
7. The Causes, Extent, and Preventives of Crime, with especial reference to Hull. By the Rev. J. Selkirk.
8. On the Results of some Researches relative to the new supplies of Gold, and to the Circulation of Bills of Exchange, 1848–52. By William Newmarch, Esq.
9. Summary of the Census of Switzerland. By Professor Paul Chaix, Corr. Memb., F.R.C.S.
10. On Excessive Emigration, and its Reparative Agencies, in Ireland. By John Locke, Esq.
11. Suggestions for an Improved System of Currency and Banking. By Francis Bennoch, Esq.
12. On the Education of the Poor in Liverpool. By Rev. Abraham Hume, LL.D.
13. On certain Statements contained in a Communication to the Statistical Section at Belfast in September, 1852, entitled, "Statistics of Portsea and Portsmouth Dockyard." By Lady Bentham.
14. Analytical View of Railway Accidents in the Country and on the Continent of Europe in the twelve years 1840–52. By F. G. P. Neison, Esq.
15. Statistics relative to Nova Scotia in 1851. By Edward Cheshire, Esq.
16. Facts bearing on Practical and Scientific Education. By the Rev. F. O. Morris.

PROCEEDINGS OF THE STATISTICAL SOCIETY.

Fifth Ordinary Meeting.

Monday, the 21st day of March, 1853.

Sir John P. Boileau, Bart., V. P., in the Chair.

The following gentlemen were elected Fellows of the Society :—

J. S. Brewer, Esq., M.A.

W. S. Gover, Esq.

William Camps, M.D.

James Hutton, Esq.

C. L. Macaulay, Esq.

The following Paper was read :—

“On the Administration of Civil and Criminal Justice in British India.” By Colonel Sykes, F.R.S.

Sixth Ordinary Meeting.

Monday, the 18th day of April, 1853.

Colonel Sykes, F.R.S., in the Chair.

The following gentlemen were elected Fellows of the Society :—

J. G. Hubbard, Esq.

William Quilter, Esq.

Samuel Lucas, Esq.

David Salomons, Esq.

The following Paper was read :—

“On Railway Accidents.” By F. G. P. Neison, Esq.

THE MARRIAGES, BIRTHS, AND DEATHS, REGISTERED IN THE DIVISIONS, COUNTIES, AND DISTRICTS OF ENGLAND.

The Marriages for the Quarter ended March, 1852, and the Births and Deaths for the Quarter ended June, 1853,

AS PUBLISHED BY AUTHORITY OF THE REGISTRAR-GENERAL.

This return comprises the births and deaths registered by 2,190 registrars in all the districts of England during the Spring quarter ended June 30th, 1853; and the marriages in 12,025 churches or chapels, about 3,396 registered places of worship unconnected with the Established Church, and 625 superintendent registrars' offices, in the quarter that ended March 31st, 1853.

The return of marriages is not complete; but the defects are inconsiderable, and approximative numbers have been supplied from the records of previous years.

The increase of marriages proceeded at an accelerated rate through the first three months of the year; in April, May, and June, the births of children exceeded the average numbers of preceding Spring quarters, but fell a few hundreds short of the births in the Spring quarters of the two previous years.

The Spring in town and country was unhealthy; and the mortality, chiefly owing to the cold weather and the scarcity of potatoes, was considerably above the average.

MARRIAGES.—35,014 marriages were celebrated in the first quarter of the year, or 2,081 more than were celebrated in the corresponding quarter of 1852. The unexampled increase of marriages is shown in the annexed Table, where it will be observed that in the Winter quarters 48,894 persons married in 1841, 54,960 in 1847, 70,028 in 1853.

The increase in the marriages is most conspicuous in London, in the seaports, and in the manufacturing towns; in Northamptonshire, Devonshire, Cornwall, Gloucestershire, Shropshire, Staffordshire, Worcestershire, Leicestershire, Nottinghamshire, Cheshire, Lancashire, the West Riding of Yorkshire, Westmorland, and Monmouthshire; in Portsmouth, Plymouth, Southampton, Bristol; in Northampton, Bath, Stroud, Wolverhampton, Dudley, Birmingham, Nottingham, Chester,

Manchester, Leeds, Sheffield, Merthyr Tydfil. In all the most prosperous districts of the country the marriages increased. In Dover, in Brighton, in St. George Hanover Square, in several other districts, and in the eastern counties, the marriages declined.

BIRTHS.—The births fluctuate less than either the marriages or the deaths, and in the three quarters ended June 1851-52-53, the numbers were 159,138, 159,136, and 158,718, or nearly the same in amount, but considerably above the average of preceding years. The births, on an average of 10 Spring quarters, were at the rate of 3·428 per cent.; in the last quarter, ending June 30th, the rate was 3·507 on the population.

Marriages, Births, and Deaths, returned in the Years 1841-53 and in the Quarters of those Years.

