

very different measures to different communities. As there is a poverty that is self-inflicted, and may be self-removed, so there is a certain amount of disease and annual mortality in every city that is self-inflicted; and the community that does not strive, by every available means, to reduce its disease and mortality bills to the lowest sum of human suffering, and the lowest rate of annual mortality, is as guilty of suicide as the individual who, Judas like, takes with his own hands the life God has given, and hurries unbidden into the presence of his Judge. The fever bills of the Scottish towns, contrasted with those of the English commercial towns, declare too plainly that man has not yet done his part in Dundee to avert this scourge of society; and, while fever is undoubtedly to be regarded as the visitation of God, it is also to be regarded as the visitation of God for the sin of neglecting a population fallen in character and habits.

In the following table are given the deaths in Dundee in seven years, and the rate to the population,—supposing the inhabitants in 1831 to have been 45,355 souls, and to have increased about 2000 annually, until 1839, when from bad trade the increase was checked:—

Years.	Deaths.	Population.	Proportion of Deaths to the Population.
1833	1,482	49,355	1 in 33·3
1834	1,650	51,355	1 in 31·1
1835	1,673	53,355	1 in 31·9
1836	1,923	55,355	1 in 28·8
1837	1,963	57,355	1 in 29·2
1838	1,511	59,355	1 in 39·3
1839	1,763	59,355	1 in 33·7
	<u>11,965</u>	<u>385,485</u>	<u>1 in 32·2</u>

Thus, the average mortality in Dundee, during the last seven years, was 1 in 32 annually. * * * Here, then, in Dundee, the deaths annually are at least one-fourth more than over the rest of Scotland, Glasgow excepted, which seems to surpass Dundee in the waste of human life. If the deaths are a fourth greater, those diseases which are its harbingers must be many times greater than the deaths; and to this extent, at least, it was in the power of human means to have provided a remedy,—to have abated by one-fourth the physical suffering and mortality of Dundee, saved 2,952 persons from fever, and 328 persons from premature death, and reduced by a fourth part the pecuniary loss incurred during the last seven years,—in other words, to have saved 43,919*l.*, or 6,274*l.* annually, to the profit and loss account of this city in the single item of fever.

“The statistics of small-pox in Dundee might be added to this bill of charges. It is sufficient, however, to allude to it. Last year, the deaths by small-pox were 77. In 1838, they were also 77; and in 1837, they amounted to 126. The number of cases, of course, must have been many times the deaths; by far the greater number under age and unvaccinated,—a neglect no longer confined to the Irish population.

“Though I am no medical authority, yet I am sure that I have every medical authority with me when I connect, as foremost amongst the

causes of the enormous Fever Bill of Dundee that monstrous Tavern Bill, which last lecture I showed you was the worm in the bud of the happiness and well-being of its working classes. That Tavern Bill, according to the mean of three different estimates, amounts to 21,234*l.* a-year in my parish alone, and to 180,000*l.* a-year to all Dundee. In vain we cry out against the taxation of Government. While the words of complaint are on our lips, here is a vice of continual tasting and tipping in strong drink,—a private self-imposed tax, but heavier far than any public tax. It is this besetting sin that has been not only devouring the substance of the poor, but every year sowing the seeds of that enormous Fever Bill which for the last seven years has been taxing us, not only in purse but in person,—compelling every tenth man in Dundee during that period to pay the wages of six weeks' labour, and to suffer all the langour, sickness, and oppression of six weeks' fever, besides the bereaved widows and orphans, and the fatherless and motherless children it has left in Dundee.”

I now proceed to submit the reasons for believing that the immediate expenditure of so much money as would be incurred by the adoption of such of the remedial measures as appear to be available by the agency of any public administration would be sound measures of immediate economy, and of ultimate public gain: and also the grounds for believing that the same conclusion is applicable to the cost of those measures of prevention which, though directly or indirectly controllable by legislative authority, are within the province of private individuals to execute, such as the construction of the dwellings of the labouring classes.

VI.—EVIDENCE OF THE EFFECTS OF PREVENTIVE MEASURES IN RAISING THE STANDARD OF HEALTH AND THE CHANCES OF LIFE.

On viewing the evidence, which shows that in most situations higher chances of life belong to the middle and higher classes of the population, an impression may be created that the higher standards of health are essentially connected with expensive modes of living. The highest medical authorities agree, however, that the more important means for the protection and advance of the health of those classes must be in still further reductions than those which it is the present tendency in the higher classes of society to make of the use of highly stimulating food. The evidence already adduced with respect to the labouring classes in the rural districts and those living on high wages in towns, will have gone some way to remove the erroneous impression with respect to them, and it admits of proof that a higher standard of health and comfort is attainable for them even at a less expense than that in which they now live in disease and misery. The experience of the effect of sanitary measures in the royal navy may be adduced as evidence of the practicable standards of health consistent with great labour and exposure to weather

obtained at a cost not higher than that within the wages of ordinary labourers. The experience of the effects of sanitary measures in banishing spontaneous disease from crowded prisons, offers further evidence of the health obtainable by simple means, under circumstances still more unfavourable.

The prisons were formerly distinguished for their filth, and their bad ventilation; but the descriptions given by Howard of the worst prisons he visited in England (which he states were amongst the worst he had seen in Europe) were exceeded in every wynd in Edinburgh and Glasgow, inspected by Dr. Arnott and myself, in company with the municipal officers of those cities. More filth, worse physical suffering and moral disorder than Howard describes as affecting the prisoners, are to be found amongst the cellar population of the working people of Liverpool, Manchester, or Leeds, and in large portions of the metropolis. As a standard of the progress made in ameliorating the condition of prisoners, I refer to his general statement of the condition in which he found the prisons when he inspected them in England.

"Water."—Many prisons have *no water*. This defect is frequent in bridewells and town gaols. In the felons' courts of some county gaols there is no water: in some places where there is water, prisoners are always locked up within doors, and have no more than the keeper or his servants think fit to bring them.

"Air."—And as to air, which is no less necessary than the two preceding articles, and given us by Providence quite gratis, without any care or labour of our own; yet, as if the bounteous goodness of heaven excited our envy, methods are contrived to rob prisoners of this genuine cordial of life, as Dr. Hales very properly calls it; I mean by preventing that circulation and change of the fluid without which animals cannot live and thrive. It is well known that air which has performed its office in the lungs is feculent and noxious. Writers upon this subject show that a hogshead of air will last a man only an hour: but those who do not choose to consult philosophers may judge from a notorious fact. In 1756, at Calcutta, in Bengal, out of 170 persons who were confined in a hole there one night, 154 were taken out dead. The few survivors ascribed the mortality to their want of fresh air; and called the place, Hell in Miniature.

From hence any one may judge of the probability there is against health and life of prisoners crowded in their rooms, cells, and subterraneous dungeons, for 14 or 15 hours out of the 24. In some of those caverns the floor is very damp; in some there is sometimes an inch or two of water; and the straw or bedding is laid on such floors, seldom on barrack bedsteads. Where prisoners are not kept in underground cells, they are often confined in their rooms, because there is no court belonging to the prisons; which is the case in many city and town gaols; because the walls round the yard are ruinous, or are too low*

* An Act made in Ireland the 3rd year of his present Majesty "for better preventing the severities, &c., has the following clause:—"Whereas many infectious disorders are daily produced by the confinement of numbers in close prisons, where-

for safety; or because the gaoler has the ground for his own use. Prisoners confined in this manner are generally unhealthy.

"In Baker's Chronicle, p. 353, that historian, mentioning the assize held in Oxford Castle, 1577 (called, from its fatal consequences, the Black Assize), informs us, 'that all who were present died within forty hours; the lord chief baron, the sheriff, and about 300 more.' Lord Chancellor Bacon ascribes this to a disease brought into court by the prisoners; and Dr. Mead is of the same opinion.

"The first of these two authors, Lord Bacon, observes, that 'the most pernicious infection, next the plague, is the smell of a jail, when the prisoners have been long close and nastily kept; whereof we have had, in our time, experience twice or thrice; when both the judges that sat upon the jail, and numbers of those who attended the business, or were present, sickened and died.'

"Sir John Pringle observes that 'gaols have often been the cause of malignant fevers;' and he informs us that in the late Rebellion in Scotland, above 200 men of one regiment were infected with the gaol fever by some deserters brought from prisons in England.

"Dr. Lind, physician to the royal hospital at Haslar, near Portsmouth, showed me, in one of the wards, a number of sailors ill of the gaol fever, brought on board their ship by a man who had been discharged from a prison in London. The ship was laid up on the occasion. That gentleman, in his 'Essay on the Health of Seamen,' asserts that 'the source of infection to our armies and fleets are undoubtedly the gaols; we can often trace the importers of it directly from them. It often proves fatal in impressing men on the hasty equipment of a fleet. The first English fleet sent last war to America lost by it above 2000 men. In another place he assures us that the seeds of infection were carried from the guard-ships into our squadrons; and the mortality thus occasioned was greater than by all other diseases or means of death put together.'

"It were easy to multiply instances of this mischief; but those I have mentioned are, I presume, sufficient to show, even if no mercy were due to prisoners, that the gaol distemper is a 'national concern' of no small importance."

"Sewers."—Some gaols have no sewers or vaults; and in those that have, if they be not properly attended to, they are, even to a visitant, offensive beyond description; how noxious, then, to people confined constantly in those prisons!

"One cause why the rooms in some prisons are so close is the window-tax, which the gaolers have to pay; this tempts them to stop the windows and stifle their prisoners.

"Bedding."—In many gaols, and in most bridewells, there is no allowance of bedding or straw for prisoners to sleep on; and if by any means they get a little, it is not changed for months together, so that it is offensive and almost worn to dust. Some lie upon rags, others upon bare floors. When I have complained of this to the keepers,

unto there is no back-yard adjoining, and the lives of his majesty's subjects are endangered by the bringing of prisoners into public streets for air; be it enacted—That every grand jury at the assizes or quarter sessions may be enabled, and they are hereby required and directed to contract either by lease, or to purchase a piece of ground next adjoining the gaol, or as near as conveniently can be had thereto, and cause to be erected necessary houses, and a wall sufficient for the security of the said prisoners.

their justification has been: 'the county allows no straw; the prisoners have none but at my cost.'

Since Howard succeeded in gaining national attention to the condition of prisoners, the evils of prison management have been removed. A large proportion of the prison population is taken from the worst regulated and most confined neighbourhoods, which have been the subject of examination; and, with the view to judge what might be effected by sanitary regulations, I have made frequent inquiries as to the effects of sanitary measures on the worst class of persons, the larger proportion of whom are taken from the worst neighbourhoods, that is, as to the effects of living in the same atmosphere, on a less expensive diet than that of the general labouring population, but provided with clean and tolerably well-ventilated places of work and sleeping-rooms, and where they are required to be cleanly in their persons.

I have obtained through Mr. Hill, the prison inspector of Scotland, an accurate return of the number of days which the prisoners had been absent from labour on the ground of ill health in the celebrated prison at Glasgow, where the separate system of confinement has been tried (Return No. 1); a similar return from the Edinburgh prison, (No. 2). I also obtained a careful examination of the amount of sickness prevalent amongst the prisoners at Salford prison, (No. 3). The average cost of the diets, (principally vegetable,) at Salford, varied from 1s. 4d. to 1s. 6d. per week; at Edinburgh, 1s. 9d. per week; and at Glasgow, 1s. 7d. per week. *Vide Appendix.*

The medical practitioners, who are well acquainted with the general state of health of the population surrounding the prisons concur in vouching to the fact, upon their own knowledge, that the health of the prisoners is in general much higher than the health almost of any part of the surrounding population; that the prisoners, as a class, are below the average of health when they enter the prisons; that they come from the worst neighbourhoods; that many of them come from the lodging-houses, which, in those towns, as will be shown, are the constant seats of disease; that they are mostly persons of intemperate habits; that many of them come in in a state of disease from intemperance and bad habits; and notwithstanding the depressing influence of imprisonment, the effect of cleanliness, dryness, better ventilation, temperance, and simple food, is almost sufficient to prevent disease arising within the prison, and to put the prisoners in a better working condition at the termination than at the commencement of their imprisonment. At the Glasgow bridewell, the prisoners are weighed on their entrance and at their discharge, and it is found that, on the average, they gained in weight by their imprisonment.* At Edinburgh, there

* Thirty-three males who were imprisoned for six months gained 37 lbs. total weight; five females gained 19 lbs.; twenty-two males, confined during twelve months, gained 3 lbs.; eight females, during the same period, gained 5 lbs.; seven males in eighteen months gained 24 lbs.; and two females 10 lbs. At Edinburgh also they were weighed, and, on the whole, they gained. See Appendix, statement

were instances of poor persons in a state of disease committed from motives of humanity to the prison, that they might be taken care of and cured. The tables are to be taken as showing imperfectly the comparative effects of the different circumstances; because, when a labourer is obliged to leave work he loses wages; and it is known of large classes of them, that they often work improvidently and injuriously to their chances of recovery by continuing at work in impaired health too long; the prisoner, on the contrary, by absence on the sick list, gains ease and exemption from slave labour; and the officers have constantly to contend against feigned sickness to avoid task-work and punishment. It should also be noted that a large proportion of the sickness of the prisoners is of a character that is excluded from all tables of insurance, from the benefit societies as being specially excluded from their benefits. The numbers imprisoned at the lower ages, or above 36 years of age, were too few to form any comparison:—

	Average Annual Sickness of Male Prisoners in the			Labourers and Operatives.				No. 7. Average Annual Sickness of Members of Benefit Societies in Scotland.	No. 8. Average Annual Sickness of provision of Working Classes throughout Great Britain, according to the experience of Mr. Finlaison
	No. 1. Glasgow Prison.	No. 2. Edinburgh Prison.	No. 3. Salford Prison.	No. 4. Employed in East-India Company's Warehouses.	No. 5. Average duration of Sickness per annum of every person employed in Cotton Factories of Lancashire.	No. 6. Males of Families in Wynds of Edinburgh.			
AGE.	Days & Decimals.	Days & Decimals.	Days & Decimals.	Days & Decimals.	Days & Decimals.	Days & Decimals.	Years of Age.	Days & Decimals.	Days & Decimals.
Under 16 Years	..	..	..	..	..	3.5			
16 to 21	3.05	4.01	3.10	4.02	4.42	2.3	18	2.5	5.18
21 to 26	1.83	2.04	1.64	5.40	4.91	5.1	23	3.8	6.75
26 to 31	2.65	2.33	2.72	4.49	6.88	11.0	28	4.6	6.78
31 to 36	2.83	3.10	2.63	4.55	3.85	8.3	33	5.6	6.33
36 to 41	9.00	5.10	.85	5.57	4.13	4.1	38	6.2	7.86
41 to 46	.49	2.75	.51	5.18	5.09	15.1	43	8.8	9.02
46 to 51	..	..	..	5.43	7.18	30.0	48	9.1	11.76
51 to 56	..	..	..	6.80	3.47	16.2	53	14.8	16.77
56 to 61	..	..	..	7.21	12.68	30.4	58	17.8	23.57
61 to 66	..	..	..	10.24	..	42.7	63	20.0	33.22
66 to 71	..	..	..	9.93	..	64.2	68	36.0	61.22
71 to 76	..	..	..	10.60	..	41.0	73	38.6	101.44
76 to 81	..	..	..	12.67	..	83.6	78	70.9	164.72

The total number of male prisoners in the three prisons from which the returns were compiled was 7,328; of which number, in the Glasgow prison there were 1,796, in the Edinburgh prison 1,256, and in the Salford prison 4,276 prisoners. The columns inserted in the above table from the prisons give only the amount of the periods of confinement and weight of prisoners at the commencement and termination of their imprisonment.

of sickness prevalent amongst the males. The returns which are given in full in the Appendix contain the amount of sickness prevalent among the female prisoners also.

The information as to the actual amount of sickness prevalent amongst the labouring classes is at present extremely defective for the purposes of insurance. One of the most authentic tables is that compiled by Dr. Mitchell, from returns we obtained under the Factory Commission of Inquiry, of the experience of sickness amongst the labourers employed by the East India Company in their warehouses in London. The experience was from 2461 workmen employed during ten years. (Return No. 4.)

This is a highly favourable table, inasmuch as the men were, in the first instance, select, nearly as much so as recruits in the army; care was also taken to give men who became infirm such labour as they could perform without exertion; but, above all, they had the benefit of medical advice without any expense, and being thereby induced to make early application, disease was cut short at once on its first appearance. Moreover, they were not allowed to return to work until they had a medical certificate of their cure.

Another table (No. 5) given is one of the amount of sickness experienced by the male operatives in the cotton mills in England, also deduced from the returns directed to be made under the Factory Commission of Inquiry. But these returns do not include the experience of the mills in Manchester, which was not collected by the district commissioners.

The table (No. 6) is that made up by Mr. Tait, surgeon, from his inquiries of the experience of sickness in the wynds of Edinburgh.

The next table (No. 7) is made up from the experience of benefit societies in Scotland, subsequent to the experience tables which were compiled by the Highland Society; but this is the experience of a select class, which appears to me to be too favourable for general use in Scotland.

The next table (No. 8) is one in use by Mr. Finlaison, the actuary at the National Debt Office, prepared from various sources of information. It has been tried by the experience of a large benefit society in Bethnal Green, and the allowance for sickness was found to be low as compared with the sickness occurring amongst the labouring classes in that district.

The account given by Mr. Tait, of his investigation of the sickness which had prevailed amongst 335 persons in 180 families, exhibited in column No. 5, is as follows:—

“The parts visited may be considered a fair specimen of the Edinburgh wynds and closes. They consist of Gillon’s and Gibb’s Closes, Canongate, Blackfriars’ Wynd, Bremot’s and Skinner’s Closes, High Street, and Meal-market Stairs, Cowgate. The drainage of all these places is bad; the sewers are without exception open, and those in Gillon’s and Gibb’s Closes being nearly on a dead level, keep these places

constantly in a filthy condition. The poverty of the inhabitants who reside in Gibb’s Close, especially, is also extreme, five out of seven families living in apartments without furniture. The ventilation in general is also bad: several apartments are so close that it is difficult for a person when he first enters them to breathe. In several instances I had to retreat to the door to write down my notes, as I found the stench and close atmosphere produce a sickening sensation which, on one occasion, terminated in vomiting. Although some of the apartments visited were tidy and clean, in general they were the reverse. It is impossible to conceive or describe the filthy condition of some of them. Many of them were very small, and others rather capacious, considering the quantity of furniture they contained. The diseases mentioned were such as to throw the persons affected out of employment. There were many cases of slight and continued ailment of which no notice was taken. No case of rheumatism was taken down unless so severe as to lay the person entirely off work.

“About 180 families were visited, but only 117 of them had been one year and upwards in their present dwelling: all the cases of sickness occurred between Martinmas, 1840, and Martinmas, 1841, and none of the patients,” *i. e.* of whom any account was taken, “were under ten years of age,” those under that age being intentionally excluded.

Mr. Hill states, that he has no doubt the results, which will be apparent from the examination of the several tables which are placed in juxtaposition, would be corroborated by similar returns obtained from other well-regulated prisons in Scotland. The returns from the prisons in England up to the year 1834-5 (which do not, however, give the days of sickness, but only the number of prisoners attacked with sickness during the period for which the return was made) further corroborate these results. Even in the Milbank Penitentiary, the situation of which is insalubrious, the average annual amount of sickness to the prisoners who are confined two years and a half is only about eight days to each person, which, for the average ages, is little above the standard obtained from the experience of the East India Company’s labourers. The sickness amongst the metropolitan police is about $10\frac{1}{2}$ days per annum for each of the force, $2\frac{3}{4}$ per cent. being constantly on the sick-list. The sickness in the army is on the average $14\frac{1}{2}$ days each soldier. Mr. Finlaison informs me he can venture to state, that were any benefit society to use scales of premiums founded on the prison experience, they would inevitably be insolvent in less than three years.

M. Villermé has shown the diminution of mortality that has taken place in the prisons of France, chiefly from stricter attention to cleanliness, ventilation, and diet, to be equally striking. At Lyons, from 1800 to 1806, the annual mortality in the prisons was 1 in 19; from 1806 to 1812, it was 1 in 31; from 1812 to 1819, it was 1 in 34; and from 1820 to 1826, 1 in 43: a similar amelioration has also been remarked in the prisons of Rouen, and some other large towns in that kingdom.

The following is a summary return of the diseases of the dura-

tion of each, amongst the population of the wynds, examined by Mr. Tait:—

NATURE OF DISEASE.	No. of Cases.	Average duration of Disease.	No. of Deaths.	No. of Families visited.	No. of Persons visited.
		Weeks.			
Disease of Lungs	23	5½	1	117	335
Rheumatism	9	9			
Accidents	9	4½			
Erysipelas	3	8			
Inflammation of Throat	3	5			
Fever	15	5½	1		
Palsy	4	..	1		
Dropsy	1	7			
Disease of Liver	1	..			
Jaundice	1	4			
Carbuncle	1	5			
Affection of Urinary Organs	1	17			
Acute affection of Brain	2	3	1		
Small-pox	2	5	1		
Ophthalmia	1	6			
Whitlow	1	3			
Lumbago	2	7			
Eruptive disease	1	9			
Inflammation of Stomach	1	..			
Ague	1	4			
Abscess in Loins	1	5			
Total	83		5	117	335

It may be safely pronounced that if such an amount of sickness were known to prevail in a prison containing between 300 and 400 prisoners, the circumstance would excite public alarm and attention.

Any of the preceding tables of the lower amounts of sickness may be taken as practicable standards of the extent to which it were possible, by the removal of the causes of disease, to bring the health of the labouring population.

I may here observe, that the tables of sickness above referred to exhibit the very unsatisfactory footing on which the means of insurance against sickness and mortality within the reach of the labouring classes are now placed. An artisan of the condition of the East India Company's labourers who insures for an allowance for sickness between the age of 61 and 66 years, which, according to the experience of his own class, would be a period of 10 days, would have to pay for 20 days, or 10 days in excess if he insured on the tables of the experience of benefit societies in Scotland, or 23 days in excess if he insured on tables founded on the experience collected by Mr. Finlaison. On the other hand, were a benefit

society composed of members living under depressed circumstances, as in close courts or ill-drained districts, to adopt the table of the experience of the East India Company's labourers, and to take members, living under the circumstances indicated by the Highland societies or Mr. Finlaison's tables, the allowance on such a rate of insurance would be fraught with certain and speedy loss of the funds of the contributors. Having received contributions for an allowance on the chances of 10 days' sickness, they would, upon insurances from the wynds of Edinburgh, have to pay for 40 days. The range of variation in the chances of life in different districts, such as have been shown in the returns from the different towns, exhibiting the mortality amongst the different classes, all present instances of the ruin to which benefit societies are exposed in acting upon tables calculated only for select classes, or on the mean experience of large classes, or of many classes differing widely in their circumstances. The probabilities of life at infancy for the whole population of Liverpool, as deduced from the actual ages of deaths of the whole population, would be 17 years; but on the Northampton tables of probability, payment would be required for the insurance of 25 years at infancy; for 38 years according to the Carlisle table; and if a male, for 37 years, according to the Swedish table. Yet such are the data and their applications on which large masses of savings and property are frequently invested and made dependent in various forms of insurance in benefit societies. The ruin of such societies is, I lament to say, by no means an unfrequent occurrence. The most painful spectacle that is presented in a painful and difficult service is that of a hard-working, industrious labourer, who has lived frugally and saved rigidly, who in his old age is stripped of his savings and reduced to destitution. One such example is enough to destroy the frugality of a whole village, and of all the labourers to whom it is presented. The necessity of a revision of all the tables which govern the subscriptions to friendly societies and the allowances from them, is strongly suggested by the evidence. It is to be lamented that, before giving tables of sickness or mortality to the members of benefit societies, many of the actuaries who have advised them have made no inquiries as to the condition of the neighbourhoods where the members reside or as to their general circumstances. The best advice to the labourers for the future will, however, be proved to be, that the most safe, economical, and efficient outlay as an insurance, will be in their own contributions, in rates or extra rent where needful for the execution of sanitary measures.

The further example adverted to as to the efficiency of preventive measures, is furnished by the naval medical service.

So dreadful was once the condition of the navy that, in the year 1726, when Admiral Hosier sailed with seven ships of the line to the West Indies, he buried his ships' companies twice,

and died himself of a broken heart. Amongst the pictures then presented, as in Anson's Voyages, 1740-44, were those of deaths to the amount of eight or ten a-day in a moderate ship's company; bodies sewn up in hammocks and washing about the decks, for want of strength and spirit on the part of the miserable survivors to cast them overboard. Dr. Johnson, in the year 1778, thus describes a sea life:—"As to the sailor, when you look down from the quarter-deck to the space below, you see the utmost extremity of human misery; such crowding, such filth, such stench!" "A ship is a prison, with the chance of being drowned,—it is worse, worse in every respect; worse air, worse food, worse company."

Dr. Wilson, in his preface to the Medical Returns, observes that, within the limits of the South American command, the Centurion, exactly a century ago, lost in a few weeks 200 out of 400 men by scurvy. During the years from 1830 to 1836, the British *squadron* employed in South America, lost by diseases of every description only 115 out of 17,254 men. He observes—

"There is no reason to doubt that instead of every second man perishing miserably within a few weeks, the rate of mortality might have been as low as that exhibited in the South American Report, viz., one death annually by disease out of 150 men. Now there was nothing new nor mysterious in the pestilence either as to its origin or its essence: it was not a sudden climatorial influence which could not be resisted nor understood; it was a well-known affection presenting all the signs of utter prostration and pointing to pure debility as its source, the effects principally of scanty, unwholesome, unvarying diet and bad water—partly of inadequate attention to cleanliness, order, and ventilation, and the nearly total neglect of systematic attention to measures for amusing, cheering, and improving the mind with which resulting despondency often co-operated. The remedy therefore would appear to have been self-evident and at hand, not to the commanders of ships and fleets, but to the administration. Information on many points in the animal economy was certainly less exact than it is now, and vague unfounded notions prevailed of necessary relations existing between a sea-life and scurvy. Hence it may be concluded that ignorance rather than inhumanity was the reason why effectual measures were not long before adopted for the prevention of such terrible calamities."

He observes further that—

In 1779 the proportion dying was 1 in 8 of the employed.

In 1811 the proportion dying was 1 in 32 of the employed.

From 1830 to 1836 the average number dying annually was 1 in 72 of the employed.

But—

"In this calculation, the deaths from all sources are included from wounds, drowning, and all other external causes as well as from disease. From the latter source the deaths were in the proportion of 1 to 85 of the number employed annually. When it is considered that the ratio applies to the whole service, and therefore includes the most unhealthy

sections, the Coast of Africa and the West Indies, it will be admitted, even without reference to former periods, to be very low."*

The scurvy, once so fatal in the navy, is now almost unknown in men-of-war, whilst it still prevails often to a most serious extent in the mercantile navy where the same care is not taken. It was a popular opinion in the navy, that the use of lemon juice in the grog was a specific against scurvy; but it is stated that the health of seamen has in some instances been advanced by the discontinuance of the grog itself, and the substitution of coffee. Dr. Nisbett says, "I may state generally, that this substance (lemon juice) in the quantities usually issued (one ounce per diem) does not prevent the appearance of scurvy under circumstances favourable to its production; that in increased quantities it appears to have some power of arresting, at least for a time, this disease in its earlier stages, and is thus of great value; but that it is not to be considered an antidote, and that the only cure for this disease is a full diet of fresh meat and vegetables;" the preventives being, general and personal cleanliness, ventilation, and liberal supplies of good water, in addition to supplies of wholesome food.

The mortality of the home force ships employed chiefly in harbour duty, &c. (where of course they were not cut off from communication or means of infection from the shore,) in Great Britain and Ireland, gives the rate of mortality obtainable by sanitary means, even now confessedly imperfect especially in ventilation, amongst a male population ranging from 15 to 50 years of

* It is observed by Dr. Wilson, in reference to the mortality in the navy, that "the mortality from wounds is inconsiderable compared with that occasioned by disease. Much misconception has prevailed on this subject in the public mind. Deaths in action, by the general excitement attending them, from being published in official despatches and perpetuated in gazettes, make more than a due impression; for it is found, when accurately reckoned, that they are few in comparison with those resulting from ordinary diseases. Sir G. Blane, when writing under the common impression, and without the corrections of figures, alleges that half the mortality in war periods is attributable to wounds received in battle and other external causes; but he gives a very different account when he dismisses unauthenticated notions to deal with numerical facts. He then states, that from 1780 till 1783, though in that period, besides single actions, engagements with forts, &c., the great battle of the 12th of April was fought, the mortality from disease, compared with that from external causes, was as 3 to 1; in 1779, according to his statement, the former was to the latter as 8 to 1." During the last 41 months of the peninsular war, whilst 24,930 privates died of disease, only 8899 died of wounds, or were killed in battle. The deaths during the campaign were,—of the privates in battle, 4.2 per cent.; of disease, 11.9 per cent.: of officers, in battle, 6.6 per cent.; of disease, 3.7 per cent. per annum. The average deaths in four battles, Talavera, Salamanca, Vittoria, and Waterloo, were 3.9 per cent. of officers, 2.11 of privates. In the peninsular war there were generally 22½ per cent. of men absent on account of sickness; and a reduction of the proportions of sick to 6 per cent. would have set free 10,000 men from the hospitals to be added to the effective force of the army.—*Official Returns*. The highest increased charge for insurance of military men during the peninsular campaign was 10 guineas per cent. The extra premiums taken on the insurance of military lives on service in India and China are from 3 to 5 guineas per cent., governed, however, by the unfavourable chances of the climate to which the campaign leads, as well as by the increased risks from battle. The extra premiums on naval officers in hostile service is usually from 3 to 5 guineas per cent., governed by the consideration of the climate.

age, and may be taken as illustrative of the amount of health attainable on shore.

In 1830 the deaths in the navy from disease independently of external causes were—

	Disease, per 1000.	All Causes, per 1000.
1830	6.0	8.7
1831	11.5	3.4
1832	11.9	14.0
1833	6.3	7.9
1834	4.9	6.7
1835	5.9	7.2
1836	7.5	9.5

Mr. Finlaison has lately calculated that the deaths *on shore* out of 1000 of the population of 29 years of age may be estimated at about 12 per annum. Mr. Rickman calculated that the deaths at that age in Essex and Rutland would be about $12\frac{1}{2}$ persons per 1000 per annum: for the metropolis it would be about $15\frac{1}{2}$ deaths. Out of 1000 workmen in the Government dock-yards, the number of deaths were 15; and hitherto in the metropolitan police force, which is more select than the navy, the number of deaths appear to be about 9 per annum; but about the same number of men is annually invalided from the force. The proportion of deaths amongst the troops appears to be, amongst the household cavalry, 14.5, amongst the dragoons 15.3, amongst the infantry in dépôt, 18.5, and amongst the foot guards 21.6. Since the Guards have been in Canada the rate of mortality has been reduced to that of other regiments.

The health of the foot guards is believed to be affected by peculiar circumstances.

I may add, as respects soldiers, that by proper care such epidemics as typhus, scarlet fever, are now scarcely known as affecting large groups in the army, and that such an occurrence would denote to the chiefs of the army medical board the existence of some great neglect into which it would be necessary to make inquiry.

Cost to tenants and owners of the public measures for drainage, cleansing, and the supplies of water, as compared with the cost of sickness.

Persons well acquainted with the inferior descriptions of tenements in Manchester state that a large proportion of them change owners in ten years, and that few remain in the same hands more than twenty years; and it is observed in other populous districts that this description of property most frequently changes hands. The chief obstacle to the execution of legislative measures for public improvements of tenements of the class in question in such

districts has been, that large immediate outlays of capital have been required to be made in an inconvenient manner for permanent improvements, by persons possessing only short or transient interests, to whom no means are given for spreading the charge over longer periods of years to make it coincident with the benefits.

In reference to the structural arrangements which come within the public authority, the majority of professional persons the best acquainted with the description of tenements occupied by the poorer classes, and the importance of getting the work done, agree that it would, on the whole, be the most advantageous course to execute them, by loans paying interest on the security of the rates, and spread the charge over 30 years during which the original outlay should be repaid. This would allow of the annual instalment being charged in fair proportions to the tenant, and to the holders of short interests.

The outlay for the execution of measures which come within the public authority are those, 1, for bringing water on the premises; 2, for applying it to remove refuse by a cheap apparatus; 3, a drain for conveyance of the refuse to the (4) main drains or common sewer.

In the rural districts all these purposes of cleansing may, it is considered, be accomplished by means of a proper use of the rain-water; and that which is here given may be considered as a maximum estimate for *towns*, if the work be properly done by public contract on a large scale.

First Outlay per Tenement.	Annual Instalment for Re- payment in Thirty Years.	Annual Interest, commuted at 5 per cent, on Outlay charged as Rent on Tenant.	Weekly Charge to the Tenant, or in- creased Rent, being the 1-54th part of the sum of the annual in- stalment and an- nual interest.	Total Outlay on One-third (1,148,232 inhabited houses) of the existing Tenements in England, Wales and Scotland.			
				First Outlay.	Annual Instalment for Repay- ment in Thirty Years.	Annual Interest commuted at 5 per cent. on Outlay charged as Rent on Tenant.	
	£. s. d.	s. d.	£. s. d.	d.	£.	£.	£.
Water-tank* and apparatus	10 8 6	6 11	0 6 8	3	11,970,840	399,028	379,687
Sewer . . .	5 12 0	3 9	0 3 6	1½	6,430,379	214,346	203,957
Water . . .	..	..	0 5 0	1	..	..	..
Total. . .	10 8	0 15 2	5½		18,401,219	613,374	583,644

* *Vide* Appendix for estimate and detailed specification. From some recent experiments made with the egg-shaped sewers or main drains, it appears that drains of sufficient size might be made at one-third less than the price for sewers in the annexed estimate. In many instances, main drains costing one-half the sum would suffice.

The above is a maximum estimate, and if the work be executed systematically by contract for districts, the charge may be so far reduced that it may be taken to include repairs, but if it were executed by each occupier or each owner separately, 15 per cent. must be added to the charge; and if, in addition to the separate charge incurred by neglect of legislative or administrative arrangements there be also incurred the ordinary fees of new surveyors of sewers, and new surveyors of buildings, paid by the ordinary fees, the charge for these structural improvements will be still further increased.

But the supplies of water for all the household purposes at the highest water company's charges, which is 138 pailsful for less than 1½d., is, in fact, to be considered a reduction of an existing expenditure of labour of fetching water.

The cost of cleansing privies is estimated as an existing charge in the metropolis and many towns of not less than 10s. per tenement annually. If the duty were duly performed the cost would perhaps be double that amount, and be equivalent to the whole of the proposed new expenditure; and taking the new expenditure as being less than that charge, there only remains the cost of the new sewerage, —1½d. weekly, or 6s. 6d. annually. Supposing this charge of 1½d. weekly imposed upon the landlord, he will have to set against it the preservation of the tenement from dilapidation by drainage, which of itself would frequently repay the whole outlay. He has also the circumstance to consider that he may get better tenants by the improvement of his houses, and that with such tenants he will have more regular payments of rent. Protracted sickness and protracted losses of employment, and the frequent mortality caused by neglect of cleansing, occasion heavy losses to the owners, and occasion a greater diminution of the returns for such tenements than is commonly apparent.

One obstruction to any amendment by cleansing is occasioned by the circumstance that the laying on the water is considered a tenant's charge, and the lower the class the more fluctuating the tenantry and the greater the reluctance of the tenant, and the less indeed are the means to make any immediate outlay for permanent purposes. To cast any immediate outlay on occupiers of this class, who have scarcely self-control to make reserves of the weekly rents, practically amounts to a prohibition of the work being done. That which will in extensive districts really be a new charge, *i. e.*, sewerage, will fall only at the rate of the 1½d. per week per tenement, and as most tenements are now occupied in the more crowded districts, this will be a charge to be divided between two families. If it were properly distributed, it is an amount not to be spoken of as serious in the weekly charge.*

* As an instance of the little account the manufacturing workpeople have made of such charges, it is mentioned by Sir Charles Shaw that, on the introduction of the new police force into Manchester, he found the workpeople in the habit of

New charges, for improved house accommodation, as well as for sewerage and house cleansing, may all be submitted as means for the reduction of the existing heavy charges of sickness, and of the loss of work and loss of wages consequent upon sickness. To judge of the extent of the immediate charge of sickness in money and *time*, which is independent of the charge of insurance against premature death, we may select the case of an ordinary family, say of a man at 40, a wife at 30, and two children, who may be represented as equivalent to one child aged 15, the lowest age estimated in the insurance tables, which for an average family is an under estimate. Now to insure these a payment of 10s. per week each during sickness, the charges would be as follows, according to the insurance tables computed by Mr. Finlaison for the guidance of benefit societies.

Age.	For an allowance of 10s. per week during sickness, according to the Table constructed by Mr. Finlaison, the Actuary of the National Debt Office.	
	Monthly Payment.	Single Payment.
Man, 40	£. s. d. 0 2 11	£. s. d. 27 5 2
Woman, 30	0 1 11½	21 0 6
Child, 15	0 1 3¼	14 18 1
Total per family . .	0 6 1¾	63 3 9
Total annual charge	3 13 9	..
Total weekly charge } per family . . . }	0 1 5	..

In the course of the Factory Commission of Inquiry in 1834, we ascertained that the wages of upwards of 40,000 employed in the cotton mills, of whom two-thirds were below the adolescent stage, amounted, on the average, to 10s. 5d. per week. Up to the beginning of the present year the wages of those in work were not lower. Mr. Finlaison's table, therefore, will best represent the existing pecuniary charge of sickness from the loss of wages to a family in such a district in ordinary seasons of employment. The actual charge of sickness in *time* lost every year, as represented

paying 6d. per week each to the old watch for calling them up. He put a stop to the practice, as being one which interfered with the regular duties of the police, and as being founded on a habit which might be corrected. The employers, however, complained of the interruption of the practice, and requested that it might be renewed. Sir Charles, considering that 6d. was too high a charge, offered to allow the police to call up the work-people at 2d. per week each, provided the masters, to save the trouble of the weekly collection, deducted the amount from the weekly wages, and paid it over to the police fund. The answer to the proposal was, that the work-people would sooner pay 6d. of their own accord than have 1d. deducted from their wages by their masters.

by the experience of the sickness tables before cited, would be as follows:—

Age.	Experience of the Wynds of Edinburgh.	Experience of Benefit Societies in Scotland.	Mr. Finlaison.	Experience under Sanitary Measures.
	Days, &c.	Days, &c.	Days, &c.	Days, &c.
Man, 40	15.1	6.9	9.2	2.75
Woman, 30	11.0	4.2	6.33	2.10
Child, 15. . . .	3.5	0.2	5.18	0.17
Total per family. .	29.6	11.3	20.71	5.02

The experience of the effect of sanitary measures proves the possibility of the reduction of sickness in the worst districts to at least one-third of the existing amount. Amidst classes somewhat better situated, it were possible to reduce the sickness to less than one-third; it were an under estimate to take the probable reduction at one-half. Taking it, however, at one-half, by the new payment of $1\frac{1}{2}d.$, or say $2d.$, weekly for drainage, the occupants of the tenements will save $7\frac{1}{2}d.$ of the weekly contribution for an allowance of $10s.$ per week each during sickness. But the allowance insured to be paid during sickness only replaces the earnings: the sickness, besides its own misery, entails the expense of medical attendance, which, at the usual rate of insurance in medical clubs, would be $5s.$ or $6s.$ per annum for such a family. This would also be reduced one-half, making the total family saving at the least $9d.$ weekly. But the single payment for structural alterations is to be regarded as general, and as a means of affecting the whole of the objects for the whole of the population. For this $2d.$ each tenement, or $1d.$ each family, then, they will not only save double the weekly amount, but they will save, in the wear and tear of shoes and clothes, from having a well-drained and well-cleansed instead of a wet and miry district to traverse; they will also save the sickness itself, and each individual will gain a proportionate extension of a more healthy life. In a district where the wages are not one-half the amount above stated, the expenditure for efficient means of prevention would still leave a surplus of gain to the labourer.

These are the chief gains on the side of the labourer; but in general every labourer over and above what he consumes himself, produces enough to repay the interest on capital and cost of superintendence or the profits of the employer. The loss of this extra production is the loss of the community during the whole time the services of the labourer are abridged by sickness or death. To this loss is to be added, where the labourer has made no reserve, the loss of the cost of his unproductive maintenance as a pauper, and of medical attendance during sickness.

The existing insurance charge, then, represents the existing charge on the labouring classes from the loss of wages consequent on sickness; to which charge might be added the existing addi-

tional charge denoted by the insurance on account of the abridged duration of life and more frequent deaths. The aggregate charge for structural improvements, though amounting to so many millions as a first outlay, is still, for the reasons above stated, only a means of obtaining an incalculably greater gain. But it will be shown that the attainment of that gain is dependent on securities for the application of science to the efficient execution of the combined structural means of prevention. If these were to be no better than those in use in the greater part of the metropolis and the towns throughout the country, and the outlay for drainage were to be an outlay for receptacles to serve as the means of accumulating decomposing deposits, and as latent magazines of pestilential gases, to be themselves cleansed from time to time of the accumulations at a great expense, or to be discharged to pollute the natural streams of the country, then the aggregate expenditure would, to the amount of the inefficiency, be an aggregate of so many millions of money spent in waste.

The *immediate* cost of sickness and loss of employment falls differently in different parts of the country, but on whatsoever fund it does fall, it will be a gain to apply to the means of prevention that fund which is and must needs otherwise continue to be more largely applied to meet the charge of maintenance and remedies. Admitting, however, as a fact the misconception intended to be obviated, that the necessary expense of structural arrangements will be an immediate charge instead of an immediate means of relief to the labouring classes;—in proof that they have, in ordinary times, not only the means of defraying increased public rates but increased rents, I refer to the fact that the amount expended in ardent spirits (exclusive of wines), tobacco, snuff, beer, &c., consumed chiefly by them, cannot be much less than from 45,000,000*l.* to 50,000,000*l.* per annum in the United Kingdom. By an estimate which I obtained from an eminent spirit merchant, of the cost to the consumer of the British spirits on which duty is paid, the annual expenditure on them alone, chiefly by the labouring classes, cannot be less than 24,000,000*l.* per annum. If visible evidence of the means of payment were needed I would point to every gin-palace in the metropolis, or to similar places throughout the country, which are chiefly supported from the expenditure of the class of persons who are overcrowded and lodge most wretchedly, and its duty-paying building materials represents a portion of the money available as rent for abodes of comparative comfort. The cost of one dram per week would nearly defray the expense of the structural arrangements of drainage, &c., by which some of the strongest provocatives to the habit of drunkenness would be removed. In illustration of the extent of the means of defraying such expenses, even in some of the poorer districts, I would cite the following statement of the minister of the parish of Stevenston, in Ayrshire, given in the last statistical account from that parish:—

"When the survey by the present incumbent was completed in 1836, the population stood as follows:—

Number of families	833
Number of population	3681."

The report further states—

"There are in the parish no less than 33 inns, and public-houses, and whisky-shops. A few inns are needed for the accommodation of travellers, and for the transaction of business; but the rest serve as so many decoys to lure and destroy the thoughtless in their neighbourhood. The sale of spirits in grocers' shops has had a most pernicious influence, especially on the female part of the community, who, when there is no danger of detection, are tempted to add a dram to the other commodities purchased. But the most pernicious practice is that of several families clubbing that they may drink together cheaply in one of their own houses; for in this way husbands, wives, and children all share in the debauch, and drunken habits are perpetuated from generation to generation.

"We are grieved and ashamed to mention the sum annually expended in this parish for ardent spirits. We have learned from the excise-officer of the district the quantity sold in it last year; and without taking into account what is bought at a distance for the use of private families, and exclusive also of all that is expended for wine, and ale, and porter, and beer, and calculating at a rate greatly below the retail price the quantity of ardent spirits sold in the parish, it amounts to the enormous sum of 4125l."

This is nearly at the rate of 5l. a-year per family for ardent spirits alone. To give another example:—

In the town of Bury, with an estimated population of 25,000, the expenditure in beer and spirits is estimated at 54,190l., annually, or 2l. 3s. 4d. for each man, woman, and child, a sum that would pay the rent and taxes for upwards of 6770 new cottages at 8l. per annum each. But on an inquiry made from house to house by the agency of the Manchester Statistical Society into the condition of the labouring population of this town, with such an expenditure on one source of dissipation and ill-health, it appeared that of 2755 of their dwellings examined, only 1668 were decidedly comfortable; that a smaller number were well furnished; that the number of families in which there were less than two persons sleeping in one bed were only 413; that the number in which on the average there were more than two persons to a bed was 1512; that the number of families who had not less than *three* persons in a bed and less than four, was 773; that the number of families in which there were "at least four persons, but less than five persons to one bed," was 207. There were 63 families where there were at least five persons to one bed; and there were some in which even six were packed in one bed, lying at the top and bottom—children and adults. Similar results as to misapplied means and numbers crowded together would be ascertained from similar inquiries into the state of the population in other districts.

Any measures must commend themselves to public support that would effect in the application of the immense fund expended in ardent spirits alone, a change for assured physical comforts and undoubted moral advantages of the highest order. Admitting the validity of statements often made and seldom proved in ordinary times, but which nevertheless may occur, of classes of labourers reduced to the minimum of subsistence, that their wages will not admit of any change of application, then another set of considerations would arise, namely, whether the increased charges for new tenements, or for improvement of the existing tenements, will not compel an advance of wages, and thence be charged in the cost of the commodity produced? And whether if the trade will not allow such advanced wages, the amount of misery of the labouring classes is not really increased by exemptions or legislative facilities, which allow the trade to be carried on only at the expense of the health, the morality and the comfort of the labourers engaged in it, and also at the expense of the ratepayers in providing against the casualties of sickness and mortality?

These, however, are questions that appear to be less likely to occur practically to any important extent than may be supposed. The general difficulty would apparently be with the habits of the adults, who will, to use the illustration presented in a portion of evidence previously cited, "prefer the gin" to the best accommodation that can be offered to them.*

Whilst there is such evidence as that above cited to show that there is in ordinary times no real need, there is much evidence to show the impolicy of any exemptions from the payment of properly distributed charges for the requisite public improvement. In general labourers have been losers by exemptions from charges on their tenements, and scarcely in any instance have gained even by exemptions from the payment of their contributions to the poor's rates.

The effect of administrative proceedings on the condition of the dwellings of large portions of the labouring classes, and thence on the condition of the labourers, is, under varied circumstances, adverted to in the local reports on their sanitary condition, and it is shown that the former parochial administration has operated mischievously in degrading the habitations of the labouring classes, or in checking tendencies to improvement.

The mode by which the condition of the dwellings of the labouring classes has been most extensively deteriorated in England, has been by the facility afforded to owners of cottage tenements, usually when acting as administrators of the Poor Law, to get their own tenants excused from the payment of rates. The legal ground

* The experience of France is precisely similar. In a work of great authority on the lower classes of that country, it is stated that the secret of the existence of so many filthy, infected, and miserable habitations, is simply that the persons who pay two sous for their lodging at night spend ten sous on brandy by day.

for exemption was, not the value of the tenement, but the destitution or inability of the tenant to pay; but inasmuch as the occupation of a well-conditioned tenement, or of a tenement in advance of others, would be popularly considered *primâ facie* evidence of ability to pay rates, the cottage speculator would not be at the expense to present evidence against the exemption by which he would gain. The general tenor of the evidence is, that the exempted tenements are of a very inferior order, and that the rents collected for them are exorbitant, and such as ought to ensure tenements of a higher quality.