YEARS.....	1841	1842	1843	1844	1845	1846	1847	1848	1849	1850*	1851	1852	1853
Marriages	192496	118895	123819	132249	143748	145664	135645	138230	141883	152744	153740	158439	...
Births	512158	517739	527325	540763	543521	572625	539665	563059	578159	593422	616251	624171	...
Deaths	343847	349519	346445	356933	349666	390315	423304	399833	440839	368970	395933	407938	...
MARRIAGES.													
Quarters ended the last day of													
March	24447	25860	25286	26387	29551	31417	27480	28398	28439	30567	32619	32933	35014
June	32551	30048	31113	34268	35300	37111	35197	34721	35844	39204	38498	40007	...
September	29397	27289	28847	31675	35003	35070	32439	32995	33874	37636	37155	38291	...
December	36101	35639	38573	39919	43889	42066	40729	42116	43736	45337	45468	47208	...
BIRTHS.													
March	133720	135615	136637	143578	143080	145108	144453	139786	153772	144551	157374	161776	161598
June	129684	134096	131279	136941	136658	149450	139072	149760	153693	155865	159138	159136	158718
September	123868	123296	126161	130078	132349	138718	127173	140359	135223	146911	150684	151193	...
December	124686	124732	131048	130166	131319	139349	127267	133204	135471	146095	149155	152066	...
DEATHS.													
March	99069	96314	94926	101024	104664	89484	119672	120032	105870	98410	105446	106682	118241
June	86134	86538	87234	85337	89149	90231	106718	99727	102153	92871	99639	100813	107861
September	75440	82339	76792	79708	74872	101663	95435	87638	135227	85849	91600	100497	...
December	83204	84328	87493	90864	80681	108937	103479	92436	97589	91840	99248	99940	...

* The numbers up to 1850 have appeared in the Annual Reports.

INCREASE OF POPULATION.—As the births of 158,718 children and the deaths of 107,861 persons of all ages were registered in the quarter, a balance of 50,857 remains in favour of the population. The excess of births over deaths is less by 8 or 12 thousands than the excess in the corresponding quarters of the three previous years, chiefly owing to the high rate of mortality in 1853. 115,959 emigrants sailed from the ports of the United Kingdom at which there are Government Emigration Agents; 78,205 to the United States, 20,107 to British North America, 17,152 to the Australian Colonies, and 495 to other places; 7,884 of the emigrants sailed from Glasgow and Greenock, 16,993 from Irish ports, 74,646, including many Irish, from Liverpool, 2,095 from Plymouth, 3,722 from Southampton, and 10,619 from London.* The emigration from the United Kingdom has been at the rate of 8,920 a week, equal to the number of inhabitants in a majority of the 368 municipal boroughs of Great Britain. In Scotland and Ireland, the births and deaths of the population are left unregistered, so that it is impossible to determine the rate of natural increase in the United Kingdom; but at the rate prevailing in England, which it cannot exceed, the excess of births over deaths would be 79,820, or less by 36,139 than the 115,959 emigrants.

* Return with which the Registrar-General has been favoured by the Emigration Commissioners.

England :—Annual Rate, per cent., of Marriage, Birth, and Death, during the Years 1843-53, and the Quarters of those Years.*

Estimated Population of England in thousands in the middle of each Year.....	18318	18516	18716	18919	17124	17381	17541	17754	17977	18195	...	18195
YEARS	1843	1844	1845	1846	1847	1848	1849	1850	1851	1852	Mean, 1843-52	1853
Marriages.....	759	801	860	861	798	798	809	860	855	881	828	...
Births.....	3 232	3 274	3 261	3 385	3 153	3 249	3 296	3 343	3 428	3 472	3 308	...
Deaths.....	2 123	2 161	2 090	2 307	2 473	2 307	2 513	2 078	2 296	2 360	2 263	...
MARRIAGES.												
Quarters ended the last day of												
March.....	632	644	731	757	655	661	661	702	740	730	690	776
June.....	767	834	849	882	828	806	822	888	861	888	842	...
September.....	701	760	830	822	751	755	766	840	819	834	788	...
December.....	934	955	1 038	983	940	961	986	1 010	1 000	1 088	985	...
BIRTHS.												
March.....	3 430	3 507	3 491	3 498	3 488	3 252	3 575	3 321	3 569	3 565	3 471	3 581
June.....	3 234	3 334	3 291	3 551	3 265	3 474	3 523	3 630	3 559	3 516	3 428	3 507
September.....	3 114	3 123	3 140	3 251	2 945	3 211	3 056	3 281	3 321	3 394	3 174	...
December.....	3 174	3 115	3 103	3 256	2 938	3 038	3 053	3 253	3 279	3 343	3 155	...
DEATHS.												
March.....	2 373	2 467	2 554	2 157	2 850	2 794	2 462	2 261	2 391	2 364	2 467	2 630
June.....	2 149	2 077	2 144	2 144	2 506	2 313	2 341	2 103	2 228	2 227	2 223	2 383
September.....	1 866	1 913	1 776	2 389	2 163	2 006	2 067	1 917	2 020	2 190	2 129	...
December.....	2 119	2 175	1 908	2 546	2 389	2 106	2 199	2 045	2 182	2 197	2 187	...

* The table may be read thus, without reference to the decimal points:—In the year 1848, to 100,000 of the population of England there were 798 marriages, 3,249 births, and 2,307 deaths registered. The annual rates of marriage in each of the four quarters were 661, 805, 755, and 961 per cent.; the rates of death 2,794, 2,313, 2,006, and 2,108 per cent. In reading the population on the first line add three ciphers (000). The three months January, February, March, contain 90, in leap year 91 days; the three months April, May, June, 91 days; each of the two last quarters of the year 92 days. For this inequality a correction has been made in the calculation.