Such residences appear to come in competition very rarely, and, viewed with reference to the place of work, the habitations of the labouring classes in the manufacturing towns extensively partake of the nature of monopolies, and hence the landlord is enabled to exact a price for position, independently of the character or quality of the building, or of the extent of outlay upon it. Where there is any choice, the labouring classes are generally attracted to these tenements by the promise of exemption from the payment of poor's rates, and are deluded into the payment of a proportionately higher rent. (See the evidence on this subject taken before the House of Commons' Committee on the Rating of Cottage Tenements in 1838; Questions 1103; 1106; 1222; 1377; 1403; 1504—7; 1637—8; 1594; 2269; 2271; 3124; 2234—5; 2240; 2279; 3106; 3723—4; 3920; 4054; 4071.)

The depressing effect of such exemptions is illustrated by the effect of their withdrawal, in cases where the inmates were not only excused from the payment of rates, but from the payment of rents, as in the instance of the parish cottages. The sales of cottage tenements held by the parish have formed a part of the business of this Commission since its commencement. The effects of the removal of the exemption from the payment of rent consequent upon the sale are generally described as beneficial. The tenor of the evidence on this subject is conveyed in a communication from the *Rev. Charles Turner*, the chairman of the Tenbury union, quoted in Sir Edmund Head's report:—

“Mr. Turner also says, ‘When the parish property has been sold, a vast improvement in the external appearance of the cottages has taken place, and consequently a higher rent is demanded, and frequently obtained.’ We thus see one proof, among many, that the sales of parish property which have taken place under the orders of the Commissioners have been beneficial to the public at large; a vast mass of small buildings (amounting, for instance, in the Bromyard union only, to no less than the net worth of 3643*l.*) has been withdrawn from a state of dilapidation and decay and thrown into the market. Money has been expended on it; it has been put into tenantable and proper repair, and all parties have found their interest in the change. To the parish it formerly yielded nothing. The pauper lived on in filth and wretchedness, in a hovel of which he did not dare to complain, because he held it by sufferance; and the community at large were deprived of an opportu-

nity for a profitable outlay of capital on tenements thus kept in mortmain of the worst kind. Such an outlay would not have taken place unless it promised a return, that is to say, unless the class for whose reception the cottages are fitted could in all probability pay for the improved accommodation. With regard to parties living in their own houses, Mr. Turner says, ‘There are many poor persons living in their own cottages, which are of a very inferior description, wretchedly comfortless, and have only one floor. They are decidedly worse than those which are rented, both as to accommodation and state of repairs; but these, for the most part, have been built on the waste and unenclosed land.’”

The mischievous effect of exemptions from rating on the ground of poverty, in bringing down buildings to the exempted scale, and in preventing advances beyond it, is strikingly displayed in Ireland, where all houses not exceeding the value of 5*l.* are exempted from contribution to the county cess. The general consequence is that the farmers' residences throughout the country are kept down to the level of mere cottages or inconvenient hovels, to avoid passing the line of contribution, and only pass it by indulgent or evasive valuations. But the supposed exemption (which, if it be not often made up by increased rent, is a circumstance peculiar to the smaller holdings in that country)—an exemption which no doubt was procured as a boon, was productive of further ill effects to the parties intended to be benefited.* Being kept by the immediate expense and the fear of their share of the tax to thatched roofs, these thatched roofs afforded facilities to incendiarism, since any one might put a cinder in the thatch, and run away without detection; hence it has placed the inmates so far under continued terror in disturbed times, that it would frequently have been worth the expense of putting on a slate roof as a measure of preventive police. The depression of the tenement is practically a depression of the habits and condition of the inhabitants.

I may assume that it has been proved that the labouring classes do possess the means of purchasing the comforts of superior dwellings, and also that they are not benefited by exemptions from the immediate charges wherever requisite to defray the expense of those superior comforts.

I shall now show how little it is in the power of these classes voluntarily to obtain these improvements,—setting aside entirely the consideration of the obstacles arising from depraved habits already formed.

The workman's “location,” as it is termed, is generally governed by his work, near which he must reside. The sort of house, and often the particular house, may be said to be, and usually is, a monopoly. On arriving at manhood in a crowded neighbourhood, if he wishes to have a house, he must avail himself of the first

* A butter merchant informed me that the value of the Irish butter was deteriorated to a greater extent than they were aware of, from its being frequently made in close smoky hovels instead of in clean and well-ventilated dairies, as in England.

vacancy that presents itself; if there happen to be more houses vacant than one, the houses being usually of the same class, little range of choice is thereby presented to him. In particular neighbourhoods near Manchester, and in other parts of the county of Lancaster, in some other manufacturing and in some rural districts, instances occur of the erection of improved ranges of larger and better constructed houses for the labouring classes; and, making deduction for the occasional misuse of the increased space by subdividing them and overcrowding them with lodgers, the extent to which these improved tenements are sought, and the manner in which an improved rent is paid, afford gratifying evidence of an increasing disposition prevalent amongst artisans to avail themselves of such improvements. These opportunities, however, are comparatively few, and occur in districts where multitudes continue in the most depressed condition, apparently without any power of emerging from it.

The individual labourer has little or no power over the internal structure and economy of the dwelling which has fallen to his lot. If the water be not laid on in the other houses in the street, or if it be unprovided with proper receptacles for refuse, it is not in the power of any individual workman who may perceive the advantages of such accommodations to procure them. He has as little control over the external economy of his residence as of the structure of the street before it, whether it shall be paved or unpaved, drained, or undrained. It may be said that he might cleanse the street before his own door. By some local acts the obligation to do so is imposed on the individual inhabitants. By those inhabitants who have servants this duty may be and is performed, but the labourer has no servant; all of his family who are capable of labour are out a-field, or in the manufactory or the workshop, at daybreak, and return only at nightfall, and this regulation therefore is unavoidably neglected.

Under the slavery of the existing habits of labourers, it is found that the faculty of perceiving the advantage of a change is so obliterated as to render them incapable of using, or indifferent to the use of, the means of improvement which may happen to come within their reach. The sense of smell, for instance, which generally gives certain warning of the presence of malaria or gases noxious to the health, appears often to be obliterated in the labourer by his employment. He appears to be insensible to anything but changes of temperature, and there is scarcely any stench which is not endured to avoid slight cold.

It would have been matter of sincere congratulation to have met with more extensive evidence of spontaneous improvement amongst the classes in receipt of high wages, but nearly all the beneficial changes found in progress throughout the country are changes that have arisen from the efforts of persons of the superior classes. Inquiries have been made for plans of improved

tenements, but none have been found which can be presented as improvements originating with the class intended to be accommodated. In the rural districts, the worst of the new cottages are those erected on the borders of commons by the labourers themselves. In the manufacturing districts, the tenements erected by building clubs and by speculating builders of the class of workmen, are frequently the subject of complaint, as being the least substantial and the most destitute of proper accommodation. The only conspicuous instances of improved residences of the labouring classes found in the rural districts are those which have been erected by opulent and benevolent landlords for the accommodation of the labourers on their own estates; and in the manufacturing districts, those erected by wealthy manufacturers for the accommodation of their own work-people.

As in England so in Scotland, the most important improvements have been effected through enlightened landlords. The members of the Highland Society, who have made the best exertions for improving the condition of the labouring population in the rural districts, and have offered prizes for the best-constructed cottages and the best plans, competition being open to all parties, got nothing from the lower classes, and only succeeded in exciting the interest of the most intelligent proprietors, and getting improvements effected through their exertions. Mr. Loudon, in an appeal on behalf of the agricultural labourers, lays it down as a primary position that, "In general, proprietors ought not to entrust the erection of labourers' cottages on their estates to the farmers, as it is chiefly owing to this practice that so many wretched hovels exist in the best cultivated districts of Scotland and Northumberland."

Employers' influence on the Health of Workpeople by means of improved Habitations.

Preparatory to the exposition of the means of protection of the public health provided by the existing law, and of the modifications that appear to be requisite for the attainment of the object in question, I would submit for consideration practical examples of its partial attainment by means of improved dwellings; combined with examples of other improvements effected in the moral condition of the labouring classes, by the judicious exercise of the influence possessed by their superiors in condition.

Throughout the country examples are found of a desire, on the part of persons of the higher class, to improve the condition of the poorer classes by the erection of dwellings of a superior order for their accommodation. These, however, are generally at a cost beyond any return to be expected in the present state of the habits

of the people in the shape of rent, or any return in money for an outlay on an ordinary investment of capital. But the instances about to be noticed, though generally originating in benevolence, and without the expectation of a return, do, in the results, prove that in money and money's worth, the erection of good tenements affords the inducement of a fair remuneration to the employers of labour to provide improved accommodation for their own labourers.

Wherever it has been brought under observation, the connexion of the labourer's residence with his employment as part of the farm, or of the estate, or of the manufactory on which he is employed, and as part of the inducement to service, appears to be mutually advantageous to the employer and the employed. The first advantages are to the person employed.

We everywhere find (in contradiction to statements frequently made in popular declamations) that the labourer gains by his connexion with large capital: in the instances presented in the course of this inquiry, of residences held from the employer, we find that the labourer gains by the expenditure for the external appearance of that which is known to be part of the property,—an expenditure that is generally accompanied by corresponding internal comforts; he gains by all the surrounding advantages of good roads and drainage, and by more sustained and powerful care to maintain them; he gains by the closer proximity to his work attendant on such an arrangement, and he thus avoids all the attacks of disease, occasioned by exposure to wet and cold, and the additional fatigue in traversing long distances to and from his home to the place of work, in the damp of early morning or of nightfall. The exposure to weather, after leaving the place of work, is one prolific cause of disease, especially to the young. When the home is near to the place of work, the labourer is enabled to take his dinner with his family instead of at the beer-shop.

The wife and family generally gain, by proximity to the employer or the employer's family, in motives to neatness and cleanliness by their being known and being under observation; as a general rule, the whole economy of the cottages in bye-lanes and out-of-the-way places appears to be below those exposed to observation. In connexion with property or large capital, the labourer gains in the stability of employment, and the regularity of income incidental to operations on a large scale; there is a mutual benefit also in the wages for service being given in the shape of buildings or permanent and assured comforts; that is, in what would be the best application of wages, rather than wholly in money wages.

In the manufacturing districts there is a mutual and large gain by the diminution of the labour of the collection of rents, the avoidance of the risks of non-payment, and also in the power of control for the prevention of disturbances, and the removal of tenants of bad character and conduct.

Surprise is frequently expressed at the enormous rents ranging

up to and beyond 20 per cent. on the outlay, exacted by the building speculators in the towns. But when the experience of these descriptions of tenements is examined, it is found that the labour of collecting the rents, and the labour of protecting the property itself against waste from unprincipled tenants, is such as to prove that accommodation given to the disorderly and vicious is scarcely remunerative at any price. The tenants are loosely attached, and large numbers migratory, partly from the nature of their work; and having little or no goods or furniture, they have no obstacles to removal; they frequently, before absconding, commit every description of waste; they often burn shelves and cupboard-doors, and the door itself, and all timber that can be got at for the purpose.* An objection frequently made against laying on the water in houses inhabited by a population addicted to drinking is, that they would sell the receptacles and destroy the pipe, and let the water run to waste, for the sake of the lead. The expense and delay of legal remedies precludes redress for such injuries.

In some of the worst neighbourhoods in Manchester, the whole population of a street have risen to resist the service of legal process by the civil officers. In the course of the Constabulary Inquiry I was informed by the superintendent of the old police of that town, that one of the most dangerous services for a small force was attending to enforce ejectments. This they had often to do, cutlass in hand, and were frequently driven off by showers of bricks from the mobs. The collection of the rents weekly in such neighbourhoods is always a disagreeable service, requiring high payment. This, and the frequent running away of the tenant, and the waste, greatly reduce the apparently enormous rent obtainable from this poorer class of tenants. For all these vices, risks, and defaults of others, the frugal and well-conducted workman who has no choice of habitation, is compelled to pay in the shape of an increased rent; he is most largely taxed in the increased rent, necessary as an insurance for the risks and losses occasioned by the defective state of legal remedies.

All these risks the employer is enabled to diminish or avoid, by selecting his own tenants, and he has the best means of doing so; by reservations of rent on the payment of wages, he saves the labour and risks of collection; nor will the vicious workman so readily commit waste in the house belonging to his employer as in one belonging to a poorer and unconnected owner. The employer has, moreover, the most direct interest in the health and strength of his workpeople.

* In an inquiry, from house to house, into the condition of the labouring population in the parishes of St. Margaret and St. John Westminster, it was found that, out of a total of 5366 houses, 2352 were occupied for terms under one year, and that no less than 1834 had been occupied during periods from one to six months only.

It is not supposed that these are arrangements which can be universal, or readily made the subject of legislation. At the commencement of some manufactures, the additional outlay may not be practicable. But those manufactures have generally had the greatest success where good accommodation for the workpeople was comprehended in the first arrangements. When, however, a manufactory has been once established and brought into systematic operation, when the first uncertainties have been overcome and the employer has time to look about him, there appears to be no position from which so extensive and certain a beneficial influence may be exercised as that of the capitalist who stands in the double relation of landlord and employer. He will find that whilst an unhealthy and vicious population is an expensive as well as a dangerous one, all improvements in the condition of the population have their compensation. In one instance, of a large outlay on improved tenements, and in provision for the moral improvement of the rising generation of workpeople, by an expensive provision for schools, the proprietor acknowledged to me that although he made the improvements from motives of a desire to improve the condition of his workpeople, or what might be termed the satisfaction derived from the improvements as a "hobby," he was surprised by a pecuniary gain found in the superior order and efficiency of his establishment, in the regularity and trustworthiness of his workpeople, which gave even pecuniary compensation for the outlay of capital and labour bestowed upon them. He stated that he would not, for 7000*l.*, change the entire set of workpeople on whom care had been bestowed for the promiscuous assemblage of workpeople engaged in the same description of manufactures.

I would now submit for consideration, with the view to promulgation for voluntary adoption, instances of the arrangements which have been found most beneficial in their operation on the condition of the manufacturing population.

The most prominent of these instances was pointed out to our attention in the course of the Factory Inquiry, in the habitations connected with the mills superintended by the late Mr. Archibald Buchanan, at Catrine, in Ayrshire. Nearly 1000 persons are employed in these mills, the places of work are well ventilated and carefully kept; the village where the workpeople live is advantageously situated, and the houses are well built. They are thus described by his son in answer to my inquiries:—

"The system that has been pursued here, and which was adopted by my father for the purpose of giving the workers a greater interest in the place, at the same time that it gave them an object to be careful and saving, while it raised them in point of standing and respectability, has been different from that generally acted upon at country works. Instead of our company continuing the proprietors of the dwelling-houses and letting them to the workpeople, my father gave the workers every en-

couragement to save money, so that they might themselves become the proprietors of a house and small garden, either by making a purchase from the company or fencing ground and building a house for themselves. This plan has been very successful, and many of our people are proprietors of excellent houses with gardens attached, which afford them employment and amusement in their spare hours; and among themselves they have a horticultural society and an annual competition. Though many houses have been sold in this way, a considerable part of the village is still the property of our company, and those that have been built by other parties are in accordance with a plan of streets laid down; and I should say are about equal to the others in comfort and conveniences, it being the interest of the person investing his money to get the best return he can for it; and that he may get his house let and a fair rent for it, he must build as good a house as the tenant can get for the same rent from another. The houses are substantially built of stone and lime, and slated, and are generally of two stories, containing four families, occupying two rooms each. They have generally small plots of garden-ground behind, in which are dungsteads and necessities, with a space between them and the houses. The village is well supplied with water by spring-wells and pumps in various parts of it; and some of the streets have water conveyed to them in pipes from the aqueduct to the water-wheels that give motion to the works. I cannot, however, very well give any distinct plan or drawing of the dwellings of the workpeople, our houses being a good deal mixed with those belonging to others.

"The population of the village, per census taken 30th December last, is 2699, and the number of families 566, so that the proportion of individuals to each family is $4\frac{1}{2}$, and the number employed in the works is 936. The proprietors of houses appoint annually a committee of their number to attend to the repairs of the streets, and the keeping of them clean; and they have a man constantly in their employment for this purpose, the expense being defrayed by the feuers assessing themselves according to the rental of their properties."

These mills were pointed out to our attention during the Factory Inquiry, by Mr. Stuart, the commissioner, who observed that the workpeople, "more especially the females, are not only apparently in the possession of good health, but many of them (quite as large a proportion as we have seen in any of the extensive well-regulated similar establishments in country districts) are blooming—as unlike as possible to the pale, languid-looking females too frequently to be found in similar works in great cities."

Mr. Hill, the prison inspector for Scotland, stated that the procurator fiscal, or public prosecutor, reported to him that he had nothing to do in that village; and in his Third Report he thus mentions it:—

"There is little crime here, and very few offences of any kind, and it is reported that there is not a single person in the village who is of a bad character. Indeed no person of bad character, or who is in the habit of drunkenness, is allowed to remain in the mills, on which nearly the whole population of the village is directly or indirectly dependent. The

few offences which are committed are almost all by vagrants. The inhabitants of Catrine appear to be in the enjoyment of an unusual amount of comfort; they are well clad, live in neat houses, many of them their own property, and look healthy and cheerful; indeed the only person in the village who has reason to be downcast is the medical man, who complains that he has nothing to do."

Similar effects are manifested in the mills at New Lanark, at the flax-mills near Cupar. These instances would suffice to establish the fact of the very little sickness that is *essential* to the occupation itself. *Mr. Hill* who, by his office, is led to appreciate highly instances of exemption from crime and disorder, exclaims, upon the sight of such establishments,—“Notwithstanding what has been said on the subject of factories, I have no hesitation in declaring that I believe that the workpeople at Catrine, New Lanark, and other similar establishments, form some of the healthiest, happiest, and most moral communities in the world.”

From other examples it appears to be by no means essential to such improvements that the labourers should become proprietors of their occupations. *Mr. Buchanan, jun.*, expresses his concurrence in the general conclusions to which I have arrived of the advantages derived by the labourer from his connexion with his place of work, and says,—

“I perfectly agree that a labouring man will generally be found in a state of greater comfort, holding a tenement from his employer, than when left to provide a dwelling of whatever kind he chooses for himself. In our case the proprietors, in the first place, furnished the house, in which the workmen formed habits of cleanliness and comfort, and when by care and economy he had saved as much as enabled him to purchase it, he was advanced a step higher by becoming himself the proprietor, continuing to occupy part of the house himself, and letting the other parts to his fellow-workmen.

“I believe that our people enjoy as good health, and have as many comforts as any of the same class either in the same or any other employment, as their appearance will testify; and the generally different appearance of the manufacturing population in towns is to be attributed to the habits of the people themselves, and the way in which they are crowded together, and not to anything in the nature of the employment.”*

The following account which I have received in answer to inquiries from *Mr. Henry Ashworth*, of Turton, near Bolton, with relation to the manufacturing population of that place, is so far characteristic of the progress of a population of more extensive districts, and of the means of their improvement, that I submit it at full length:—

“On the early introduction of the cotton manufacture, the parties who entered into it were men of limited capital, and anxious to invest the whole of it in mills and machinery, and therefore too much absorbed

* It appears that the mortality for five years, ending 1839, was in Catrine 1 to 54.20, whilst in Glasgow for the same period it was 1 to 31.

with the doubtful success of their own affairs to look after the necessities of their workpeople.

“Families were attracted from all parts for the benefit of employment, and obliged, as a temporary resort, to crowd together into such dwellings as the neighbourhood afforded: often two families into one house; others into cellars or very small dwellings: eventually, as the works became established, either the proprietor or some neighbour would probably see it advantageous to build a few cottages; these were often of the worst description; in such case the prevailing consideration was not how to promote the health and comfort of the occupants, but how many cottages could be built upon the smallest space of ground and at the least possible cost. We find many built back to back, a most objectionable form, as precluding the possibility of any outlet behind.

“People brought together as these were for a living, had no alternative but to occupy such dwellings. Whatever the weekly income, the wife could never make such a house comfortable; she had only one room in which to do all her work; it may be readily supposed the husband would not always find the comfort he wished in such a home. The public-house would then be his only resort. But here the evil does not end; the children brought up in such dwellings knew no better accommodation than such afforded, nor had they any opportunities of seeing better domestic management. Few of the parents in these parts have ever lived as domestic servants, so that it becomes no matter of surprise that the major part should have so little knowledge of improving their social condition even when the pecuniary means are within their reach. It must be allowed that the introduction of manufactures is not justly chargeable with producing the whole of this evil. About this time the old Poor Law was exercising a very pernicious influence upon the labouring classes, by means of inducing both the landowners and farmers to discourage cottage property for fear the inmates should gain parish settlements.

“Cottages were forbidden to be built; some pulled down when empty, and others fell to decay for want of repair; poor people were banished as much as possible from the agricultural districts on account of the burden of parish settlements; even in this county I saw the ruins of two cottages, which I was informed were the two last cottages in the parish.

“Under such depressing causes it is not to be wondered at that we frequently received families into our employ who did not know how to conduct (with propriety) a decent cottage in such a manner as to conduce either to the health or comfort of the inmates.

“About twelve years ago we had occasion to introduce a considerable number of families into some new houses; in the course of a few months a most malignant fever broke out amongst them, and went from house to house, till we became seriously alarmed for the safety of the whole establishment. We instituted an inquiry into the state of the houses where the fever first appeared, and found that from the low habits of the occupants, and the ignorance of the proper decencies of life, the cottages were in so filthy a state that it was apparent we should not long be free from a recurrence of the same evil unless we took some active means to effect a change in the habits of these people.

“Although we felt very unwilling to do anything which appeared to

interfere with the domestic management of our workpeople, still the urgency of the case at the time seemed to warrant such a step. We therefore ordered an examination of every cottage in our possession, both as regarded cleanliness and ventilation, as well as bedding and furniture.

"The striking difference exhibited in the state of these cottages, the neatness and cleanness of some, the gross neglect of others, appearing to have no relation to the amount of income, convinced us that an occasional repetition of these visits would be essential in order to effect any permanent improvement amongst them.

"These periodical visits have now been continued through a series of years; and as no invidious distinction or selection was ever made, do not appear to have been viewed in the light of an intrusion; a week or two of notice being mostly given, a laudable degree of emulation has been excited as to whose house bedding and furniture should be found in the best order; my brother or myself have occasionally joined in these visits. By these means we were made acquainted with the wants and necessities of the various families in our employ. Having had such opportunity of observing the great inconvenience arising from small dwellings where the families were large, both as regards bed-rooms and living-rooms, few cottages having more than two bed-rooms; and where there were children or young persons of both sexes, the indelicacy of this arrangement was apparent; we therefore concluded to build larger cottages, and make them with three bed-rooms in each. These houses were sought after with the greatest avidity, and families allowed to remove to them as an especial favour; the increase rent of 1s. to 1s. 6d. per week was a small consideration in regard to the additional comfort afforded to a family where the income was from 24s. to 50s. or 60s. per week, as is frequently the case with families employed in manufactories."

But I am enabled to adduce evidence showing that by structural improvements of the places of work as well as of abode which present the bounty on and security for future adoption, constituted by experience of pecuniary saving, the health of the manufacturing workpeople, now amongst the lowest, may be advanced to the average of health enjoyed by any other class.

On my return from Glasgow, I proceeded to visit and examine the cotton manufactory and machine-making works erected and carried on under the directions of Mr. James Smith, of Deanston, near Stirling, the inventor of the subsoil plough, to whose valuable opinion on the subject of drainage I have already made reference.

The principle of the improvement of places of work, which constituted the chief object of attention at Deanston, was the erection of manufactories in one large flat or ground floor, instead of story piled upon story as in the old mode.

Mr. Smith had constructed a new department of the cotton-mill in one room or flat, which covered about half an acre of ground. The roof was composed of groined arches in divisional squares of 33 feet 6 inches, supported on cast-iron columns, which were hollow, and through which the drainage of the roof was

effected. In order to render the roof of the building water-tight, the outer superficies of the arches were covered with a coat of common plaster, over which, when dried, was laid a coating of coal-tar, boiled to a pitchy consistence, and mixed with sand, laid on to a thickness of three-quarters of an inch. Over this was laid a surface of from 12 to 16 inches of garden-soil, which prevents the injurious effects on the pitch of the frost in winter, and the sun in summer.

The height of this large room was 12 feet from the floor to the spring of the arches, and six feet rise, giving a height to the room in which the operatives were engaged of 18 feet. The height of the ordinary rooms in which the workpeople in manufactories are engaged is not more than from 9 to 11 feet. This restricted space arises from various points of economy (now considered to be mistaken) in the old modes of constructing manufactories, which were first erected in towns where land was dear, and in times when the immediate economy of capital was of more pressing importance. The adverse consequences to the operatives are the restriction of space for air; that the heat and effluvia of the lower rooms are communicated to the rooms above; and that the difficulty of ventilating them is exceedingly great, especially in the wide rooms, where it is found to be practically extremely difficult to get a current of fresh air to pass through the centre. The like difficulties have been heretofore experienced in respect to the ventilation of large ships. There is also in the mills of the old construction the additional fatigue of ascending and descending to the higher rooms, and carrying material. To avoid this, in some instances, machinery is resorted to.

The ventilation through the side windows of large rooms is generally found to be imperfect and inconvenient in many of the processes, and annoying to the workpeople from the influx of the air in strong currents. The arrangements for ventilation through the roof of this room appeared to be highly advantageous. The light was brought in from above, through openings eight feet in diameter at the top of each groin, surmounted by domes or cones of glass, at the apex of which there were openings of about 16 inches in diameter, with covers that could be opened or shut at pleasure, to admit of ventilation. The better distribution of the light for the work from these openings was one advantage they appeared to possess over the ordinary mode of getting light from side windows.

The chief arrangements from below for ventilation were made by tunnels 10 feet distance from each other, carried across and underneath the floor of the building, and terminating in the open air on either side. The covers of these tunnels were perforated with holes of about an inch in diameter and 12 inches apart, disposed through the floor so as to occasion a wide and

uniform distribution of fresh air throughout the whole building, on the same principle as that adopted for the admission of fresh air through the floor of the House of Commons. In winter time the fresh air admitted was warmed on the same principle, by pipes of hot water, to prevent the inconvenience of the admission of currents of cold air. The whole building was, from its size and arrangements, kept at a steady temperature, and appeared to be less susceptible than other buildings to atmospheric influence. The shaftings for the conveyance of the power were carried through the tunnels, and straps or belts from the shafts rise through the cover of the tunnels, and, by their motion, aid in promoting the circulation of the air. The possibility of fatal accidents from the persons being caught by the straps and wound round the shafts, was by this arrangement entirely prevented. The tunnelling under this arrangement constituted a boxing off of the whole of the shafting. Another advantage from the removal of the driving-straps from above was that the view over the whole room was entirely unimpeded.

Another structural improvement was in the use of a thin flooring of wood over the solid base of stone floors. The floor so arranged affords the solidity of the stone floor, and inconsiderable danger of combustion, whilst the advantages of the wooden surface to the workers were a diminution of swelled ancles and rheumatic affections of the joints, often produced by working bare-footed on stone floors.

There were no entries made from which I could obtain for comparison an account of the amount of sickness experienced by the workpeople in this new room, but it was obvious that the improvement must be considerable, and it was attested by the rosy and fresh countenances of the females and of the workpeople generally. A considerable improvement was manifest in the health of those workpeople who had previously worked in the older and less spacious rooms.

The improvement of the place of work was combined with improvements in the residences of the workpeople. About one-half of the hands employed in the mills resided in houses near the works, which were well drained; the ashes and other refuse was cleared away from the village every morning between six and seven o'clock, and carried to a general dungstead at a distance, for use on their gardens. On inquiry as to the state of the health of the workpeople living in these improved tenements, it appeared that they had not one-half the amount of sickness experienced by the rest of the workpeople who lived in the common ill-regulated houses about a mile distance. The whole population had fewer diseases than any other class of the population in the surrounding country; they presented fewer cases of rheumatism, and there were scarcely any lung diseases amongst them: their general health was decidedly better than that of the adjacent agricultural population.

The chief advantages of the improved arrangements of the places of work were, on the side of the workpeople, improved health; security for females and for the young against the dangers of fatal accidents, and less fatigue in the execution of the same amount of work. But beyond these the arrangement of the work in one room had moral advantages of high value. The bad manners and immoralities complained of as attendant on assemblages of workpeople of both sexes in manufactories, generally occur, as may be expected, in small rooms and places where few are employed, and that are secluded from superior inspection and from common observation. But whilst employed in this one large room, the young are under the inspection of the old; the children are in many instances under the inspection of parents, and all under the observation of the whole body of workers, and under the inspection of the employer. It was observed that the moral condition of the females in this room stood comparatively high. It would scarcely be practicable to discriminate the moral effects arising from one cause where several are in operation; but it was stated by ministers that there were fewer cases of illegitimacy and less vice observable among the population engaged in this manufactory than amongst the surrounding population of the labouring class. The comparative circumstances of that population were such as, when examined, would establish the conclusion that it must be so.

The first expense of such a building is higher than a manufactory of the old construction; but it appeared to possess counter-vailing economical advantages to the capitalist, the chief of which are,—this same facility of constant general supervision, the increase of the certainty of superintendence, and the reduction of the numbers of subordinate managers, the increase of efficiency of management, and a diminution of its expense. Another advantage arose to the manufacturer in the superior action of the machinery. In mills of the ordinary construction the machinery is frequently deranged in its structure, and put out of order by the yielding and unsteadiness of the upper floors. The machinery erected on the ground floor has a firm basis, and a steady and more durable action. The other advantages presented were, the saving of labour in transporting the material from one process to another, a labour which is often considerable in expense, as well as in inconvenience, in lifting it into the higher rooms; the reduction of the hazard of fire, and consequently in expense of insurance against it, as fire could scarcely take place, and certainly could not rapidly extend in a manufactory so constructed. These several sources of economy Mr. Smith calculated would more than compensate for any increase of ground-rent, even if the building were erected on land costing 1000*l.* per acre. Mr. Marshall, of Leeds, on consulting with Mr. Smith, has constructed a new manufactory (on the

principle of that in Deanston) in Leeds, where ground is valuable. This manufactory covers more than two acres of ground, and is reported to be eminently successful. Power looms are frequently arranged in buildings of one story, and I was informed of another manufactory in Lancashire, nearly as large as that of Messrs. Marshalls, built on one floor, but it did not appear to possess the arrangements for ventilation and warming, and the other arrangements necessary to the complete action of a place of work on the plan of that at Deanston.

Mr. Smith considered that the principle of arrangement for superior inspection and management of a manufactory was equally applicable to agricultural operations, and that it would be proportionately advantageous in the superior ventilation and equality of temperature for cattle, in the avoidance of labour and wet and cold, in removing from one small separate building to another, and in the transport of produce, to have all under one large roof, where the whole direction and inspection of the homestead farming operations are brought under one view.

Of the manufacturing advantages of such arrangements I have had strong testimony: of the advantages of such arrangements to the health and moral and social condition of the workpeople, I could not entertain the slightest doubt. I feel confident that the more closely it is examined, the more clearly will the coincidence which I have endeavoured to trace, of pecuniary interest with the health and the highest physical and moral improvement of the lowest of the labouring classes, be established. Mr. Smith avowed his confidence in this coincidence from his own experience and observation as a practical principle. The improved health of the workpeople was attended by more energy and better labour; by less of lassitude and waste from relaxed attention; by fewer interruptions from sickness, and fewer spare hands to ensure the completion of work. Under the persuasion of the coincidence of interest, he had endeavoured to direct the structural alterations to the promotion of the health of the workpeople; he believed they might be advantageously carried further, and had it in contemplation to make arrangements to promote habitual bathing amongst them. He had, moreover, retained the services of a medical gentleman to inspect the workpeople from time to time, and give them timely advice, and, as far as possible, to prevent disease. He agreed, and had long considered, that it was in the power of the masters of Britain "entirely to extirpate excessive and habitual drinking. We never," said he, "permit a man to come near the works who is in the slightest degree intoxicated, and never permit any one to be absent one day drinking. You never can be well or cheaply served by a dissipated workman. The most skilful workman, the man whose services I can the least spare, must, if he takes to drinking, leave the place. It may

occasion immediate inconvenience and even immediate loss, but if the rule be steadily applied, it will contribute to the comfort and the profit of the master as well as of the man."

The importance of such beneficent influence on the health, the moral condition and respectability of the labouring classes, is so little understood, that I beg leave to submit further illustrations of the value of—

The Employers' Influence on the Sobriety and Health of Workpeople by modes of Payment which do not lead to Temptations to Intemperance.

The power possessed by extensive employers of labour to influence beneficially their labourers, is not however confined to those who stand in the combined relation of employer and landlord. In the course of another inquiry as to the means of preventing crime, it appeared that a large class of crimes and disorders arose from drunkenness. On carrying the inquiry back into the causes out of which the drunkenness arose, they appeared to be extensively removable, and that by the employers of labour. The important influences that belong to this position will be displayed in the effects of alterations in detail in one point of management, namely, the mode of paying wages. The direct sanitary effects may be best displayed in the following evidence of *Mr. Lomax*, an army pensioner, which has been corroborated by superior officers:—

"When I was in the Life Guards, 14 or 16 years ago, there was a good deal of ill health prevalent amongst them. Before that time the men received part of their pay weekly, namely, 7s. at the end of the week. With this 7s. they had to provide the food which they required, except their dinner. The ration for dinner was three-quarters of a pound of uncooked meat, a pound of potatoes or vegetables, and a pound of bread. It was found, however, that many of the men spent the whole of the 7s. in a single day in drink or dissipation. During the remainder of the week the men would be on what was called the *crib-bite*, that is, living only on their dinner rations. I knew many of the men who drooped under this system, partly from the excess of drinking or dissipation, and partly from the privation of the necessities of life and the work they had to undergo. This, again, led them to much temptation. If anything was lost it was amongst this class of men that we looked for it. The crime-book would speak as to the further bad consequences of these habits.

"The plan was then tried of paying the men 1s. each day. Over and above that the men were provided with coffee. It was universally felt that this change was highly beneficial to their health, and it stopped the dissipation, and the consequences of the dissipation."

The incapacity to apportion their means for temperate con-
[1.] s

sumption (which is not however confined to the working classes) is extensively shown in the mismanagement of the means for procuring food. It is a subject of complaint which frequently appears in the reports, that the ignorance of domestic economy leads to ill health, by the purchase of unsuitable and, and at the same time, expensive food. We have been frequently besought to obtain and promulgate, for popular information, instructions in frugal cookery, and the management of supplies. It is observed by *Mr. Brebner*, the governor of the Glasgow bridewell, where the cost of maintaining the prisoners in health and increased strength is on average only 2½*d.* per diem, that

"The regularity of diet in the prisons here is of vast importance, both as to the quantity and the time of serving it up. If the same persons were to get the same amount of food for a whole week, or for a less time, at their own discretion, they would suffer from surfeit at one time, and from long fasting at another. Irregularity of diet is one of the most fruitful sources of disease that occur in civilized life."

In further illustration of the beneficial influence which employers may often exercise to assail such vices by regulations in detail, I cite the following instances from a communication I have received from *Mr. Edwin Hill*, the inspector of stamping machinery for the Government:—

"During a period of nine years (from 1818 to 1827) I was engaged in the superintendence of one of the largest works in the town of Birmingham, consisting of two distinct mills, one employed in rolling copper for the use of braziers and shipwrights, and the other in rolling silver, brass, and other metals. In each mill there was a set of skilled workmen, who undertook the work at fixed prices, and who themselves employed numerous assistants at weekly wages.

"Owing to difficulties in the way of making up the accounts at short intervals, it was the custom for the master to advance weekly to each workman in the silver mill a fixed sum of money (besides advancing a sum to pay the assistants with). The accounts were made up annually, and the balances due to the several workmen then paid. The payments, both weekly and annually, were almost always made not to the men but to their wives. The earnings of the men were considerable, varying from 80*l.* to 180*l.* a-year. The men were, almost without exception, highly respectable in their stations, their families were well provided for, their homes cleanly and not without pretensions to some degree of elegance, and their children sent to school at the sole expense of the parents. Some of them had made considerable accumulations of money, and even become proprietors of houses and land. The workmen employed in the copper mill, on the contrary, had been accustomed to receive the full amount of their earnings at the end of each week, and, after paying their assistants, to divide the surplus. These men were much addicted to drinking and feasting at the alehouse; and, although their earnings were nearly as great as those of the other men, their families were in wretched-

ness, and their wives obliged to eke out a slender pittance by washing and other laborious occupations. There were also several men employed as millwrights and engineers, at regular and good weekly wages. These men were, almost without exception, steady and respectable, and their families well provided for. About the year 1822 the inconvenience and annoyance, and loss, which arose from the unsteady habits of the second set of men, led me to inquire into the causes of their inferiority to the others, and I was soon led to attribute much of the evil to the great irregularity in the amount of their weekly incomes, which varied from about 10*s.* to 4*l.* 4*s.* per man.

"The effects were as follows:—The men were reckless, trusting to their luck to get 'good work,' *i. e.*, that which bears a high price in proportion to the required labour. They were enabled to deceive their wives as to the amount of money obtained. They learned the minimum with which their wives could contrive to keep house, and, having learned it, they endeavoured to retain all above this minimum for their own gratifications. Their wives, under the pressure of necessity, picked their pockets, opened their drawers, &c., in search of money believed to be hidden. Their wives actually desired that their husbands might get drunk on Saturday night, because they could the more easily abstract the money from their persons.

"Upon the termination of my inquiries I induced the men, with little difficulty, to receive their money in the way the other men did, *viz.*, by regular weekly advances, rather under their average earnings, with a quarterly or annual settlement; and I took care that the wives should know exactly what their husbands would receive; and from the day the plan commenced, a most decided and permanent improvement took place in the habits of the men, and in the appearance and general comforts of their families. One of the men commenced saving money immediately. This man's savings, as I have lately been informed, now in January, 1841, considerably exceed 1000*l.*; whereas, during the five or six years which he passed in the same occupation before the change of plan, he made no saving whatever."

Another valuable example of the easy means possessed by employers of preventing the formation of habits destructive to the health and prosperity of workmen, is set forth in the evidence of *Mr. Peter Fairbairn*, the extensive mechanist of Leeds.

Mr. Fairbairn examined.

"You are a mechanist at Leeds?—I am.

"What number of men do you employ?—Between 500 and 600.

"Have you ever observed any effects produced in the habits of the labouring classes in respect to drinking intoxicating liquors by the mode in which they are paid their wages?—Yes, there are two modes in which wages are most frequently paid, and both these modes are prejudicial in their effects. The first effect is connected with the place of payment. Some masters pay at the public-house, others pay the men at the counting-house after the work is completed. The effects produced by

payment at the public-house are to oblige the workman to drink. He is kept waiting in the public-house during a long time, varying from two to three hours, sometimes as much as five hours. The workman cannot remain in the house without drinking, even if he were alone, as he must make some return to the landlord for the use of the room. But the payment of a number of men occupies time in proportion to their numbers. We find that to pay our own men in the most rapid way requires from two to three hours. The assembled workmen, of course, stimulate each other to drink. Out of 100 men, all of whom will, probably, have taken their quart of porter or ale, above a third will go home in a state of drunkenness—of drunkenness to the extent of imbecility. The evil is not confined to the men; the destructive habit is propagated in their families. At each public-house a proportion of the poor women, their wives, attend. According to my own observation, full 10 per cent. of the men have their wives and children in attendance at the public-house. The poor women have no other mode of getting money to market with on the Saturday night than attending at the public-house to get it from their husbands. They may have children whom they cannot leave at home, and these they bring with them. The wives are thus led to drink, and they and their children are made partakers at the scenes of drunkenness and riot; for there are not unfrequently quarrels leading to fights between the workmen when intoxicated.

"Do not these late hours, consequent on such a mode of payment, also lead them to the inferior markets, and prejudice the domestic economy of the labourer's household?—Yes, they have the less money to purchase with, and must purchase an inferior quality of provisions. I have observed that they do so. They are driven to the inferior shopkeepers who keep open late; and they are also driven to make purchases on the Sunday morning. It is only the inferior shopkeepers or hucksters who will sell on the Sunday morning, and they sell an inferior commodity at a higher price. Then the Sunday morning is thus occupied; the husband, and sometimes the wife, is kept in a state of feverish excitement by the previous night's debauch: they are kept in a state of filth and disorder; even the face is unwashed; no clean clothes are put on, and there is no church attendance, and no decency. Indeed, by the pressure of the wants created by habits of drinking, there is soon no means to purchase clean or respectable clothes, and lastly, no desire to purchase them. The man, instead of cleaning himself, and appearing at church on the Sunday, or walking out with his family on the Sunday afternoon in a respectable condition, remains at home in filth, and in a filthy hovel. Of course there are no contributions to sick-clubs under such circumstances; and if the workman has been previously led to join a club, he is almost always in arrear with his contributions, and is ultimately expelled. On the occurrence of the disease to which such habits predispose him, there is nothing but the most abject and complete destitution and pauperism. I have served the office of churchwarden and overseer in Leeds three years, and, having attended the weekly Board where applications for relief are made, I have seen the end of this train of circumstances in the applications for relief from parties who had previously been in the receipt of good and sufficient wages (and even high wages) to have prevented such applications. I have observed the whole

train of these consequences in several large works in London as well as in this town.

"Are there not consequences too to the employers themselves, as well as to the rate-payers, in connexion with the habits of labourers thus created?—One consequence of these habits is the loss of time at the commencement of the week, and the comparative inefficiency of the workmen when they do come. The workman who has been absent from drunkenness comes to his work pale, emaciated, shattered, and unnerved. From my own observation in my own branch of manufacture, I should say that the quantity and quality of the work executed during the first day or so would be about one-fifth less than that obtainable from a steady and attentive workman.

"This deterioration, then, in a large number of workmen engaged in a manufactory, may be noted as an important item of saving for the consideration of a provident manufacturer?—Undoubtedly. Another consideration for the master is the fact that such workmen, the most idle and dissolute, are the most discontented, and are always the foremost in mischievous strikes and combinations.

"You have spoken of the consequences of making the public-house a place of payment; what are the comparative effects of making the payments at the counting-house?—A considerable reduction of the evil. Payments to large numbers at the counting-house is still, however, attended with much inconvenience and evil. The payment of the number of men employed at our works (between five and six hundred) would, as I have stated, occupy between two and three hours. This mode of payment, therefore, implies the keeping of a large crowd together during that time. During that time appointments are made of meetings at public-houses to drink that would not otherwise take place. It also generates discontent: it gives an opportunity, by assembling a crowd, for any discontented or mischievous person to operate upon a large mass of people. Formerly the business of my manufactory, and the welfare of the working people, were very seriously interrupted by strikes; and I could not help observing the facilities which such meetings gave to such mischievous persons.

"What is the mode of payment which you have adopted?—I send the pay clerk into each room in the manufactory immediately after the dinner hour, and he pays each man individually. Each man is scarcely taken from his work half a minute. I may observe, that some masters, to save themselves trouble, so as to avoid the inconvenience of getting small change, will pay several men together. This again leads to the public-house, where the men commonly go to get change to divide the money amongst them; I therefore avoid paying any two men together, and subjecting them to temptation as well as inconvenience and cost. Each of my workmen being paid in the shop, without the loss of a minute, may go at once directly home at the time when the work closes. He is thus afforded an opportunity of going at once to the market at an early hour, and is subjected to no factitious inducements to drink, disorder, improvidence, and destitution.

"What is the average time thus saved to each of the 550 workmen in your manufactory, as compared with the more ordinary mode of payment?—About an hour and a half, or half the three hours of payment.

"Then, by this means, instead of bringing 550 persons to the one person, the pay clerk, sending that one person to the 550 persons, you save to them upwards of 800 hours of inconvenient waiting?—Just so.

"How many persons, on the average, have you absent from work on the Monday morning?—Not more than from four to five, until eight o'clock in the morning; and on the return to work after dinner from one to two persons.

"That is from one to two persons the entire day during the Monday, out of between five and six hundred workpeople?—Yes.

"What number would have been absent on the Monday under the ordinary circumstances?—About 30 per cent., or one-third, would be drunk on the Saturday night; and full 10 per cent. would not make their appearance until the Tuesday morning. Instead of only two absent during the whole of the day, I should have more than 50; or, in other words, more than 50 families not only distressed by what is spent in drink, but losing one-sixth of their earnings, and I as a master losing from their deteriorated work on the days when they do return. I beg leave further to observe, that mere education in reading or writing, precepts or preaching, are of very little avail against the temptations to drink held out to working men; and I am confident that if employers could be made to see and attend to their mutual interests, by a little care in the removal of temptations, they might generally prevent the most fruitful cause of disorder, destitution, and pauperism, at least as extensively as I have prevented those consequences to my workmen and their families by the adoption of the means I have described."

In the course of a report on the sanitary condition of the labouring classes in the town of Lancaster, received from *Dr. De Vitrie*, the effects of an amended practice are thus noticed:—

"An excellent example is shown in this neighbourhood by the wealthy manufacturers and tradesmen almost universally paying their men's weekly wages on a Friday evening (or, what is still better, early on Saturday morning) instead of Saturday, thus putting it into the power of all to spend their money to the best advantage at Saturday's market, and obviating the great temptation which formerly existed of spending their earnings, or a large proportion of them, in the public-houses and beer-shops after the termination of the week's labour. It may be said that such parties are as likely to dissipate on a Friday as on a Saturday evening. The propensity I grant may be the same, but there is no intervening day of rest to shake off the effects of intemperance and indulgence, and as workmen must resume their labours on the Saturday, hence it is that such a regulation exercises not only a salutary but a provident influence.

The *Rev. Whitwell Elwin* observes—

"Where gain was dependant on the growth of better habits, I have seen, with the agency of judicious individuals, encouraging cases of complete reformation: an intelligent engineer in this neighbourhood was about paying off a man whose profligacy had left him without a decent covering, and who often depended for his victuals upon the generosity of

his fellow-workmen. He begged hard to be retained, and his master at last consented, on condition that he himself should lay out his wages for the next three months. He provided the man with good lodgings, allowed him tea, sugar, and bread and butter night and morning; meat, and either bread or potatoes, with a pint of beer every day for his dinner; and before the appointed time was up, bought him with the surplus a new suit of clothes. The man was so sensible of the advantage of the change, that he became one of the most thrifty and valuable workmen; and his master has often since tried the same experiment with the same success. If we could collect all the philanthropy and much of the self-interest of the country into wise and profitable channels, we might, I believe in a twelvemonth, do much towards regenerating the most wretched classes."

One employer of numerous labourers in a well-conducted establishment stated to me that after long experience he found it necessary, for the protection of the workpeople, as well as the efficiency of the establishment, invariably to discharge every workman who was guilty of drunkenness; and that the first visible sign to excite suspicion of the habits of intoxication was the absence of personal cleanliness, then a pallid countenance, on which inquiry was made. Another employer of numerous labourers, *Mr. William Fairbairn*, of Manchester (the brother of *Mr. Fairbairn*, of Leeds), who has had between one and two thousand workpeople engaged in the manufactories of machinery in the firm of which he is the first partner, stated, in answer to the question,—

"What are their habits in respect to sobriety?—I may mention that I strictly prohibit on my works the use of beer or fermented liquors of any sort, or of tobacco. I enforce the prohibition of fermented liquors so strongly that, if I found any man transgressing the rule in that respect, I would instantly discharge him without allowing him time to put on his coat.

"Have you any peculiar grounds for adopting this course?—No; but as respects myself I wish to have an orderly set of workmen; and in the next place I am decidedly of opinion that it is better for the men themselves and for their families.