The price of provisions during the quarter was considerably higher than the ruling prices in the corresponding months of the year 1852; wheat was sold on an average at 44s. 6d. a quarter; beef, by the carcase, in London, at 4½d. per pound; mutton, 5½d. per pound; potatoes (York regents) at 127s. 6d. per ton. The price of wheat was 10 per cent., beef, 22 per cent., mutton, 31 per cent., potatoes, 31 per cent. higher in April, May, June, 1853, than in the corresponding months of 1852. It is evident that the price of wheat bears no longer any constant relation to the price of the other chief articles of food consumed by the rich or the poor; and it must be considered a fortunate circumstance that the price of bread is not now likely to fluctuate so largely as the prices of the more perishable articles with which the markets of England are supplied from a comparatively limited area.

STATE OF THE PUBLIC HEALTH.—107,861 deaths were registered in the three months of April, May, and June. This number is the highest that has ever been registered before in the corresponding season, and exceeds by 7,048 the deaths in the spring quarter of 1852. The rate of mortality in England is highest in the winter (2,467 per cent.), lowest in the summer quarter (2,129 per cent.), while the mortality of the spring quarter (2,223) holds an intermediate rank, near the average of the year. This average is exceeded by the present return, which shows a mortality at the rate of 2,383 per cent. per annum; higher than the rate in the corresponding quarter of every year 1843-52, except the Spring quarter of 1847, when the population was infested by scurvy and its attendant diseases, after the great failure of the

potato crop in 1846. The rate of mortality was then 2·506; in the autumn, influenza broke out, and cholera followed on its footsteps in 1848 and 1849.

The mortality of the quarter was above the average both in the town and in the country districts; the annual rate of mortality was 2·606 in 117 districts, comprising the chief towns, and 2·196 per cent. in 508 districts, extending over the rest of the kingdom.

The Average Prices of Consols, of Wheat, Meat, and Potatoes, also the Average Quantity of Wheat sold and imported Weekly, in each of the eight Quarters ended June 30th, 1853.

Quarters ended	Average Price of Consols (for Money.)	Average Price of Wheat per Quarter in England and Wales.	Wheat sold in the 990 Cities and Towns in England and Wales making Returns.	Wheat and Wheat Flour entered for Home Consumption at Chief Ports of Great Britain.	Average Prices of Meat per lb. at Leadenhall and Newgate Markets (by the Carcase).		Potatoes (York Regents) per Ton at Waterside Market, Southwark.
			Average Number of Quarters weekly.		Beef.	Mutton.	
1851 Sept. 30.	96½	40s. 7d.	74,714	91,040	3d.—5d. Mean 4d.	3½d.—5½d. Mean 4½d.	90s.—110s. Mean 100s.
Dec. 31.	97½	36s. 7d.	109,506	47,986	3d.—5d. Mean 4d.	3½d.—5½d. Mean 4½d.	65s.—75s. Mean 70s.
1852 Mar. 31.	97½	40s. 10d.	95,532	27,540	3½d.—5d. Mean 4½d.	3½d.—5½d. Mean 4½d.	60s.—80s. Mean 70s.
June 30.	99½	40s. 10d.	87,949	54,675	3½d.—4½d. Mean 4d.	3½d.—5½d. Mean 4½d.	85s.—110s. Mean 97s. 6d.
Sept. 30.	100	41s. 2d.	78,712	67,912	3½d.—5d. Mean 4½d.	4d.—6d. Mean 5d.	80s.—100s. Mean 90s.
Dec. 31.	100½	40s. 5d.	111,224	72,870	3d.—5d. Mean 4d.	4½d.—6½d. Mean 5½d.	90s.—120s. Mean 105s.
1853 Mar. 31.	99½	45s. 7d.	95,115	63,530	3½d.—5½d. Mean 4½d.	4½d.—6½d. Mean 5½d.	110s.—145s. Mean 127s. 6d.
June 30.	100½	44s. 6d.	84,559	82,623	4d.—5½d. Mean 4½d.	5d.—6½d. Mean 5½d.	110s.—145s. Mean 127s. 6d.

Note.—The total number of quarters of wheat sold in England and Wales for the 13 weeks ended September 30th, 1851, was 971,276; for the 13 weeks ended December 31st, 1,423,582; for the 13 weeks ended March 31st, 1852, 1,241,921; for the 13 weeks ended June 30th, 1,143,339; for the 13 weeks ended September 30th, 1,023,251; for the 13 weeks ended December 31st, 1,445,906; for the 13 weeks ended March 31st, 1853, 1,236,493; for the 13 weeks ended June 30th, 1853, 1,099,261. The total number of quarters entered for Home Consumption was, respectively, 1,183,523; 671,803; 358,024; 710,780; 882,850; 947,310; 825,886; and 1,074,095; the second total, however, embraces the returns of 14 weeks.