"Are you aware that it is a prevalent opinion that strong drink is necessary as a stimulus for the performance of labour?—I am aware that that was a prevalent opinion amongst employers of labour, but it is now very generally abandoned; there are nevertheless some foundries in which there is drinking throughout the works all day long. It is observable, however, of the men employed as workmen, that they do not work so well; their perceptions are clouded, and they are stupified and heavy. I have provided water for the use of the men in every department of the works. In summer time the men engaged in the strongest work, such as the strikers to the heavy forges, drink water very copiously. In general the men who drink water are really more active, and do more work, and are more healthy than the workmen who drink fermented liquors. I observed on a late journey to Constantinople that the boatmen or rowers to the caiques, who are perhaps the first rowers in the

world, drink nothing but water; and they drink that profusely during the hot months of the summer. The boatmen and water-carriers of Constantinople are decidedly in my opinion the finest men in Europe as regards their physical development, and they are all water drinkers: they may take a little sherbet, but in other respects are what we should call in this country, tee-totallers.

"What is their diet?—Chiefly bread; now and then a cucumber, with cherries, figs, dates, mulberries, or other fruits which are abundant there; now and then a little fish.

"Do they ever use animal food?—Occasionally I believe the flesh of goats, but I never saw them eating any other than the diet I have described.

"Did they appear to eat more than the European workmen?—About the same; if anything, more moderate as respects the quantity."

I have collected much other information to the same effect. In the Appendix, I have given, as a contrast, an instance of arrangements which tend to promote the habit of drinking, and the consequences, a part of which are met and dealt with by the administrators of relief from the poor's rates, in the shape of claims to relief on the ground of sickness and consequent destitution; and another part of which fall as disorders and crimes to be encountered by the police.

I submit here one important instance of the exercise of a wise influence on the habits of the agricultural population:—

In a form of lease used in leasing the Highland property of the Duke of Sutherland, which appears to be ably devised to ensure progressive improvement, care for the moral welfare of the population is not omitted. The poverty, disorder, and crime engendered by the destructive habit of whisky drinking, fostered by the practice of illicit distillation, is encountered by a clause which provides that if the tenant "distill whiskey, or shall permit any one to distill whiskey, or shall sell or permit the same to be sold on the said premises hereby set, or on any part of the said estate, or shall contravene any of the regulations the said proprietors have established for the management thereof, and that if he or they shall be convicted of any of the said offences before the sheriff, depute, or substitute, or any two of his Majesty's justices of the peace for the said county; then, in either of these events or cases, this agreement shall be, *ipso facto*, void and null, and the said tenant shall be forthwith removable by summary process before the judge ordinary, whereupon decree shall be pronounced upon relevant proof of the fact."

The lease ensures the improvement of the tenements, and provides that "no earthen houses or huts are permitted to be built on any consideration." The one provision is the proper complement of the other; and Mr. Hill gives his testimony to the excellent effect which the support given to the law, and the

prevention of whisky drinking, produce on the habits of the population.

Employers' Influence on the Health of Workpeople by the Promotion of Personal Cleanliness.

I proceed to another instance of the power of the employers to protect the health, as well as the morals of their workpeople, by influencing their habits of personal cleanliness.

But I shall first submit a few instances of the extent and prevalence of personal uncleanness amongst whole classes of workpeople.

Mr. John Kennedy, in the course of the examinations of some colliers in Lancashire, asked one of them—

"How often do the drawers (those employed in drawing coals) wash their bodies?—None of the drawers ever wash their bodies. I never wash my body; I let my shirt rub the dirt off; my shirt will show that. I wash my neck and ears, and face, of course.

"Do you think it usual for the young women (engaged in the colliery) to do the same as you do?—I do not think it is usual for the lasses to wash their bodies; my sisters never wash themselves, and seeing is believing; they wash their faces, necks, and ears.

"When a collier is in full dress, he has white stockings, and very tall shirt necks, very stiffly starched, and ruffles?—That is very sure, sir; but they never wash their bodies underneath; I know that; and their legs and bodies are as black as your hat."

One labourer remembered that a particular event took place at Easter, "because it was then he washed his feet." The effects of these habits are seen at the workhouse on almost every one of the paupers admitted. When it is necessary to wash them on their admission, they usually manifest an extreme repugnance to the process. Their common feeling was expressed by one of them when he declared that he considered it "equal to robbing him of a great coat which he had had for some years." The filthy condition in which they are found on admission into the hospitals is frequently sufficient to account for the state of disease in which they appear, and the act of cleansing them is itself the most efficient cure. The out-door service of the union medical officers amidst such a population is often most painful and disgusting: *e.g.*—

Mr. J. F. Handley, medical officer of the Chipping Norton union, states in his report—

"When the small-pox was prevalent in this district, I attended a man, woman, and five children, all lying ill with the confluent species of that disorder, in one bed-room, and having only two beds amongst them. The walls of the cottage were black, the sheets were black, and the patients themselves were blacker still; two of the children were absolutely sticking together. It was indeed a gloomy scene. I have relished many

a biscuit and glass of wine in Mr. Grainger's dissecting-room when ten dead bodies were lying on the tables under dissection, but was entirely deprived of appetite during my attendance upon these cases. The smell on entering the apartments was exceedingly nauseous, and the room would not admit of free ventilation."

Such conditions of the population, of habitual personal and domestic filth, are not necessary to any occupation; they are not the necessary consequence of poverty, and are the type of neglect and indolence; this is proved by the example of men engaged in the same occupations with improved habits. The medical officers of the Merthyr Tydvill union, in their returns, represent the health of the colliery population to be very good, a circumstance which is ascribed to their habitual cleanliness.

Mr. J. L. Roberts, surgeon, states—

"The colliers in our district invariably, on their return from the pits in the evening to their houses, strip to the skin, and wash themselves perfectly clean in a tub of lukewarm water, and wipe with towels until the cuticle is dry. The miners are not so particular. I firmly believe that the health of other workmen employed generally about the iron-works is not so permanently good as the colliers; they, generally speaking, not undergoing complete ablution as the colliers do. Generally, the colliers are quite free from any cutaneous disease, or at least not so much affected with psora, &c., as the generality of their fellow-workmen. Cutaneous diseases are frequent amongst children from want of cleanliness."

In the places of work where there is the greatest need for cleanliness, in every place where there is a steam-engine, hot water, which is commonly allowed to run waste, is already provided in abundance for warm or tepid baths, not only for the workpeople, but, where there are numerous engines, for the whole population. If the same hot water arose at the same heat and abundance from any natural spring, baths would be erected, and medical treatises would be written in commendation of its medicinal virtues, which, the better opinion appears now to be, are ascribable, in the majority of instances, simply to the hot water, and to its application in cases where it had not before been used. Hot or tepid baths are deemed of more importance for the labouring classes in winter than are cold baths in summer, and they might be generally provided for the working classes in the manufacturing districts at a cost utterly inconsiderable.

A few years since a gentleman, observing some ditches in London, in the neighbourhood of the City-road, smoking with clean hot water running away from the steam-engine of a manufactory, directed attention to the waste, and suggested the expediency of using that water to supply public warm or tepid baths. After a time the suggestion was acted upon as a private speculation, and large swimming-baths were constructed; one,

with superior accommodation and decorations at 1s.; another, with less costly fittings-up, at 6d. the bath. These were luxurious tepid baths, kept at a heat of 84°. The example appears to have been followed in Westminster by the establishment of similar tepid swimming-baths, where only 3d. is charged to persons of the working-class. As many as 2000 and 3000 of this class have resorted to these baths in one day, and the bath at the lowest charge is stated to make the best return for the capital invested in it. Similar establishments are, we believe, in progress in other parts of the metropolis. *Mr. Samuel Greg*, at Bollington, has formed baths for the use of his workpeople, which he thus describes:—

"The bathing-room is a small building, close behind the mill, about 25 feet by 15. The baths, to the number of seven, are ranged along the walls, and a screen about six feet high, with benches on each side of it, is fixed down the middle of the room. The cold water is supplied from a cistern above the engine-house, and the hot water from a large tub which receives the waste steam from the dressing-room, and is kept constantly at boiling temperature. A pipe from each of these cisterns opens into every bath, so that they are ready for instant use. The men and women bathe on alternate days; and a bath-keeper for each attends for an hour and a half in the evening. This person has the entire care of the room, and is answerable for everything that goes on in it. When any one wishes to bathe he comes to the counting-house for a ticket, for which he pays a penny, and without which he cannot be admitted to the bathing-room. Some families, however, subscribe a shilling a-month, which entitles them to five baths weekly; and these hold a general subscriber's ticket, which always gives him admittance to the room. I think the number of baths taken weekly varies from about 25 to 70 or 80. We pay the bath-keepers 2s. 6d. and 2s. a-week, and I believe this amount has been more than covered by the receipts. The first cost of erecting the baths was about 80l.

The feet of the female as well of the male workers in such establishments, who work in the mills without their stockings, are seen coated with the filth of years, for which there is no other necessity than their own habitual indolence. These habits mere admonitions will not always remove from the adult population. A manufacturer in London, who did not care to take this trouble with them, began with his apprentices, and took them several times to the new tepid baths, as a holiday and a reward, until they had experienced the comfort, and had formed a habit, when he left them to themselves, and they paid out of their own pocket-money the small amount necessary to defray the expenses. Where the use of hot or warm water has been given to the work-people, and baths have been provided, they have frequently been defective in some important point. *Dr. Barham* states that the miners, on their ascent to the ground, have commonly only the means of using the hot water from a rivulet on a bleak and exposed situation; in other places, as where bath-rooms are provided,

the accommodation for dressing was defective, in being cold and chilling instead of being made warm, as it might be at a very trifling expense. It was only at Camborne, the mine already noticed, that anything deserving the name of proper baths had been erected. *Dr. Barham* observes, in a communication on this subject—

"The security from chill during the ablution, and the abundance and comfortable temperature of the water in the cases mentioned as examples of superior accommodation, have no doubt contributed to a comparative immunity from pulmonary disease and catarrhal affections, which the managers and the men themselves have noticed since this provision has been made.

"The cost of the practice is so inconsiderable as to be unworthy notice. Timber and iron for such purposes are always to be found in our mines among what is no longer fit for its original destination. No charge of any kind is made for the use of these accommodations.

"The owners of steam-engines might always supply hot water, in proportion to the amount of condensation effected, without any extra cost to themselves, when they do not employ the heated water to some purpose of their own. In some mines the warm water is husbanded for the cleansing of the ores, but this is an exceptional case. Generally speaking, there is a great quantity of iron cylinder and other materials convertible to the conveyance of the water, which may be supplied at a very low rate, as unserviceable for engine-work.

"I have thought that steam-engines are not the only sources for the supply of hot water to the public at an insignificant cost. All works in which great heat is employed, or almost all such works, might supply heat to large bodies of water after the fuel has been most economically applied to their own purposes. Smelting-houses, foundries, glass-houses, for instances, have always heat enough to spare for the warming of extensive thermæ. By the use of brick pipes, surrounded by wood or some bad conductor, such heat, first applied to the bottom of large reservoirs, might be distributed over extensive districts, and buildings might be warmed and workshops supplied with warm water for the thorough purification of the labourers, at a very trifling expense. My own opinion is, that a system of *washing* is more desirable as a national habit than a system of *bathing*. The latter is doubtless excellent for bodies of men who are under effectual control, and for the young."

Employers' Influence on the Health of Workpeople by the Ventilation of Places of Work, and the Prevention of Noxious Fumes, Dust, &c.

In some of the "dusty trades," the excessive amount of premature mortality is so great as to justify interference, defensively, as against the charges which, from the neglect of sanitary measures, fall neither upon the employer nor upon the consumer, who directly benefit by the produce of the industry, but upon rate-payers, to whom the manufactory itself may be a nuisance. In the instance of such trades, personal cleanli-

ness is so far a requisite as to justify an additional rate of insurance where it is neglected. Yet the regulations preventive of disease are by no means onerous, either in their cost or their interference with the processes. Some of the noxious manufactures, and especially those in lead, have been the subject of examination by the "Conseil de Salubrité of Paris," and the preventive rules they prescribed were as follows:—1. The establishment of a good ventilation in the workshops or manufactories. 2. Exacting from the workpeople close attention to personal cleanliness; obliging them to wash the hands and face before dining, and before leaving the workshop; forbidding them taking any of their meals in the workshop, and, by reasoning and information, directing their attention to the dangers by which they are surrounded. 3. Employing the practicable means for conducting the processes so as to raise the least dust possible. 4. Boarding off the mills and sieves, so as to prevent the escape of the smaller particles. 5. Requiring of the workmen engaged in the processes where there is lead-dust or any other injurious dust suspended in the air, that they cover the nose and mouth with a handkerchief slightly moistened. 6. Subjecting the workshop to occasional medical inspection, in order to prevent the intensity of any maladies that break out, and with that view to examine the workmen from time to time to detect any symptoms of disease, and to oblige the workman attacked to abstain from work until the medical officer declares that he may resume it without inconvenience. 7. Obliging workmen to wear frocks or blouses, which they should leave in the workshop when they quit work; and these blouses should from time to time be washed. 8. Sending away from the workshop every workman who gives himself up to debauchery or drunkenness. 9. Endeavouring to get the workmen, (*i. e.* workers in lead) to form the habit of drinking every day, on leaving the workshop, a little hydro-sulphuretted water, to neutralize the effects of the lead that may have been taken into the stomach.

All these regulations, with the medical attendance for the purpose of prevention, would be greatly below any charge of insurance to the individual workman for procuring medical attendance and remedies when thrown out of work by sickness.

In some of the trades, scattered instances of attention to cleanliness and measures of prevention are found: for example, amongst the journeymen painters. In answer to a question put by *Dr. Mitchell* to *Mr. Tomlins*, the clerk to the Painters' Company, whether painters suffer so much as formerly from the disease to which they are peculiarly liable, the clerk says,—

"Not so much as formerly. This has been ascertained by a charity administered at Painters' Hall to men labouring under sickness. The men are now more attentive to cleanliness. Formerly they would throw their clothes on their beds and go to their meals without washing their

hands. A large proportion of the journeymen now carry a working-dress to their job with them, and when they quit work at night they exchange and put on clean clothes which are free from paint. This applies more particularly to the westward of Temple Bar. One master-painter of my acquaintance, Mr. Thornton, of Doctors' Commons, keeps a pail of solution of potash in his shop, in which the men wash their hands, and which takes off every particle of paint; and it is worthy of remark that only two men in 20 years have been afflicted with paralysis in his employ. This is taken from 15 men constantly employed on an average for seven years."

It will suggest itself that another generation of workpeople, and their premature sickness and death, ought not to pass away leaving this practice confined to the painters to the west of Temple Bar, and leaving the beneficent expedient exclusively to the shop of Mr. Thornton, of Doctors' Commons.

In connexion with the instance of the painters, I may give the following from Mr. James Gibbins, a manufacturer of colours at the Mile-end road. He was asked—"Are there any peculiar hazards to health connected with the trade?" He replies,—

"Arsenic and lead are employed in making colours, and hence injury does arise, but such need not necessarily be the case; but although water, towels, and soap are placed at the use of the men, there is no persuading them to be habitually cleanly. After making or grinding colours, they will not take the trouble to wash their hands, but merely wipe them a little on their clothes, and then will take their bread and meat, by which particles are carried off into the stomach. It is impossible to persuade the men to be more cautious. The lead is much more in use than the arsenic, and on the whole does more harm, as the men are more on their guard against the arsenic."

The prevalent impression upon such instances would be expressed by such phrases as, "If men will be so careless, there is no help for it; they must take the consequences;" but they only take a part of the consequences—the sickness; the main part of the consequences are taken by others, especially if they are married, when the premature widowhood and orphanage are sustained by the wife and children, who are maintained at the expense of the relations or of the public. This recklessness is however the result of neglected education, of which the workmen are the victims, and for measures of beneficence such workmen are to be regarded and treated as children, for they are children in intellect. An instance of a beneficial measure of compulsory prevention taken by some employers of labour is mentioned by Mr. John Kennedy, jun., in a report on the condition of some classes of workpeople examined under the Commission of Inquiry into the Employment of Children, not included in the regulations of the Factory Act. Some workmen employed in "Kyanizing" wood became frequently ill from the fumes created in the process, to which fumes they unnecessarily exposed themselves. Admonitions to care were found

to be of no avail, and the employer at length gave notice that he would discharge entirely from employment the first that was attacked with the peculiar illness produced by the fumes of the metal. This threat was acted upon, and no other cases of illness afterwards occurred.

In France, where the diseases by which the working classes are afflicted have been investigated by those medical men who have given their attention to the improvement of the public health, the general conclusion has been established of the futility of leaving protective measures to the voluntary adoption of the individual workman. In the course of one of his reports, M. Duchâtelet observes, that—

"It appears certain that the greatest part of the attacks of asphyxia which have taken place in the sewers have arisen from the traps being closed. I know that it is now enjoined on the workmen to open these traps while they are at their labour. But do they do this? Assuredly not in by far the majority of cases. Is it not a maxim to render independent of the will and superintendence of men, and above all of workmen, everything which appertains in a notable manner to their preservation? In the grave and learned discussions which have occupied this year (1824) the Academy of Sciences, on the means of preventing the dangers arising from steam-engines, not only all the members of the Commission, but the entire Academy, have been unanimous on the necessity of rendering independent of the workmen the direction of the level of the water in the boilers, and the tension of the steam. It evidently appeared that on this depended the solution of the problem. The same thing is now discussing on the subject of lighting by hydrogen gas."

I will further adduce parallel examples, drawn from experience, in respect to the condition of the working population in France. It is contained in a treatise by M. Emile Beres, on the Means of Ameliorating the Condition of Artisans:—

"The condition of the labouring population would be less precarious, and their lives less exposed to accidents of every kind, if more foresight presided over their operations. Employers are often guilty of unpardonable carelessness with respect to the employed. To see their conduct, one would suppose that the men in their service were inert machines, or else that they possessed the power of the Creator to reconstruct broken limbs, to restore exhausted constitutions, or to give life to the dead. Here a deleterious atmosphere, which ought to be carefully purified, is imprudently allowed to be inhaled; there a poison, which ought to be handled with precaution, is allowed to penetrate every pore. Further on, as if man had wings, he is embarked on the most fragile scaffolds. Again, he is inconsiderately left to prosecute dangerous researches which demand the utmost care. It is not thus that we should act when the health and life of human beings are in question. To such neglects how many families owe their poverty and misery!

"There have long existed mills to grind plaster, which have not, nevertheless, prevented the unhappy workmen from being employed, in

many places, and even in Paris, to pound it with a wooden club, their bodies bent towards the ground, and thus inhaling it in such quantities that the greatest number of them die young, of pulmonary phthisis.

"The use of the moveable inodorous tanks has been long understood in Paris. It consists in substituting for the tanks of masonry vessels of oak, painted, and strongly hooped with iron, so as to allow neither matter nor smell to escape. They are placed beneath the pipe which conveys the contents of the water-closet, and, when full, are carried away, and replaced by others at every hour of the day, without difficulty, without danger to the workmen, without inconvenience to the inhabitants. Well; not only are the ancient tanks not suppressed in favour of this system, so convenient in all respects, but every day new ones are constructed, though not a year passes in which we do not hear of unhappy men perishing in the process of emptying, suffocated by the gas which escapes in their disgusting operation. Now, if we add to the danger of emptying the receptacles, the nuisance to all the inhabitants of the house, which is infected in its remotest corners, as well as the neighbouring houses of the same street, or even quarter; when we take into account the damage to furniture (especially to things that are gilt) by the escape of sulphureous gas, we shall have the measure of the negligence, I will not say of the proprietors only who maintain such an abuse without any justifiable motive, but even of the authority that suffers it. It is no rare thing, after the emptying has taken place, to see asphyxia produced in the masons who are employed in repairing the walls, or in remedying the infiltrations from the privies.

"There is another method, more recent, and, in all probability, more advantageous, of preventing the inconveniences of the ancient receptacles; it is the system of disinfecting fecal matter, discovered by a learned chemist, M. Payen. Independently of its hygienic advantages, and the procuring a powerful manure, this method comprises a question of human dignity of great value. It is necessary, as far as possible, to take from our fellow men the mischievous necessity to perform labours which invest them with ideas of disgust.

"Since the use of gas for lighting, several accidents have happened. Are they not due, for the most part, to the want of precaution in the directors of these manufactories, who have not sufficiently prescribed to their men the necessary measures of prevention? Should they not all know that one must not run with a candle into a place where there is a stream of gas, as one would go in search of a stream of water? It is this imprudence which commonly occasions the explosions that happen, and which are ordinarily followed by the gravest accidents. Do we not find the same carelessness in our mines, followed by the same catastrophes? It is in vain, therefore, that Sir Humphry Davy applied his genius to the discovery of the safety-lamp! Do not the most ordinary rules of health condemn the ignorance with which the preparations of mercury, of sulphur, of lead, of oxide of copper, &c., are made? In the places, lastly, in which wool, hides, and other animal substances are prepared, why not purify the atmosphere in which the workmen exist with such difficulty? This omission is the more strange, that some centimes of solution of chlorine every day would be sufficient to purify the largest shops.

"I insist strongly on the contents of this chapter, because it reveals one of the deepest plague-spots of the labouring population of towns, and because the remedies that it indicates are neither difficult to discover, nor expensive in their application. With more solicitude and surveillance on the part of the government, with more philanthropy on the part of masters, with more precaution as well as self-love on the part of the workmen, would our hospitals receive so many unhappy beings, and death reap so many victims?"

Employers' Means of influencing the Condition of the Working Population by regard to respectability in Dress.

Besides those means which affect immediately the health and moral condition of the workpeople, others are within the control of their employers which affect the personal appearance, and, through the self-respect, the morality of the population. *Mr. William Fairbairn*, in the course of an examination, adverted to the means of promoting respectability in personal appearance:—

"It is always," said he, "an indication of looseness of character, and a low standard of moral conduct, to see a mechanic in dirt or in his working-clothes on Sunday. Thirty years' experience leads me to draw a very unfavourable conclusion as to the future usefulness to me, and of success to himself, of any workman whom I see in dirt on a Sunday.

"As a general rule, does the advance of his house keep pace with the advance in condition of the person?—As a general rule, it does. Better personal condition leads to better associates, and commonly to better marriage, on which the improved condition of the house is entirely dependent. It is due to the labouring classes of females in Lancashire and the surrounding districts to state that, in the important household virtue of cleanliness, they are superior to the females of the same class in Scotland.

"Are you aware of what is the condition of their houses. Have you visited them?—I have not made it a practice to visit them, I chiefly judge of their circumstances from seeing them with their wives and families, and their well-dressed and respectable condition on the Sundays. These externals are always indications of greater comforts and respectability at home. I am a strong advocate for dress, and encourage the working men to dress well; if I see any workman in a dirty condition and in his working-clothes in the streets on the Sunday, I do not, perhaps, speak to him then, but on the Monday I tell him that I have been looking over the books, that I find that he has had as good wages as other men who dress respectably, and that I do not like to have any one about me who will not dress well on the Sunday. This intimation has generally had the desired effect."

Employers' or Owners' Influence in the Improvement of Habitations and sanitary Arrangements for the Protection of the Labouring Classes in the Rural Districts.

I would now submit for consideration the evidence collected to show the appropriate means for the improvement of the condition

of the labouring classes in the rural districts; and first, as to the effects produced by improved residences:—

These are stated in a letter from the chairman of the Bedford union to Mr. Weale, the Assistant-Commissioner of the district, who had been requested by the Board to inquire as to the moral as well as the sanitary effects of improved tenements:—

“*Turvey Abbey, January 4, 1841.*”

“My dear Sir,—I beg to acknowledge the receipt of your letter of the 1st of January. You there state that, in a Return made to you by the Board of Guardians of the Bedford Union on the sanitary condition of the labouring population, it is reported that, in a few instances, cottages of an improved description have been erected by the employers of labour, the advantages of which have had a salutary influence on the moral habits of the inmates: and you request to know in what particular acts the improvement in moral conduct is displayed.

“I have much pleasure in saying that some cases of the kind have come under my own observation, and I consider that the improvement has arisen a good deal from the parties feeling that they are somewhat raised in the scale of society. The man sees his wife and family more comfortable than formerly; he has a better cottage and garden: he is stimulated to industry, and as he rises in respectability of station, he becomes aware that he has a character to lose. Thus an important point is gained. Having acquired certain advantages, he is anxious to retain and improve them; he strives more to preserve his independence, and becomes a member of benefit, medical, and clothing societies; and frequently, besides this, lays up a certain sum, quarterly or half-yearly, in the savings' bank. Almost always attendant upon these advantages, we find the man sending his children to be regularly instructed in a Sunday, and, where possible, in a day-school, and himself and family more constant in their attendance at some place of worship on the Lord's-day. I know of more instances than one where, in consequence of encouragement of the kind above mentioned to the father of a poor family, the children were regularly sent to school, and there became so much improved in character and learning that they are now filling situations of high respectability, (one a confidential clerk in a large mercantile house in London,) and are assisting to support their parents in a manner as delightful as it is creditable.

“A man who comes home to a poor, comfortless hovel after his day's labour, and sees all miserable around him, has his spirits more often depressed than excited by it. He feels that, do his best, he shall be miserable still, and is too apt to fly for a temporary refuge to the ale-house or beer-shop. But give him the means of making himself comfortable by his own industry, and I am convinced by experience that, in many cases, he will avail himself of it.

“Believe me, my dear sir, sincerely yours,

“CHARLES LONGUET HIGGINS.

“To Robert Weale, Esq.,

“Assistant Poor Law Commissioner.”

The next exemplification is afforded in a letter from the clerk of the Stafford Union:—

“*Marston, Stafford, January 20, 1841.*”

“Sir,—I beg to acknowledge the receipt of your letter of the 1st instant, as to the Return made by the Board of Guardians on the sanitary condition of the labouring population of this Union, in which it is stated that improved cottages have been erected by landed proprietors for their labourers, and the advantages afforded by such cottages have had a salutary influence on the moral habits of the inmates, and requesting to be informed in what particular acts the improvement in moral conduct is displayed.

“In answer thereto, I will endeavour to illustrate the remark of the Board of Guardians by contrasting the habits, the condition, and prospects of a labourer occupying an improved cottage with the occupier of a cottage of a contrary description. If we follow the agricultural labourer into his miserable dwelling, we shall find it consisting of two rooms only; the day-room, in addition to the family, contains the cooking utensils, the washing apparatus, agricultural implements, and dirty clothes, the windows broken, and stuffed full of rags. In the sleeping apartment, the parents and their children, boys and girls, are indiscriminately mixed, and frequently a lodger sleeping in the same and the only room; generally no window, the openings in the half-thatched roof admit light, and expose the family to every vicissitude of the weather; the liability of the children so situated to contagious maladies frequently plunges the family into the greatest misery. The husband, enjoying but little comfort under his own roof, resorts to the beer-shop, neglects the cultivation of his garden, and impoverishes his family. The children are brought up without any regard to decency of behaviour, to habits of foresight, or self-restraint; they make indifferent servants; the girls become the mothers of bastards, and return home a burden to their parents, or to the parish, and fill the workhouse. The boys spend the Christmas week's holiday and their year's wages in the beer shop, and enter upon their new situation in rags. Soon tired of the restraint imposed upon them under the roof of their master, they leave his service before the termination of the year's engagement, seek employment as day-labourers, not with a view of improving their condition, but with a desire to receive and spend their earnings weekly in the beer-shop; associating with the worst of characters, they become the worst of labourers, resort to poaching, commit petty thefts, and add to the county rates by commitments and prosecutions.

“On the contrary, on entering an improved cottage, consisting on the ground-floor of a room for the family, a washhouse and a pantry, and three sleeping-rooms over, with a neat and well-cultivated garden, in which the leisure hours of the husband being both pleasantly and profitably employed, he has no desire to frequent the beer-shop or spend his evenings from home; the children are trained to labour, to habits and feelings of independence, and taught to connect happiness with industry, and to shrink from idleness and immorality: the girls make good servants, obtain the confidence of their employers, and get promoted to the best situations. The boys, at the termination of the year's engagement, spend the Christmas week's holiday comfortably under the roof of their parents; clothes suitable for the next year's service are

provided, and the residue of wages is deposited in the savings' bank; a system of frugality is engrafted with the first deposit, increasing with every addition to the fund: they are gradually employed in those departments of labour requiring greater skill, and implying more confidence in their integrity and industry, and they attain a position in society of comparative independence.

"I have selected an extreme case to show more fully the advantages derived from improved cottages, and the immoral effects of inferior dwellings, unfortunately too numerous, in this Union.

"I have the honour to be, sir,

"Your obedient servant,

"PETER LOWE.

"To Robert Weale, Esq.,

"Assistant Poor Law Commissioner."

Much regret is frequently expressed at the change of condition which has taken place in the cultivation of the soil by farm labourers instead of farm servants living in the house of the farmer, and subject to the household rules at his board; but whatever real ground there may be to regret the change, it appears to be one generally preferred by both parties, and there appears to be no reason to expect that the ancient system will be revived. In the Appendix I have given an examination of the Rev. Thomas Whately, in reference to some frequent and most important mistakes in respect to cottage economy.

The Board agreeing that the most important leading examples of improvement were to be expected from the benevolence and public spirit of opulent individuals, requested the assistant commissioners in England to note the most conspicuous improvements of labourers' tenements they have met with in their districts, and procure plans with a view to their promulgation. From these I have selected several examples, and have added several that I have met with in the course of my own inquiries.

Some eligible plans of cottage tenements are thus described in *Mr. Twisleton's* report from Norfolk and Suffolk:—

"Although the general aspect of the cottages in Norfolk and Suffolk is pleasing and attractive, I do not think that these counties can be generally cited as abounding with model cottages. Some of the best which I have seen belong to the Earl of Stradbroke, at Henham, near Halesworth in Suffolk; to the Earl of Leicester, at Holkham; and to the Rev. Mr. Benyon, at Culford, about five miles from Bury St. Edmunds. Those of the Earl of Stradbroke are built of brick, roofed with tiles, have four rooms at least, and have all proper conveniences of pantries, cupboards, and out-offices; but, at the same time, as they are principally with only one story, so that the bed-rooms are on the same floor with the parlour and kitchen, such cottages would only be built where land is no object; and they must be considered in the light of luxuries and ornaments. Some of the cottages of the Earl of Leicester, at Holkham, are perhaps the most substantial and comfortable which are to be seen in any part of England; and if all the English peasantry could be lodged in similar ones, it would be the realization of

an Utopia. I have obtained from Mr. Emerson, of Holkham, their builder, drawings of the plans and of the elevation of eight of these cottages, which are built of brick roofed with tiles. I herewith transmit them to you, and it will be observed that there are three sets, two of two cottages each, and one of four cottages. Without entering into details respecting all the eight, I will draw your attention to the double cottages of 1819. Each of these has a front room, 17 feet by 12 feet in width, and 7 feet to 7 feet 6 inches high; a back kitchen of the same height, and 13 feet by 9 feet wide, together with a pantry on the same floor. Above these are three bed-rooms which, in different proportions, cover the space already specified for the ground-floor. At a convenient distance behind, each cottage has attached to it a wash-house, a dirt-bin, a privy, and a pig-cot. I may add that the drainage is excellent, that the water is good, that each cottage has about 20 rods of garden-ground, and that the rent, including gardens, is only three guineas a-year. Hence it is not to be wondered at that Mr. Emerson the builder has been enabled to say, in a letter to me: 'I have never known in them an instance of fever or any epidemic.'

"These cottages are cited as showing what may be done by a landed proprietor who takes as great a pride in his good cottages and farms as others in fine hunters and race-horses, rather than with the least intention of asserting that the example is ever likely to be universally imitated. The cost of building two such cottages is stated by Mr. Emerson to be 220*l.* or 230*l.*, which would be 110*l.* or 115*l.* each. Now, although individuals, here and there, may build cottages without regard to the pecuniary return, it may be assumed as incontrovertible, that no class of cottages will be universally adopted which does not command a reasonable interest for the money expended on them. But considering the cost of repairs, and the frequent trouble and uncertainty of obtaining the rents, it will probably not be denied that 6*l.* a-year would be the *minimum* as a remunerative rent for the outlay of 110*l.* or 115*l.* on a cottage. However, the rent of 6*l.* would scarcely be paid by the agricultural population generally at the present wages: for reckoning the rate of wages at 12*s.* a-week (which would be high for some parts of the country), very few would be willing, out of that sum, to expend 2*s.* 3*d.* a-week, or nearly a fifth of their earnings, for the rent of their cottage.

"I would take, therefore, a more attainable standard of excellence in the cottages of the Rev. E. Benyon, at Culford. This is a remarkable village of about fifty cottages, built within the last twenty years by Mr. Benyon de Beauvoir. The outward appearance of them is pretty, and it was this which first attracted my attention to them. They are built with bricks, faced with blue flint-stones, which harmonize agreeably with the blue slate of the roofs. They have each four rooms—two below and two above—with a pantry and a cupboard. I herewith transmit to you plans and drawings of five of these cottages in two sets—one consisting of double tenements, and one of three tenements. It will be observed that the principal room is 14 feet by 12 feet wide, and 7 feet high, which is inferior in size to those at Holkham, and that they have only two bed-rooms, while those at Holkham have three. At the distance of a few feet from each set of cottages there is a wooden building, roofed with tiles, which comprises a space for fuel, and a

privy for each cottage, and a common oven. The average cost of the double cottages at Culford is stated to have been 170*l.*, or 85*l.* each."

Mr. Loudon, who has paid great attention to the subject of cottage architecture, directs attention to the labourers' cottages, either newly erected, or altered, or improved, on the estate of Gregory Gregory, Esq., at Harlaxton, near Grantham, Lincolnshire.

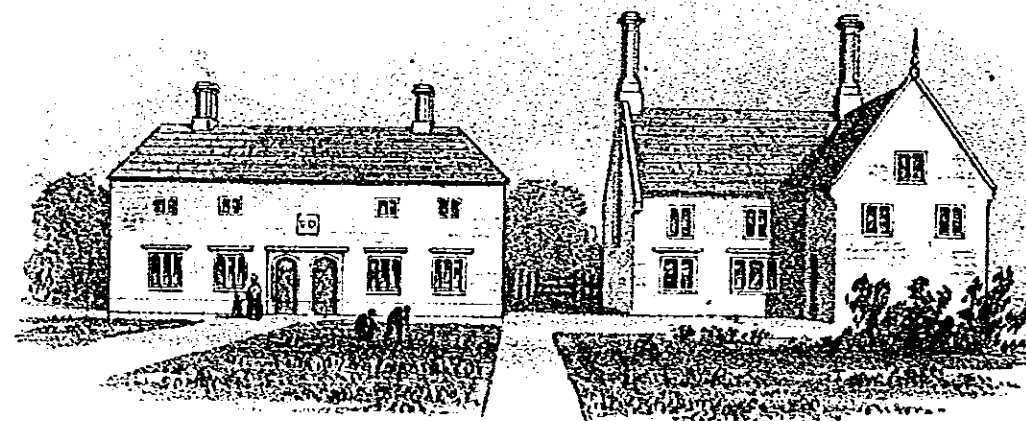
"The village of Harlaxton," says Mr. Loudon, "is, if possible, more interesting to us than even the new mansion and gardens. We have seen many ornamented villages both at home and abroad, but none so original and so much to our taste as this of Mr. Gregory's. Some of old date are too like rows of street houses, such as those of Newnham Courtenay, near Oxford; and Harewood, near Leeds; others are too affectedly varied and picturesque, such as that at Blaize Castle, near Bristol; and some have the houses bedaubed with ornaments that have not sufficient relation to use, as when rosettes and sculptures are stuck on the walls, instead of applying facings to the windows, porches to the doors, and characteristic shafts to the chimney tops. We recollect one near Warsaw, which is a repetition of the Grecian temple, with a portico at each end; and one at Peckra, near Moscow, every opening in which has a pediment over it, with highly enriched barge-boards. In some villages the attempt is made to ornament every house with trellis-work round the doors and windows, which produces great sameness of appearance, and if ornamental, is so at the expense of comfort, the creepers by which the trellis-work is covered darkening the rooms, and encouraging insects; while, in other villages, the cottages are so low and so small, that it is obvious to a passing spectator they cannot contain a single wholesome room. However, though we find fault with villages ornamented in these ways, we are still glad to see them, because any kind of alteration in the dwellings and gardens of country labourers can hardly fail to be an improvement, both with reference to the occupiers and to the country at large."

The external condition of the residence, and the apparent rank it holds, is not without a beneficial moral effect on the occupants, by increasing their self-respect and pride in the decencies of life. Mr. Loudon's enumeration of the requisites for cottage building are given in the Appendix, together with views of the groups of cottages Mr. Gregory has erected; contrasted with these is a group of hinds' cottages, as described by Dr. Gilly, in his appeal in behalf of the border peasantry, from which a conception may be formed of the great difference in morals as well as in health that may be anticipated from the effects of the different order of residences on the population.

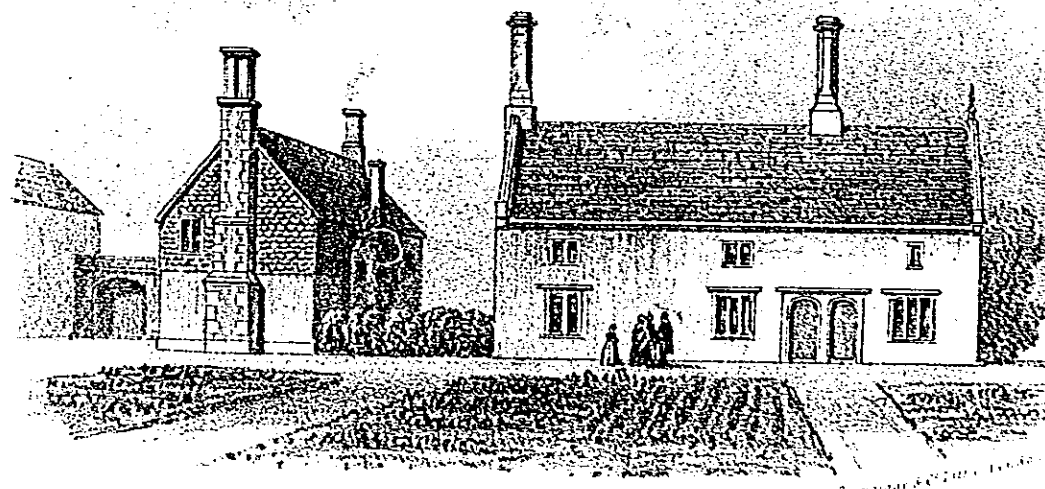
I have been favoured by the Earl of Roseberry with plans of the new labourers' cottages he has built on his property in Scotland, which have been highly approved by the Highland Society, who have inserted the plans for publication in their "Transactions," *vide* Appendix. I have been favoured by James Monteath, Esq., with a model of the cottages erected by his father, Sir



GROUP OF NORTHUMBRIAN COTTAGES COPIED FROM REV. D. GILLY



GROUPS OF DOUBLE COTTAGES AT HARLAXTON





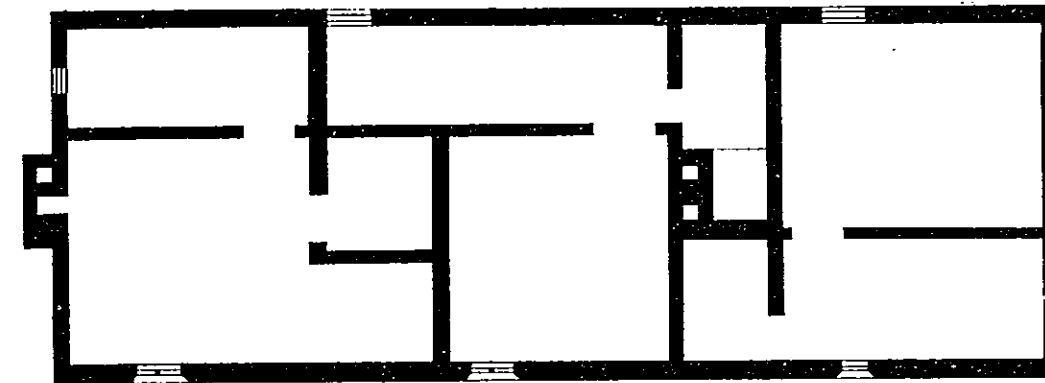
VILLAGE SHOP AND DOUBLE COTTAGE AT HARLAXTON.



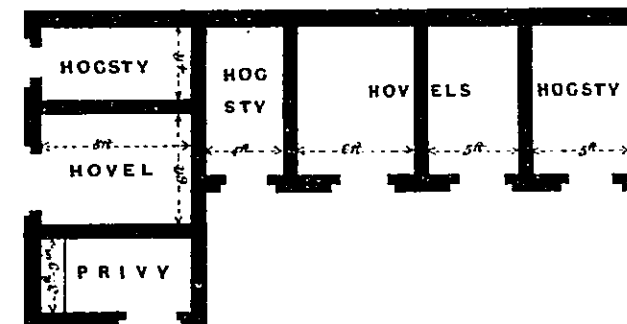
GROUP OF COTTAGES AT HARLAXTON.

**PLANS OF A TREBLE COTTAGE FOR THREE FAMILIES,
SITUATED ON THE ESTATE OF
GREGORY GREGORY ESQ. AT HARLAXTON.**

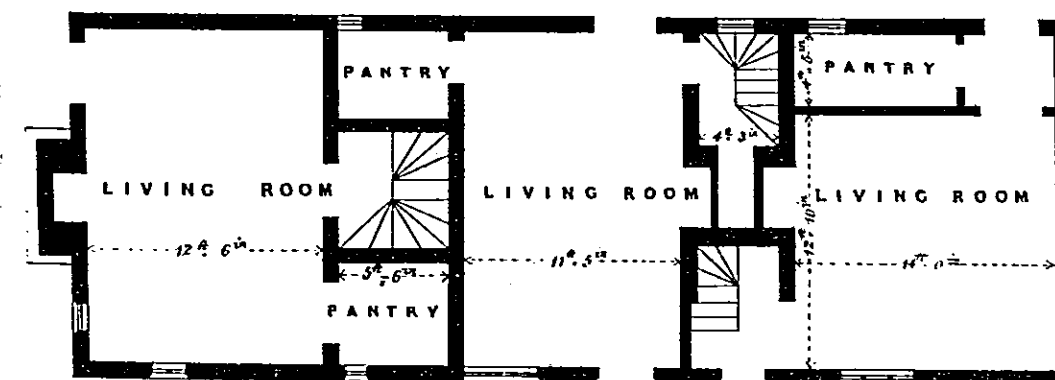
Estimate, including all Expenses & Out Buildings, £ 280.

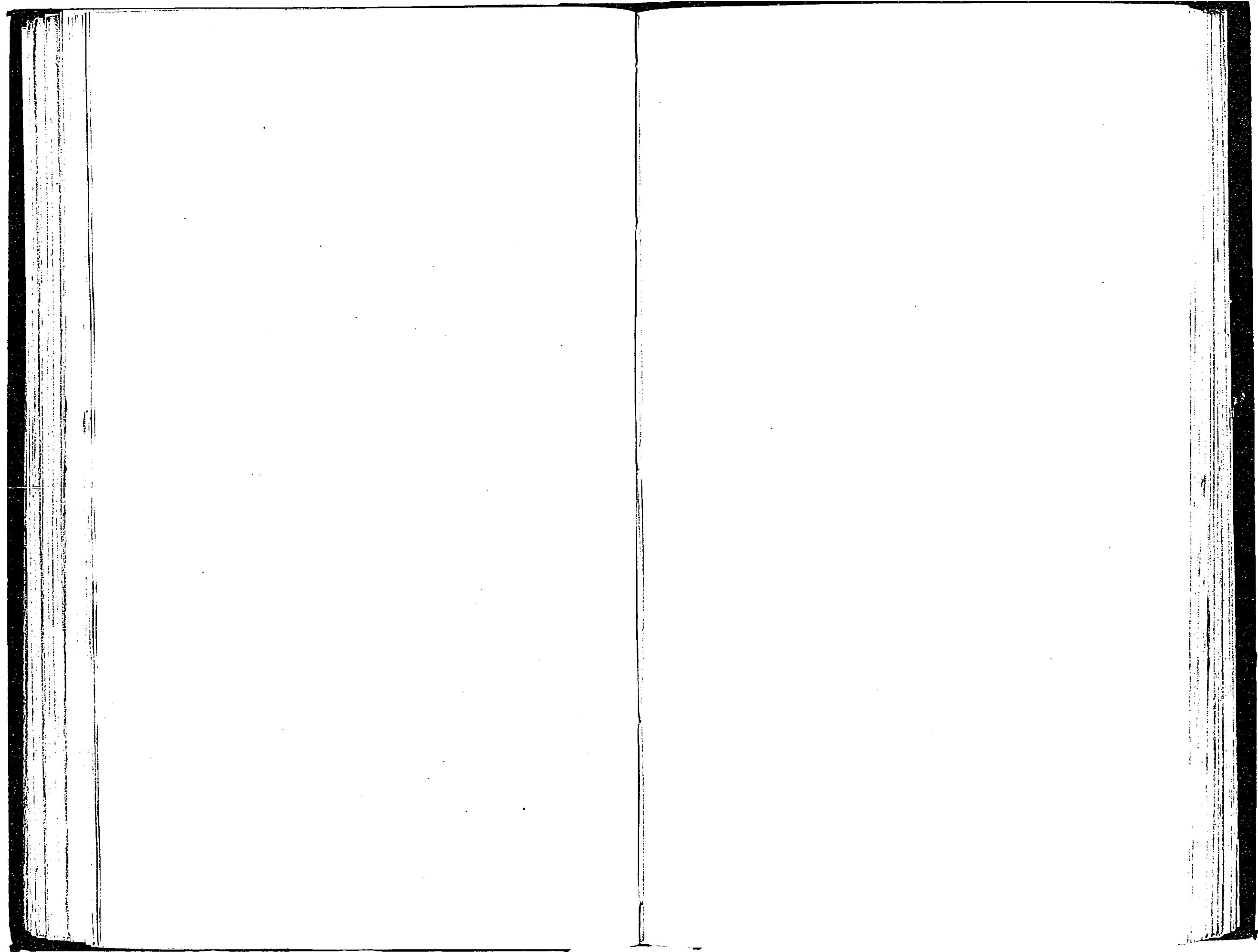


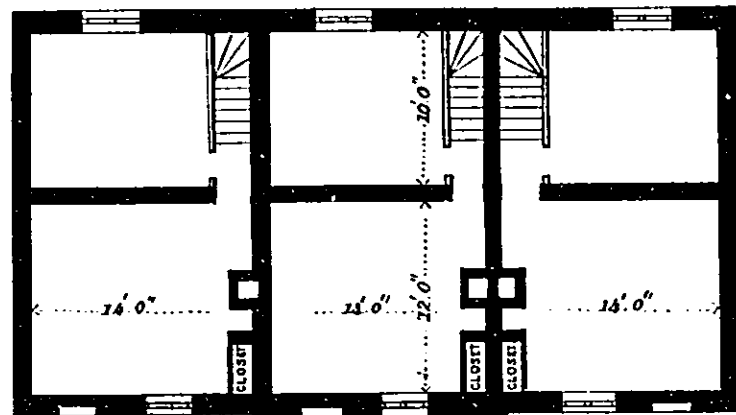
CHAMBER PLAN



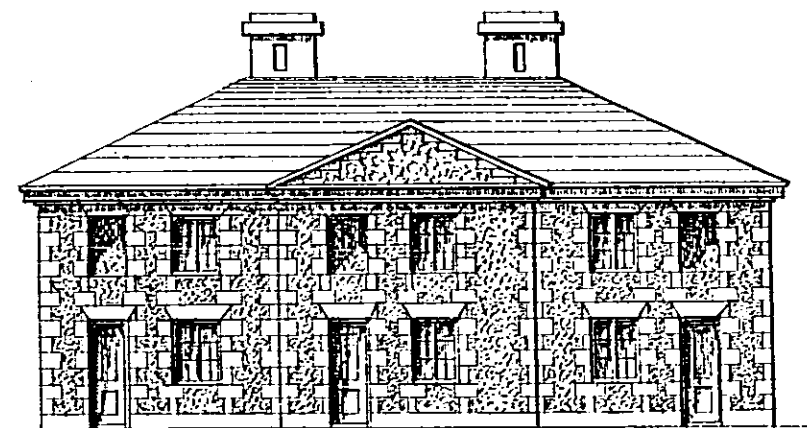
GROUND PLAN



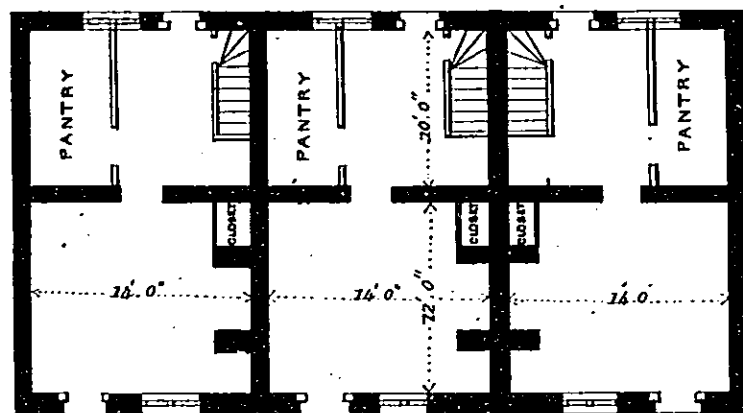




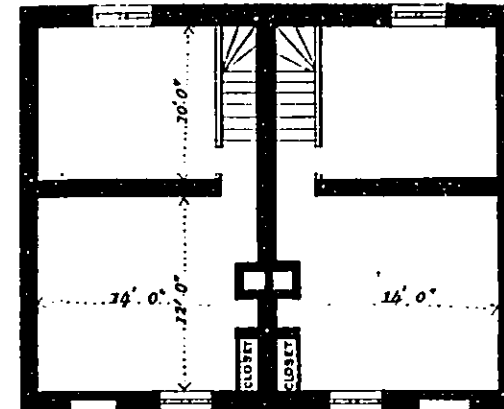
CHAMBER PLAN OF THREE COTTAGES.