The population of England is, there is reason to believe, collectively healthier than any equal amount of population in any other kingdom; but the rapid increase in the proportion of the town population—in which the mortality is 27 per cent. higher than it is in the country, and the sickness, the suffering, the debility, the physical degeneracy of race, are in an equal excess—makes this question of the health of towns and the fertilization of the surrounding fields one of the great questions of the day demanding immediate solution. It is difficult for the imagination to conceive all the beneficent effects that would flow from the possible diminution of the mortality which the subjoined figures express in town and in country throughout the changing seasons of the year.

Deaths in the Spring Quarters.

	1843	1844	1845	1846	1847	1848	1849	1850	1851	1852	Total 1843-52	1853.
In 117 Districts, comprising the chief towns	40343	38977	40847	43787	51585	46552	48070	42886	47774	48357	449128	51784
In 508 Districts, comprising chiefly small towns and country parishes	46891	46360	48302	46494	55133	53178	54083	49989	51865	52456	504751	56127
Total	87234	85337	89149	90231	106718	99730	102153	92875	99639	100813	953879	107861

Population, Deaths, and Mortality per cent. in the Spring Quarters, 1843-53.

	Population Enumerated.		Deaths in 10 Spring Quarters, 1843-52.	Annual Rate of Mortality of 10 Spring Quarters, 1843-52.	Annual Rate of Mortality in the Spring Quarter 1853.
	June 6-7th, 1841.	March 31st, 1851.			
In 117 Districts, comprising the chief towns	6,612,958	7,795,882	449,128	2.471	2.606
In 508 Districts, comprising chiefly small towns and country parishes	9,301,190	10,126,886	504,751	2.067	2.196
All England	15,914,148	17,922,768	953,879	2.223	2.383

	Average Annual Number of*		
	Deaths to every 10,000 Persons living in Towns.	Deaths to every 10,000 Persons living in the Country.	Lives Destroyed by the Matters which are Poisons in Houses, Streets, and Streams, but are Fertilizing Manures in Fields.
In the months of			
January, February, March	69	56	13
April, May, June	62	52	10
July, August, September	63	46	17
October, November, December	64	49	15
The Year	258	203	55

* This Table is derived from the returns of the 10 years 1843-52.

In London, the mortality has considerably exceeded the average, and it is chiefly due to diseases of the respiratory organs, typhus, hooping-cough, diarrhoea, and violence of various kinds. 12 deaths were referred to privation, 26 to poison, 88 to burns and scalds, 86 to hanging and suffocation, 81 to drowning, 171 to mechanical injuries of various kinds, 33 to wounds; and in nearly all these cases the numbers exceed those returned in previous years. The violent deaths, including a few from intemperance, want of breast-milk, and privation, in London, increased from 1,296, in 1840, to 2,140, in 1852; and in the last quarter the excess in deaths from violence alone over the deaths of 1852 was 131. The increase of steam-vessels, railways, omnibuses, and new mechanical forces of every kind, as well as the obstructions of the streets, may partly account for this loss of life, as well as for the numerous injuries and mutilations not fatal—in the battle of every day.

MORTALITY OF THE METROPOLIS.

A Table of the Deaths in London from all Causes, Registered in the June Quarters of the Four Years, 1850-53.