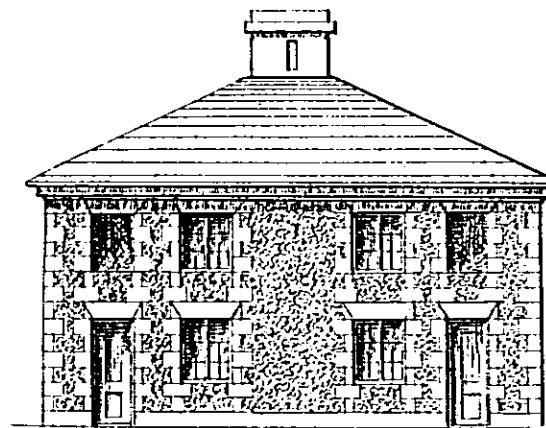
ELEVATION OF THREE COTTAGES



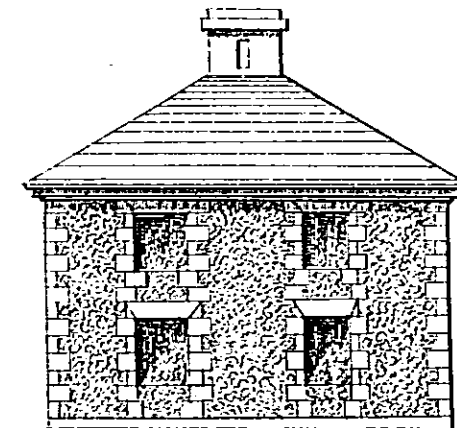
GROUND PLAN OF THREE COTTAGES.



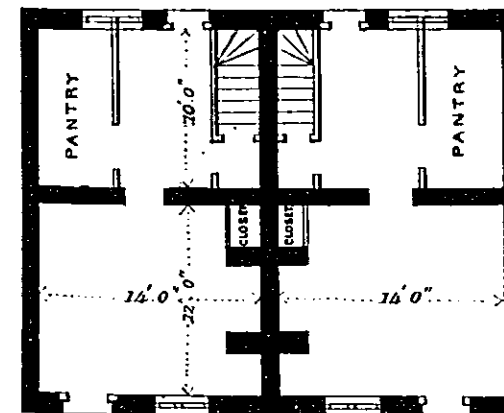
CHAMBER PLAN OF TWO COTTAGES



ELEVATION OF TWO COTTAGES

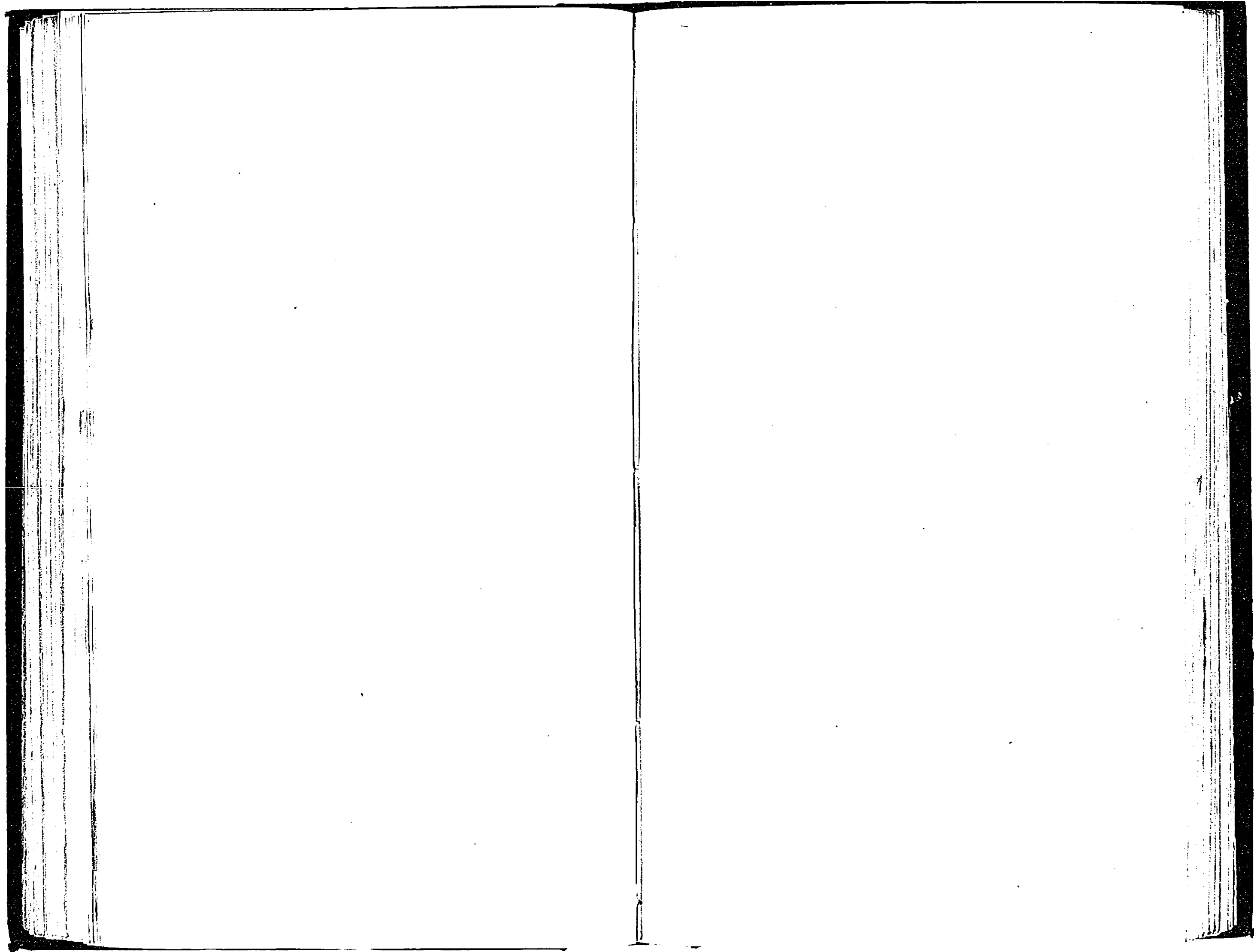


END ELEVATION.



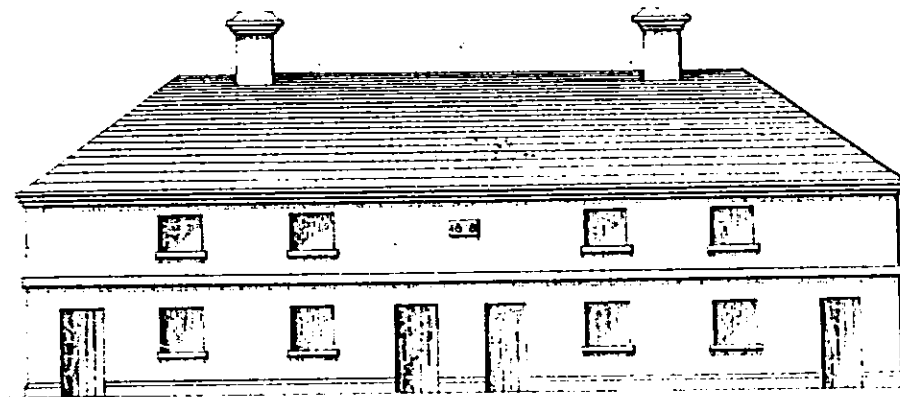
GROUND PLAN OF TWO COTTAGES

The whole Village, consisting of 50 Cottages, has been built in a similar style. Rent from £2.10^s to £3.3^d.

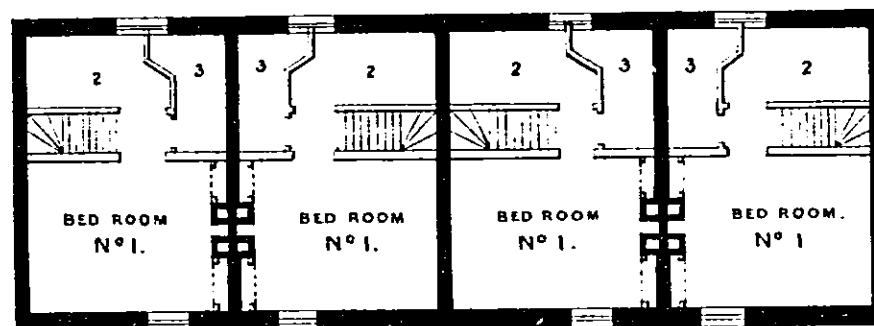


COTTAGES BUILT BY THE EARL OF LEICESTER.
AT HOLKHAM, IN NORFOLK.

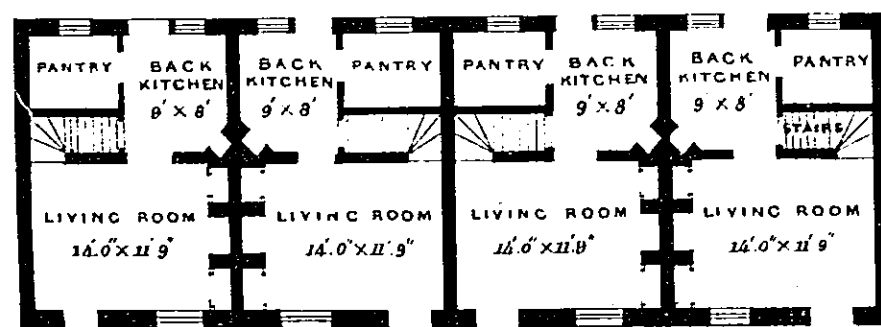
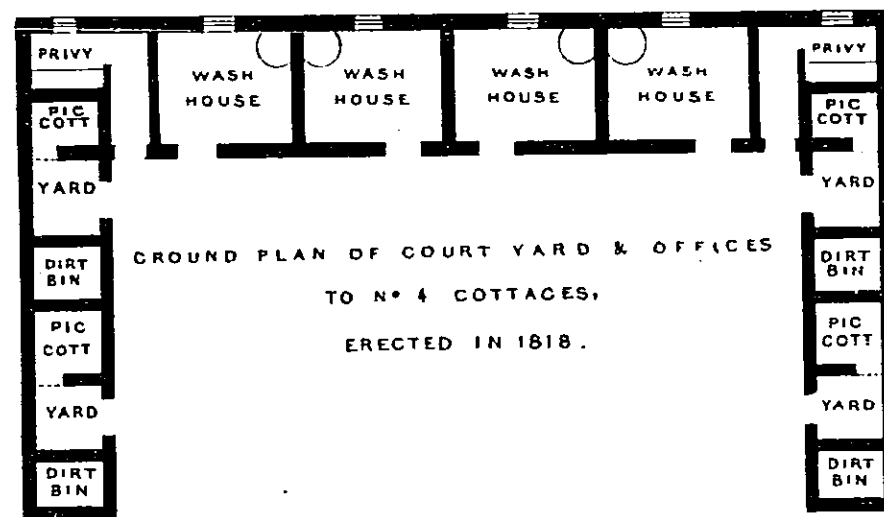
The Rent for them, (including Garden Ground) is 3*l* 3*s*. a year.



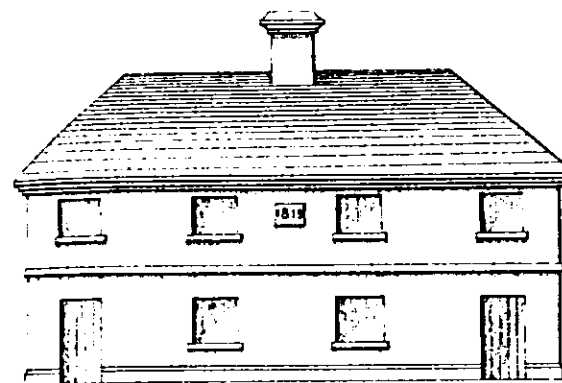
ELEVATION OF N° 4 COTTAGES, ERECTED IN 1818.



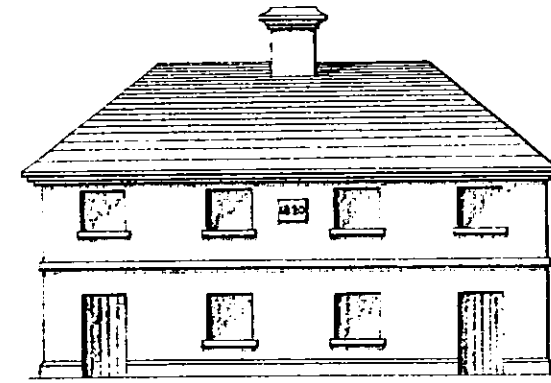
CHAMBER PLAN OF N° 4 COTTAGES, ERECTED IN 1818.



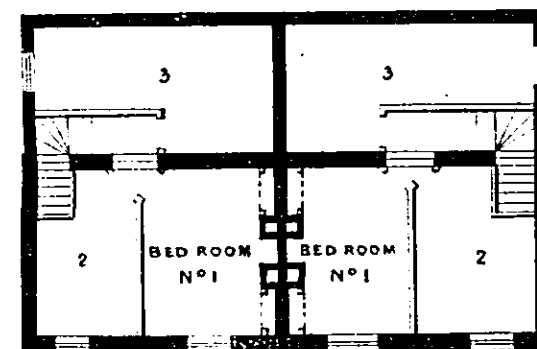
GROUND PLAN N° 4. COTTAGES, ERECTED IN 1818.



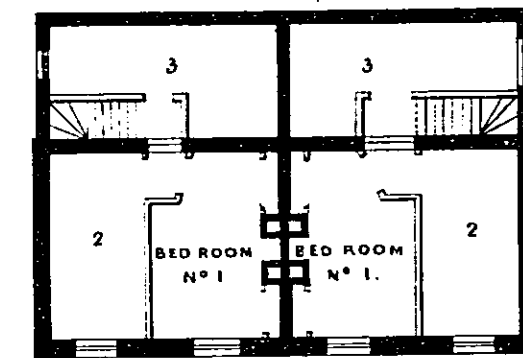
ELEVATION N° 2 COTTAGES, ERECTED, 1819.



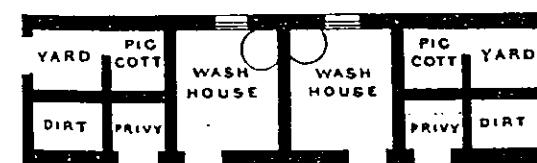
ELEVATION N° 2 COTTAGES, ERECTED 1820.



CHAMBER PLAN N° 2 COTTAGES, 1819.



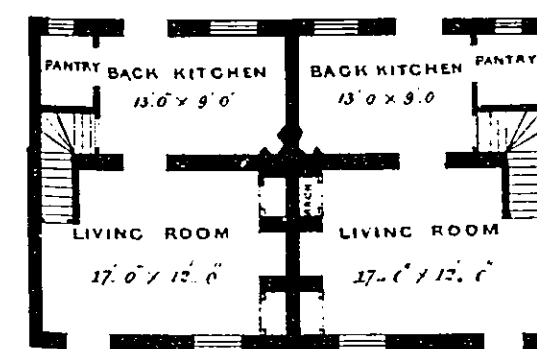
CHAMBER PLAN N° 2 COTTAGES, 1820.



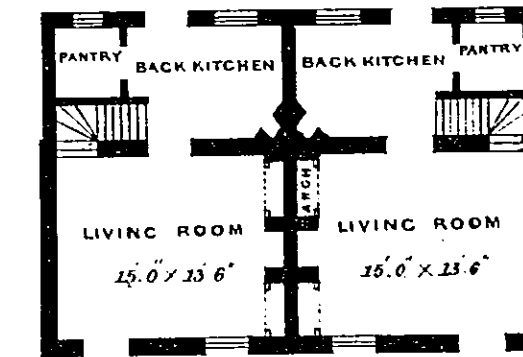
PLAN OF OFFICES N° 2 COTTAGES, 1819.



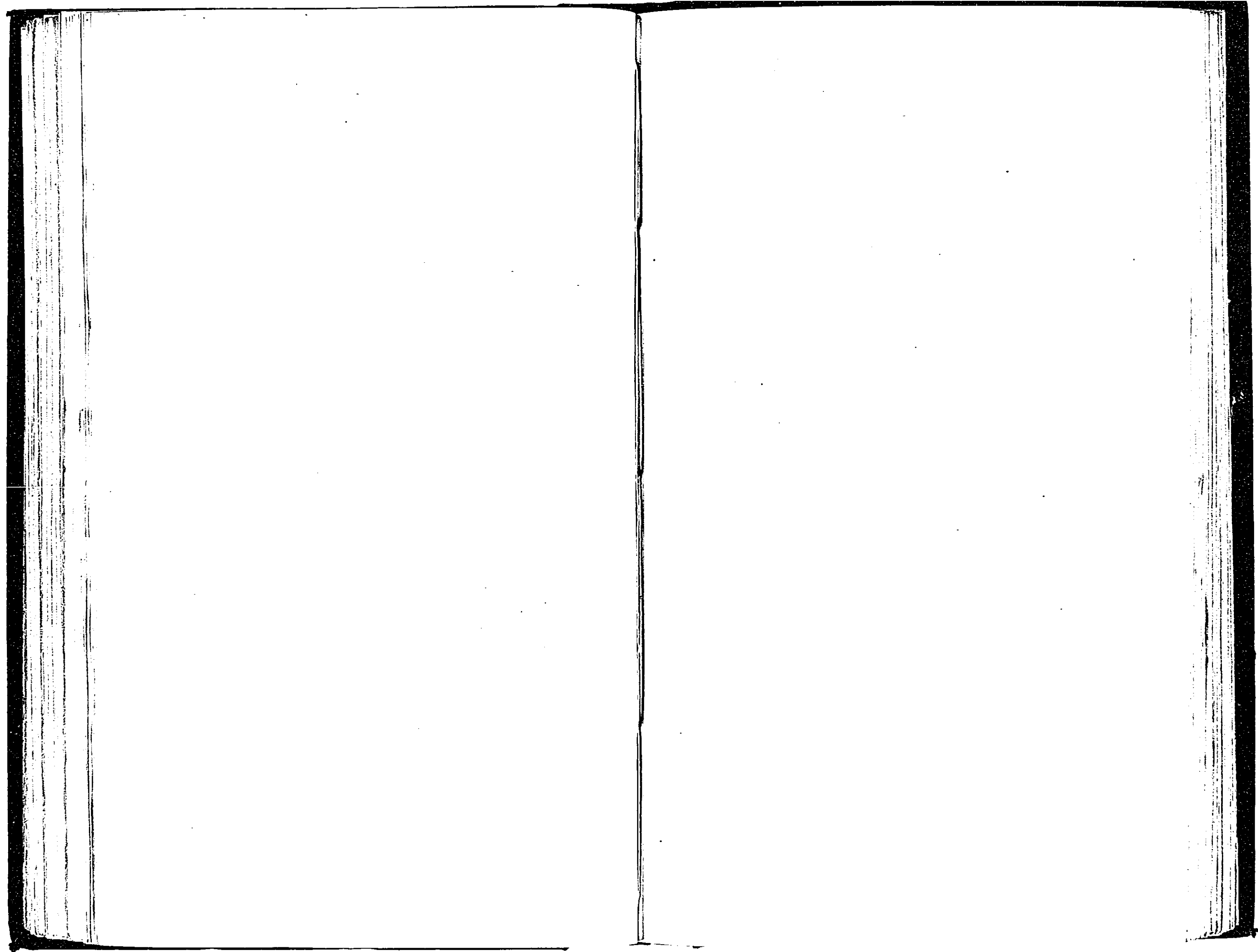
PLAN OF OFFICES N° 2 COTTAGES, 1820.

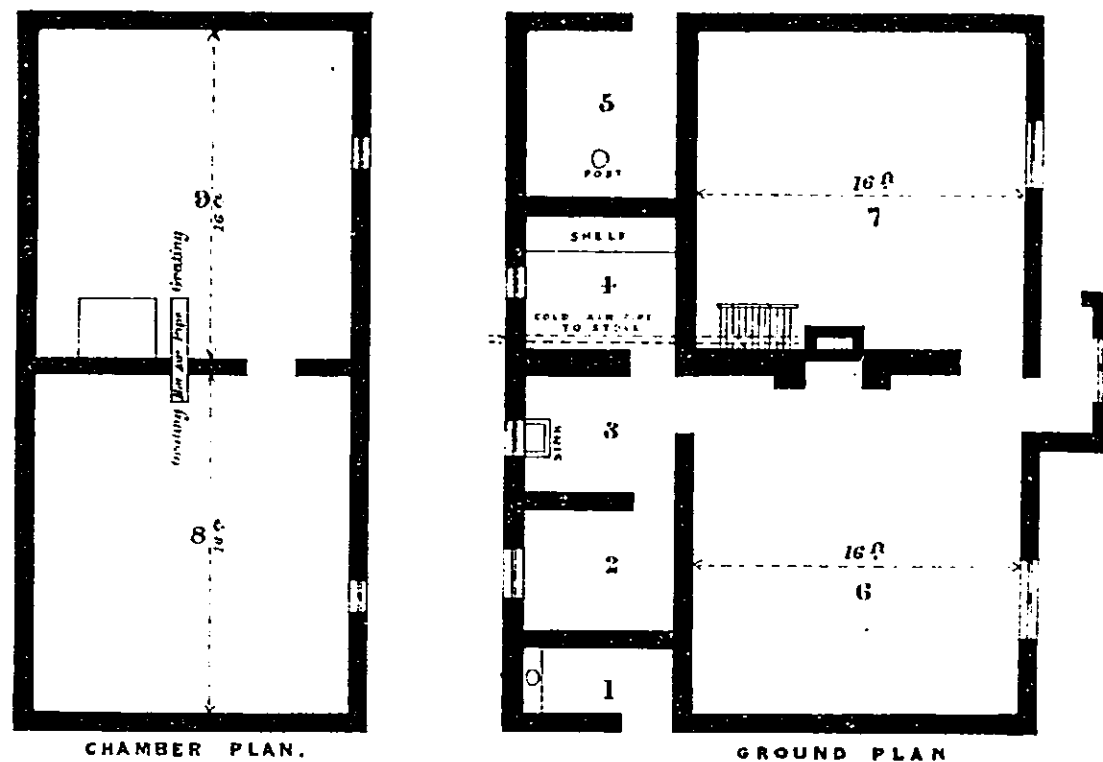


GROUND PLAN N° 2 COTTAGES, 1819.