CAUSES OF DEATH.	Quarters ended June,				CAUSES OF DEATH.	Quarters ended June,			
	1850.	1851.	1852.	1853.		1850.	1851.	1852.	1853.
ALL CAUSES.....	11,238	13,093	13,178	15,080	III. Scrofula.....	77	115	124	101
SPECIFIED CAUSES.....	11,182	12,956	13,096	14,867	Tabes Mesenterica.....	178	190	194	202
I. Zymotic Diseases....	2,082	2,662	2,828	2,979	Phthisis or Consumption.....	1,548	1,815	1,790	1,971
SPORADIC DISEASES.					Hydrocephalus.....	820	464	487	468
II. Dropsy, Cancer, and other Diseases of uncertain or variable Seat.....	526	547	603	665	IV. Cephalitis.....	187	184	127	152
III. Tubercular Diseases.....	2,118	2,584	2,513	2,802	Apoplexy.....	887	818	286	352
IV. Diseases of the Brain, Spinal Marrow, Nerves, and Senses.....	1,479	1,545	1,461	1,682	Paralysis.....	262	267	288	275
V. Diseases of the Heart and Blood-Vessels.....	472	508	520	612	Delirium Tremens.....	41	32	89	43
VI. Diseases of the Lungs and of the other Organs of Respiration.....	1,726	2,117	2,088	2,709	Chorea.....	4	3	2	2
VII. Diseases of the Stomach, Liver, and other Organs of Digestion.....	710	797	763	885	Epilepsy.....	64	91	95	118
VIII. Diseases of the Kidneys, &c.....	130	156	171	158	Tetanus.....	6	9	11	2
IX. Childbirth, Diseases of the Uterus, &c.....	122	105	132	99	Insanity.....	81	20	36	82
X. Rheumatism, Diseases of the Bones, Joints, &c.....	102	101	105	118	Convulsions.....	417	511	466	542
XI. Diseases of the Skin, Cellular Tissue, &c.....	27	23	30	30	Disease of Brain, &c.....	180	142	156	165
XII. Malformations.....	43	31	41	44	V. Pericarditis.....	25	32	37	27
XIII. Premature Birth & Debility.....	288	360	381	356	Aneurism.....	24	14	19	30
XIV. Atrophy.....	239	318	305	479	Disease of Heart.....	422	462	464	555
XV. Age.....	484	540	573	532	VI. Laryngitis.....	60	52	64	70
XVI. Sudden*.....	180	105	107	128	Bronchitis.....	696	861	984	1,360
XVII. Violence, Privation, Cold, and Intemperance.....	454	457	443	589	Pleurisy.....	85	35	49	45
					Pneumonia.....	712	909	783	951
I. Small Pox.....	103	209	472	53	Asthma.....	127	151	139	183
Measles.....	232	456	199	256	Disease of Lungs, &c.....	96	109	119	100
Scarlatina.....	234	169	563	430	Teething.....	119	173	146	222
Whooping Cough.....	406	734	466	867	Quinsey.....	15	11	21	10
Croup.....	82	67	96	79	Gastritis.....	22	30	19	19
Thrush.....	23	22	23	27	Enteritis.....	87	73	84	76
Diarrhoea.....	200	191	163	292	Peritonitis.....	55	51	50	47
Dysentery.....	25	34	35	42	Ascites.....	21	32	26	43
Cholera.....	9	3	8	9	Ulceration of Intestines, &c.....	22	28	84	38
Influenza.....	36	108	38	22	Hernia.....	41	36	27	44
Purpura and Scurvy.....	13	11	21	18	Ileus.....	36	42	30	42
Ague.....	3	5	5	9	Intussusception.....	13	10	15	10
Remittent Fever.....	27	28	32	31	Stricture of the Intestinal Canal.....	9	10	16	10
Infantile Fever.....	10	11	10	11	Dis. of Stomach, &c.....	55	63	72	69
Typhus.....	426	426	458	678	Disease of Pancreas.....	60	49	47	50
Metria, or Puerperal Fever, see Childbirth.....	51	30	54	81	Hepatitis.....	23	45	40	40
Rheumatic Fever, see Rheumatism.....	16	7	20	21	Jaundice.....	128	144	130	161
Erysipelas.....	103	74	98	74	Disease of Liver.....	4	4	6	4
Syphilis.....	28	31	43	37	Disease of Spleen.....	2	11	4	8
Noma, or Canker, see Mortification.....	5	5	4	6	VIII. Nephritis (or Bright's Disease).....	34	32	47	26
Hydrophobia.....	..	..	..	1	Ischuria.....	2	3	2	8
II. Hemorrhage.....	46	49	62	58	Diabetes.....	9	10	11	12
Dropsy.....	191	185	188	215	Stone.....	7	9	11	8
Abscess.....	17	23	34	24	Cystitis.....	10	7	6	9
Ulcer.....	8	8	14	17	Stricture of Urethra.....	5	7	20	19
Fistula.....	8	4	6	8	Dis. of Kidneys, &c.....	61	77	70	73
Mortification.....	25	51	34	57	IX. Parametria.....	59	52	76	49
Cancer.....	219	206	242	270	Ovarian Dropsy.....	15	9	13	11
Gout.....	12	21	28	16	Childbirth, see Metria.....	45	41	35	36
					Dis. of Uterus, &c.....	4	3	4	3
					X. Arthritis.....	54	56	58	58
					Rheumatism.....	45	41	44	56
					Disease of Joints, &c.....	5	3	8	15
					XI. Carbuncle.....	12	6	8	4
					Phlegmon.....	10	14	14	11
					Disease of Skin, &c.....	23	16	20	18
					XVII. Intemperance.....	4	5	8	12
					Privation.....	..	..	..	..
					Want of Breast Milk, see Privation & Atrophy.....	32	52	48	62
					Neglect.....	..	..	1	3
					Cold, see Privation.....	25	19	19	26
					Poison.....	63	48	50	88
					Burns and Scalds.....	77	50	78	86
					Hanging, &c.....	61	70	59	81
					Drowning.....	131	159	121	171
					Fractures and Contusions.....	18	31	19	38
					Wounds.....	19	7	15	7
					Other Violence.....	106	137	77	163
					Causes not specified.....	..	..	..	..

* Under the head of "sudden deaths," are classed not only deaths described as sudden, of which the cause has not been ascertained or stated; but also all deaths returned by the Coroner in vague terms, such as "found dead," "natural causes," &c. &c.

METEOROLOGICAL TABLE for the Quarter ended June 30, 1883.

NAMES OF THE PLACES.	Mean Pressure of Dry Air reduced to the level of the Sea.	Mean Tempera- ture of the Air.	Highest Reading of the Thermo- meter.	Lowest Reading of the Thermo- meter.	Mean Daily Range of Temperature.	Mean Monthly Range of Temp.	Range of Temp. in the Quarter.	Mean Tempera- ture of Dew Point.	Mean Evapora- tion.	Mean Tempera- ture of the Dew Point.	Mean strength.	WIND.		Mean Amount of Cloud.	RAIN.		Mean Weight of Vapour in a Cu- bic Foot of Air.	Mean additional weight required to saturate a cu- bic Foot of Air.	Mean Degree of Humidity.	Mean Weight in a Vertical Column of Atmosphere.	Gr.	In.	Mean Weight of a Cubic Foot of Air.	Height of Clouds level of the Sea.
												General Direction.	Mean strength.		No. of days on which it fell.	Amount collected.								
Jersey	29.613	51.9	79.0	37.0	15.9-33.0	42.0	50.1	48.2	1.9	Variable.	1.9	4.5	33	5.8	4.1	0.5	0.881	4.8	586	85	120	160		
Guernsey.....	29.606	50.5	69.5	37.5	9.7-23.8	32.0	49.0	47.4	1.5	N.W.	1.5	5.3	32	6.6	3.9	0.4	0.889	4.7	537	123	106	133		
Helston	29.623	53.4	78.0	34.0	14.6-32.3	44.0	50.1	46.9	1.9	N.W.	1.9	6.3	38	8.1	3.9	0.9	0.800	4.7	534	106	120	133		
Falmouth	29.623	52.8	78.0	34.0	14.6-32.3	44.0	50.1	46.9	1.9	N.W.	1.9	6.3	38	8.1	3.9	0.9	0.800	4.7	534	106	120	133		
Torquay	29.591	52.9	76.7	36.0	12.0-30.0	39.0	49.1	45.2	2.4	N.W., & N.W.	2.4	3.7	41	7.5	3.7	0.9	0.772	4.4	533	140	120	160		
Exeter	29.574	53.5	72.0	34.0	10.4-29.0	38.0	48.5	45.0	2.2	N.W., & E.	2.2	3.7	41	7.5	3.7	0.9	0.772	4.4	533	140	120	160		
Venpor	29.574	53.5	72.0	34.0	10.4-29.0	38.0	48.5	45.0	2.2	N.W., & E.	2.2	3.7	41	7.5	3.7	0.9	0.772	4.4	533	140	120	160		
Newport	29.574	53.5	72.0	34.0	10.4-29.0	38.0	48.5	45.0	2.2	N.W., & E.	2.2	3.7	41	7.5	3.7	0.9	0.772	4.4	533	140	120	160		
Ryde	29.568	52.4	79.8	31.4	19.8-37.1	48.4	48.9	45.3	0.9	Variable.	0.9	4.9	42	7.4	4.2	0.7	0.885	5.0	533	150	136	150		
Worthing	29.568	52.4	79.8	31.4	19.8-37.1	48.4	48.9	45.3	0.9	Variable.	0.9	4.9	42	7.4	4.2	0.7	0.885	5.0	533	150	136	150		
Southampton	29.568	52.4	79.8	31.4	19.8-37.1	48.4	48.9	45.3	0.9	Variable.	0.9	4.9	42	7.4	4.2	0.7	0.885	5.0	533	150	136	150		
Clifton	29.568	52.4	79.8	31.4	19.8-37.1	48.4	48.9	45.3	0.9	Variable.	0.9	4.9	42	7.4	4.2	0.7	0.885	5.0	533	150	136	150		
Southampton	29.568	52.4	79.8	31.4	19.8-37.1	48.4	48.9	45.3	0.9	Variable.	0.9	4.9	42	7.4	4.2	0.7	0.885	5.0	533	150	136	150		
Lewisham	29.568	52.4	79.8	31.4	19.8-37.1	48.4	48.9	45.3	0.9	Variable.	0.9	4.9	42	7.4	4.2	0.7	0.885	5.0	533	150	136	150		
Royal Observatory	29.613	51.8	81.0	32.3	18.0-39.0	48.7	47.5	43.7	..	N.W., & N.E.	..	5.7	47	9.8	8.6	0.8	0.719	4.4	534	60	136	150		
Paddington	29.567	52.6	80.5	32.0	16.7-37.7	48.5	49.0	45.4	..	Variable.	..	8.0	43	7.5	8.5	1.1	0.743	4.1	534	159	136	150		
St. John's Wood	29.560	51.4	81.0	29.5	15.7-30.9	51.5	48.6	45.5	1.8	Variable.	1.8	7.6	35	7.7	8.7	0.8	0.822	4.5	534	150	136	150		
Enfield	29.560	51.1	79.0	30.0	15.7-30.9	51.5	48.6	45.5	1.8	Variable.	1.8	7.6	35	7.7	8.7	0.8	0.822	4.5	534	150	136	150		
Rose Hill	29.610	50.8	76.0	30.1	18.7-37.8	45.9	47.3	43.4	..	N.W., & E.	..	6.9	33	8.4	8.5	..	0.777	4.2	533	270	136	150		
Bicester	29.584	51.7	76.8	32.2	17.1-36.8	44.6	48.4	44.8	1.4	N.E., & S.W.	1.4	6.5	46	7.8	8.6	1.1	0.764	4.4	533	210	136	150		
Radcliffe Observatory	29.582	51.7	76.8	32.2	17.1-36.8	44.6	48.4	44.8	1.4	N.E., & S.W.	1.4	6.5	46	7.8	8.6	1.1	0.764	4.4	533	210	136	150		
Stone Observatory	29.582	51.7	76.8	32.2	17.1-36.8	44.6	48.4	44.8	1.4	N.E., & S.W.	1.4	6.5	46	7.8	8.6	1.1	0.764	4.4	533	210	136	150		
Hartwell House	29.582	51.7	76.8	32.2	17.1-36.8	44.6	48.4	44.8	1.4	N.E., & S.W.	1.4	6.5	46	7.8	8.6	1.1	0.764	4.4	533	210	136	150		
Hartwell Rectory	29.582	51.7	76.8	32.2	17.1-36.8	44.6	48.4	44.8	1.4	N.E., & S.W.	1.4	6.5	46	7.8	8.6	1.1	0.764	4.4	533	210	136	150		
Aylesbury	29.582	51.7	76.8	32.2	17.1-36.8	44.6	48.4	44.8	1.4	N.E., & S.W.	1.4	6.5	46	7.8	8.6	1.1	0.764	4.4	533	210	136	150		
Linslade	29.582	51.7	76.8	32.2	17.1-36.8	44.6	48.4	44.8	1.4	N.E., & S.W.	1.4	6.5	46	7.8	8.6	1.1	0.764	4.4	533	210	136	150		
Royston	29.582	51.7	76.8	32.2	17.1-36.8	44.6	48.4	44.8	1.4	N.E., & S.W.	1.4	6.5	46	7.8	8.6	1.1	0.764	4.4	533	210	136	150		
Cardington	29.582	51.7	76.8	32.2	17.1-36.8	44.6	48.4	44.8	1.4	N.E., & S.W.	1.4	6.5	46	7.8	8.6	1.1	0.764	4.4	533	210	136	150		
Bedford	29.574	52.0	81.4	31.5	18.4-41.1	51.7	48.5	44.8	0.8	N. & W.	..	6.4	59	7.1	3.6	1.1	0.766	4.2	531	313	313	313		
Norwich	29.574	52.0	81.4	31.5	18.4-41.1	51.7	48.5	44.8	0.8	N. & W.	..	6.4	59	7.1	3.6	1.1	0.766	4.2	531	313	313	313		
Derby	29.603	50.9	80.8	31.0	15.8-37.5	49.4	47.2	43.3	light	S.W., & N.E.	1.7	6.2	39	7.0	3.4	1.1	0.764	4.4	535	100	100	100		
Holkham	29.603	50.9	80.8	31.0	15.8-37.5	49.4	47.2	43.3	light	S.W., & N.E.	1.7	6.2	39	7.0	3.4	1.1	0.764	4.4	535	100	100	100		
Nottingham	29.579	49.7	76.0	39.0	13.7-37.0	46.4	47.4	44.2	..	N.W., & E., & S.W.	..	7.1	44	5.5	3.6	0.9	0.800	4.3	537	389	389	389		
Hawarden	29.603	51.8	82.0	32.5	14.8-35.6	46.6	47.6	44.5	1.4	Variable.	1.4	5.2	35	4.9	3.7	0.6	0.866	4.5	538	175	175	175		
Gainsborough	29.583	50.3	74.0	32.6	13.6-32.2	41.5	48.4	44.5	0.6	N.E., & W.	..	8.0	50	7.8	3.6	1.0	0.779	4.3	534	204	204	204		
Warrington	29.579	51.7	81.0	32.5	17.3-38.8	48.5	48.4	44.7	0.4	S.W., & N.W.	1.7	6.4	48	7.1	3.5	0.9	0.803	4.2	533	260	260	260		
Liverpool	29.584	50.7	76.2	32.8	17.8-36.6	47.3	47.1	43.2	0.8	N., N.W., & E.	..	5.8	34	6.2	3.4	1.0	0.790	4.4	536	30	30	30		
Manchester	29.588	52.4	72.6	35.2	11.5-26.4	37.4	49.2	45.8	1.0	N.W., & E.	..	6.5	38	5.7	3.8	0.9	0.775	4.1	537	35	35	35		
Wakfield	29.601	51.9	79.0	32.8	19.5-30.6	50.2	47.1	42.1	..	N.W. & S.W.	1.6	6.6	45	8.1	3.3	1.3	0.717	4.0	534	123	123	123		
Stonyhurst	29.602	49.0	76.7	30.0	17.7-36.7	50.2	47.2	43.7	1.0	W. & S.W.	..	6.7	47	7.1	3.4	1.1	0.756	4.1	536	115	115	115		
Newcastle	29.560	50.4	72.5	33.0	16.6-34.8	44.5	47.2	43.6	..	Variable.	..	..	37	4.8	3.5	0.9	0.798	4.2	537	50	50	50		
North Shields	29.565	49.9	68.5	32.6	10.1-25.9	35.9	46.2	43.9	..	N.E. & S.W.	..	5.0	52	5.5	3.7	0.2	0.817	4.2	536	121	121	121		
Dunino	29.637	47.0	74.0	39.0	16.1-32.3	45.0	45.3	40.6	2.0	N.E.	..	4.4	32	3.4	0.1	0.949	4.4	541	124	124	124			
Arbroath	29.602	49.0	74.0	39.0	16.1-32.3	45.0	45.3	40.6	1.7	Variable.	1.7	4.4	32	3.4	0.1	0.743	3.8	534	550	550	550			

REVENUE.

Abstract of the Net Produce of the Revenue of Great Britain in the Years and Quarters ended 10th October, 1852 and 1853; showing the Increase or Decrease thereof.—(Continued from page 282.)

[Compiled from the "London Gazette."]

Sources of Revenue.	Years ended 10th October.			
	1852.	1853.	Increase.	Decrease.
	£	£	£	£
Customs.....	18,713,510	19,075,029	361,519	
Excise	13,370,305	13,743,073	372,768	
Stamps	6,099,717	6,576,089	476,372	
Taxes.....	3,143,892	3,171,051	27,159	
Property Tax	5,409,355	5,613,546	204,191	
Post Office.....	996,000	1,041,000	45,000	
Crown Lands.....	220,000	402,888	182,888	
Miscellaneous	292,295	182,262		110,033
Total Ordinary Revenue	48,245,074	49,804,938	1,669,897	110,033
Imprest and other Moneys .	608,670	742,550	133,880	
Repayments of Advances....	911,673	1,529,681	618,008	
Total Income.....	49,765,417	52,077,169	2,421,785	110,033
Deduct Decrease			110,033	
Increase on the Year			2,311,752	

Sources of Revenue.	Quarters ended 10th October.			
	1852.	1853.	Increase.	Decrease.
	£	£	£	£
Customs	5,036,809	5,157,476	120,667	
Excise	4,303,755	4,309,229	5,474	
Stamps	1,529,421	1,628,163	98,742	
Taxes.....	159,215	129,219		29,996
Property Tax	1,915,581	1,904,048	24,467	
Post Office.....	261,000	236,000		25,000
Crown Lands.....	40,000	50,000	10,000	
Miscellaneous	17,799	40,199	22,400	
Total Ordinary Revenue	13,263,580	13,490,334	281,750	54,996
Imprest and other Moneys .	137,996	121,757		16,239
Repayments of Advances	234,042	441,254	207,212	
Total Income.....	13,635,618	14,053,345	488,962	71,235
Deduct Decrease			71,235	
Increase on the Quarter			417,727	

Consolidated Fund Operations.—The total income brought to this account in the quarter ended 10th October, 1853, was 14,684,169*l.* The total charge upon it was 8,944,996*l.*, leaving a surplus of 5,739,173*l.*

CORN.

Average Prices of Corn per Imperial Quarter in England and Wales, during each Week of the Third Quarter of 1853; together with the Monthly and Quarterly Average—(Continued from p. 283.)

[Supplied by the Controller of Corn Returns, H. F. JADIS, Esq.]

Weeks ended on a Saturday, 1853.		Weekly Average.					
		Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
July	2	47 8	29 10	20 6	32 6	40 1	35 10
	9	47 8	29 2	20 6	35 11	40 8	36 0
	16	49 8	28 11	20 11	34 10	40 6	36 8
	23	51 10	29 4	21 6	35 3	40 4	37 10
	30	52 7	29 7	22 2	36 3	40 6	36 3
Average for July		49 9	29 4	21 1	34 11	40 4	36 3
August	6	53 9	29 9	22 6	37 3	40 7	36 10
	13	53 3	30 0	22 3	34 9	41 6	36 9
	20	51 1	29 7	22 0	34 10	40 11	34 9
	27	48 6	29 6	21 6	33 8	41 1	36 6
Average for August		51 7	29 8	22 0	35 1	41 0	36 2
Sept.	3	50 4	30 4	21 10	32 3	41 1	37 2
	10	54 9	31 3	21 11	33 6	41 3	37 8
	17	56 7	34 9	20 6	36 7	41 9	39 8
	24	56 7	35 9	21 4	36 9	43 0	41 6
Average for September		54 6	33 0	21 4	34 6	41 9	39 0
Average for the Quarter ..		51 10	30 7	21 6	34 10	41 0	37 1

Foreign and Colonial Wheat and Wheat-Flour imported in each of the Months ended 5th July, 5th August, and 5th September, 1853; the Quantities Entered for Home Consumption during the same Months; and the Quantities remaining in Warehouses at the close thereof.—(Continued from p. 283.)

[Compiled from the "London Gazette."]

WHEAT.

Months ended	Imported.			Quantities entered for Home Consumption.			In Bond at the Month's end.		
	Foreign.	Colonial.	Total.	Foreign.	Colonial.	Total.	Foreign.	Colonial.	Total.
1853.	qrs.	qrs.	qrs.	qrs.	qrs.	qrs.	qrs.	qrs.	qrs.
5th July	324,001	7,192	331,193	324,001	7,192	331,193	589	1	590
5th Aug.	680,097	11,641	691,738	680,097	11,641	691,738	589	1	590
5th Sept.	637,094	9,831	646,925	637,094	9,831	646,925	589	1	590

WHEAT-FLOUR.

Months ended	Imported.			Quantities entered for Home Consumption.			In Bond at the Month's end.		
	Foreign.	Colonial.	Total.	Foreign.	Colonial.	Total.	Foreign.	Colonial.	Total.
1853.	cwts.	cwts.	cwts.	cwts.	cwts.	cwts.	cwts.	cwts.	cwts.
5th July	285,083	84,758	369,841	285,085	84,759	369,844	6	7	13
5th Aug.	339,270	39,973	379,243	339,270	39,980	379,250	6	..	6
5th Sept.	343,101	38,511	381,612	343,101	38,511	381,612	6	..	6

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