GROUND PLAN N° 2 COTTAGES, 1820.





- Dimensions of Cottage.*
1. It is 36 feet in front. Its cost about £70.
 2. Each room is 16 feet square & 8 feet in height.
 3. There are two Garrets, used for sleeping rooms.

- Apartment.*
- | | |
|----------------------------|--------------------|
| Nº 1 Is a necessary. | Nº 5 Cowhouse. |
| 2 Coal, Wood & Peat House. | 6 Kitchen. |
| 3 Scullery. | 7 Sitting room. |
| 4 Larder. | 8 & 9 are Garrets. |

Warming Apparatus.

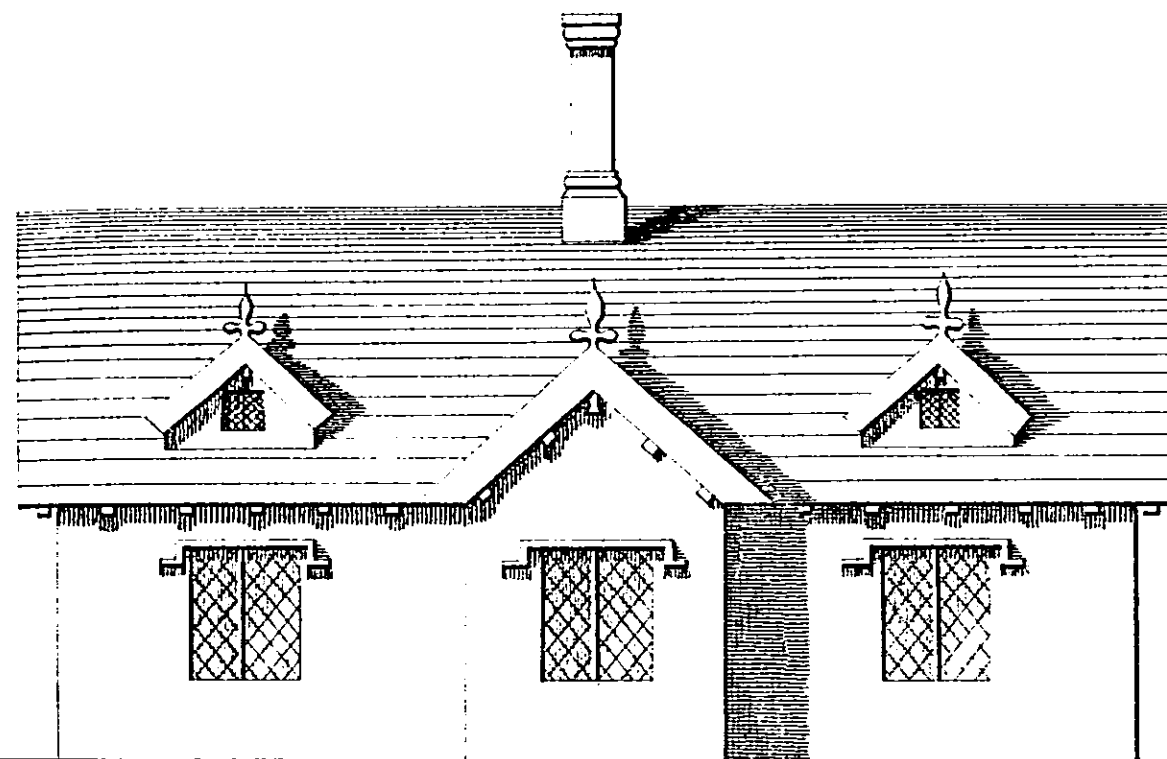
Behind the fire place of Nº 6, Kitchen, is an Iron box, one side of this Iron box, made of strong sheet or plate Iron, forms the back of the fire place of Nº 6. As two plates of Iron are rivetted together, leaving a space of 6 inches between the plates which forms a box, a passage or pipe below the floor as seen in the Plan, opened through the wall. This pipe or passage made of stone or brick, or of iron, admits a current of cold air to pass into the Iron box. This air entering the box and being heated by the fire in Nº 6, gives its warmth out to Nº 7. By means of a pipe which ascends from the top of the Iron box the two garret rooms are warmed. Wet linen may be dried by placing a screen with it before the Iron box in room Nº 7.

The advantages of a fire place Nº 7, constructed with an Iron plate for its back, and made into a box having two Iron plates fastened together, as seen in the Iron box between rooms Nº 6 & 7, are that

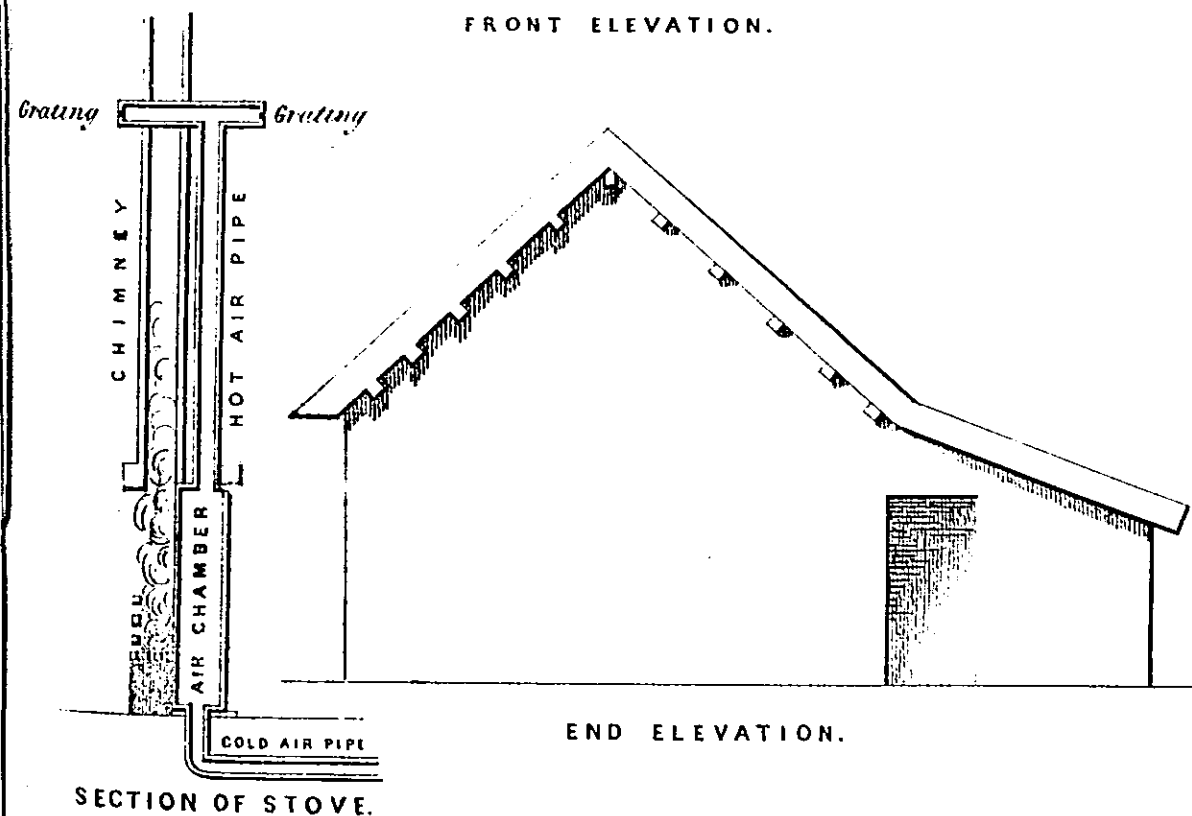
1. One fire place is made to warm two apartments on the same floor; and by means of an Iron pipe, warm air is conveyed into the two garrets above.
2. The house can never be damp with such a simple economical method of heating.
3. In the Southern, Eastern & Midland Counties of England, where fuel is sold at a high price, it is beneficial for the labourer to heat his house in the manner just shown in the Closeburn Cottage.
4. Much of the sickness of the labourer and delicacy of his children proceed from damp Cottages.

Sanitary Report P. L. C.

PLAN OF COTTAGES ERECTED BY SIR STEWART MENTEATH, BARONET, FOR HIS LABOURERS AT CLOSEBURN.



FRONT ELEVATION.

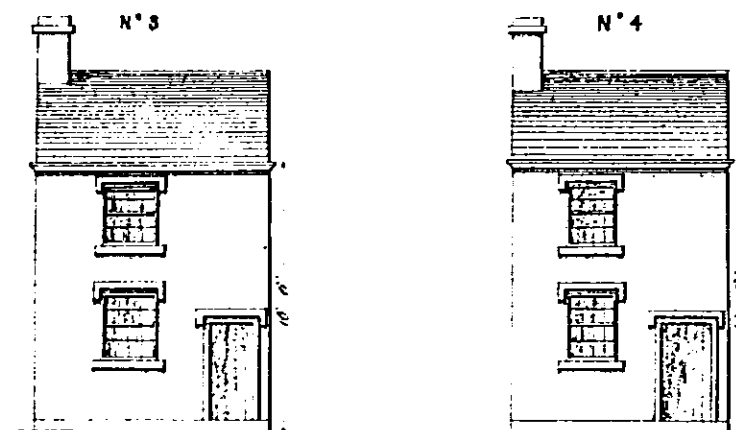


END ELEVATION.

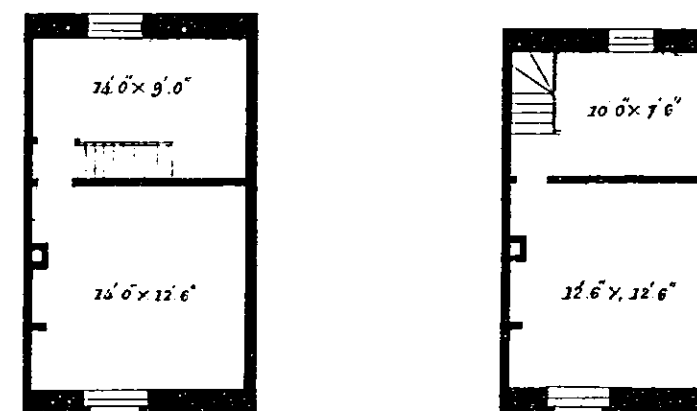
SECTION OF STOVE.

Sanitary Report P. L. C.

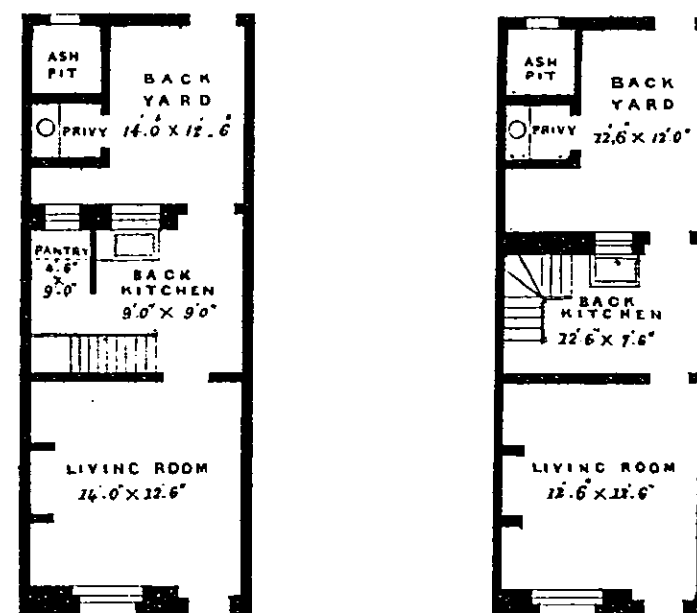
Sanitary Report P.L.C.



FRONT ELEVATIONS



CHAMBER PLANS

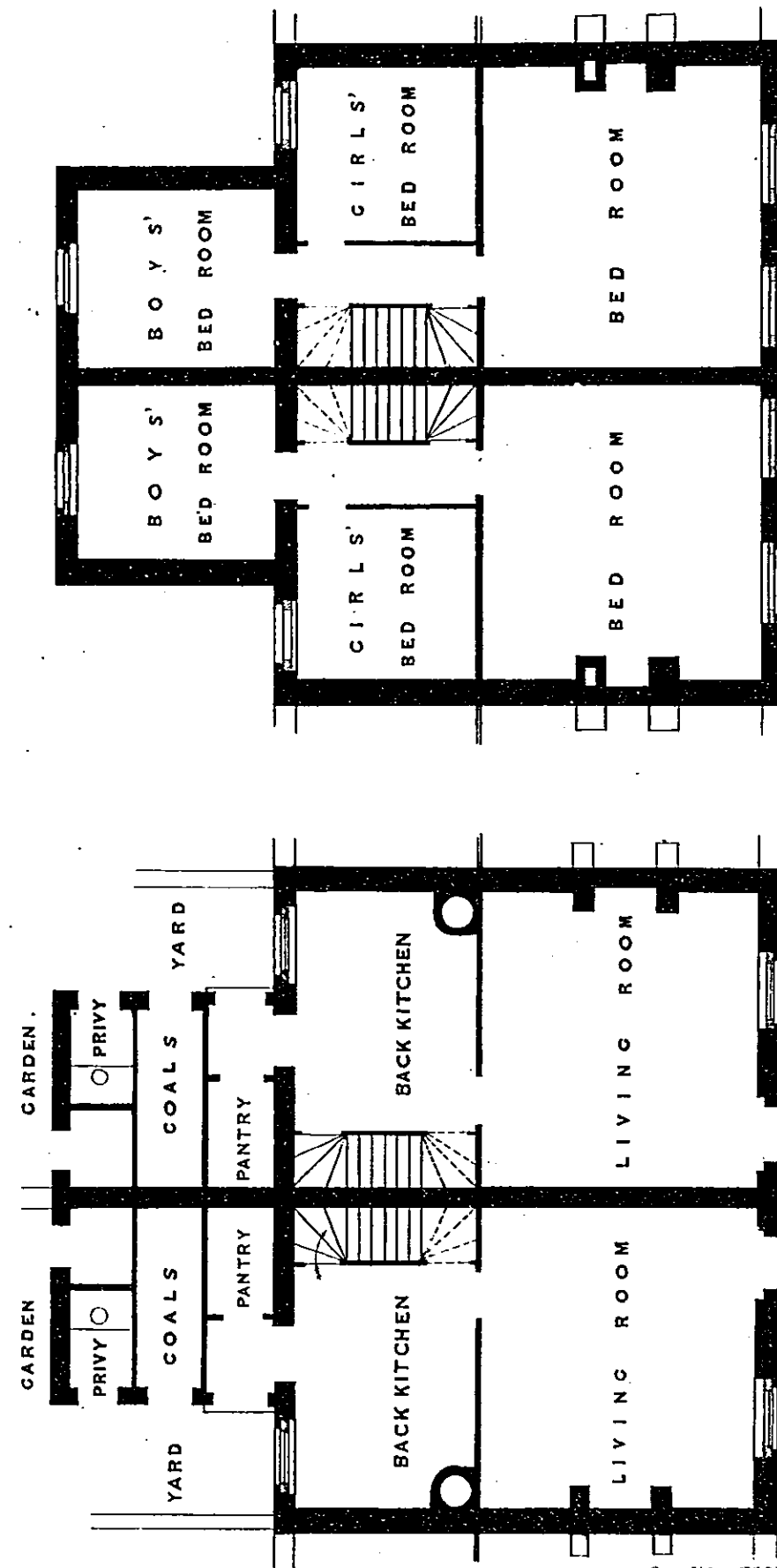


GROUND PLANS

Standridge & Co. 1880.

PLANS OF COTTAGES ERECTED AT ECERTON FOR M. & E. ASHWORTH.

PLANS OF A DOUBLE COTTAGE, ERECTED AT BOLLINGTON.

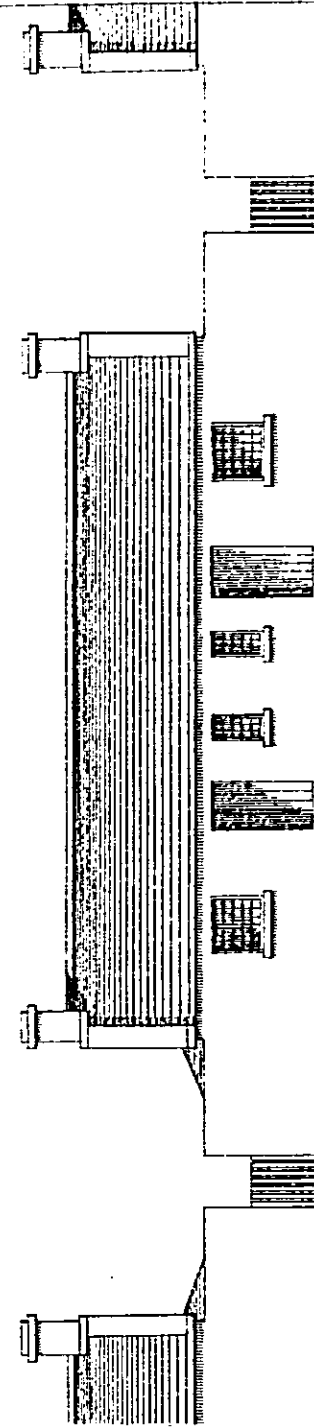


Scale, 12' to an Inch.

GROUND PLAN.

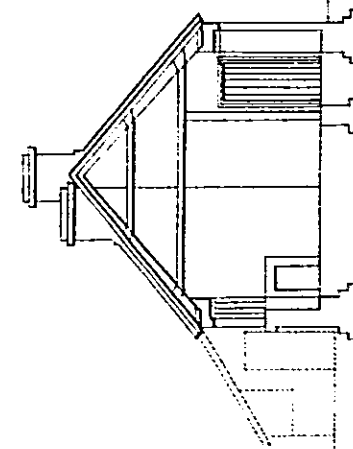
CHAMBER PLAN.

PLAN
OF THE
FARM COTTAGES
ERECTED UPON
THE EARL OF ROSEBERY'S
ESTATES.

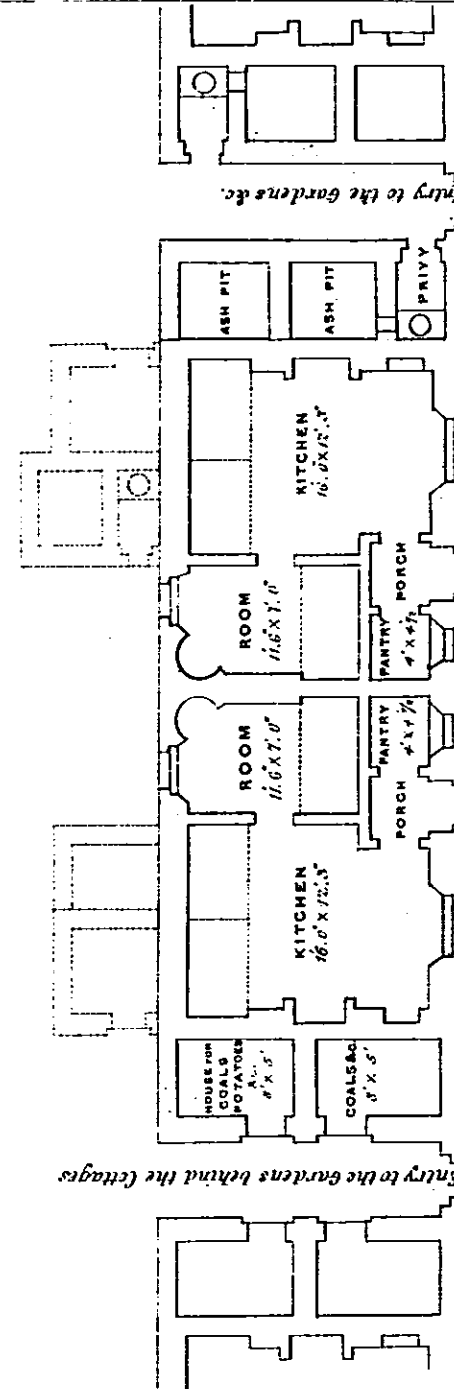


ELEVATION

Note. At places where only two Cottages are built, the coal houses, ash-pits, and privy are sometimes placed behind the Cottages as shown by dotted lines in the Plan.



VERTICAL SECTION



GROUND PLAN

Stewart Monteath, Bart., for his labourers at Closeburn. The plan of these cottages presents an important improvement, by which one fire-place is made to warm two apartments on the same floor, and by means of an air pipe warms the air in the two rooms above them. I was informed that it admits of a further improvement in practice, namely, of some means of closing the access of the warm air to the sleeping-rooms during summer.

The best plans I have obtained of tenements in actual occupation of the rural manufacturing population appear to be those at Turton, and those erected at Bollington. The best plans of labourers' tenements in towns are those supplied by Mr. Hodgson, and the Committee of Physicians and Surgeons at Birmingham; the drawings and working plans of which I have appended.

In several of the plans for the rural districts there is one appendage of the cottage of which the best-informed witnesses consider they ought invariably to be divested, namely, a pigsty. The medical witnesses strongly object that it is injurious to the health, especially in rows of cottages, as it occasions accumulations of filthy refuse. Other witnesses, such as the Rev. Thomas Whately, object that the pig is not economical to the labourer, and that it furnishes a temptation to dishonesty. His evidence on that subject, and on the other more important question of large cottage allotments, will be found in the Appendix.

Mr. Loudon has favoured me with two drawings and plans of model cottages, which need no other explanation than the specification. These comprise the best examples that have come under observation during the present inquiry of tenements in occupation that are well approved on trial.

Every detail, however, of the materials with which the cottage is constructed, and the mode of its construction, deserve, and there is little doubt will obtain, most careful attention, for it is only by considering their comforts in detail that they can be improved, or the aggregate effect on the immense masses of the community can be analyzed and estimated. For example, it has been mentioned that a decided difference is perceptible in the health and condition of workmen of the same class who live in houses made of brick as compared with those living in houses made of stone.

A gentleman who has attentively observed the condition of the working classes in the north of Lancashire, and the north of Cheshire, states that the general health of the labourers in the north of Lancashire is decidedly inferior. This inferiority he ascribes to several causes, and, amongst others, to damp cottages, and—

“Wood and wattled houses, such as our forefathers built, are the driest and warmest of all; brick is inferior in both these requisites of a comfortable house; but stone, especially the unhewn stone as it is necessarily employed for cottages, is the very worst material possible

for the purpose. I prefer the Irish mud cottages. The evil arises from two causes. The stone is not impervious to water, especially when the rain is accompanied by high winds; and it sucks up the moisture of the ground, and gives it out into the rooms; but principally, stone is a good conductor of heat and cold, so that the walls cooled down by the outer air are continually condensing the moisture contained in the warmer air of the cottage, just as the windows steam on a frosty morning; besides, the abstraction of heat in stone houses must be a serious inconvenience. The effect of this condensation must be, and is, to make clothes, bedding, &c., damp, whenever they are placed near the wall, and therefore extremely prejudicial to those who wear the clothes or sleep in the beds. Of course I do not attribute all the damp of our cottages in this neighbourhood to the stone; much of it is due to the wet climate, wet soil, and building so near the ground; but the stone, as a material of building, must bear a considerable share of the blame. I believe, too, it is partly the cause of the very great difference of cleanliness of the Cheshire farming people and ours of the same class.

"Indeed the Cheshire people were brought up to wooden cottages: brick was of later introduction. The greater facilities and inducements to cleanliness in a dry house would, in the course of time, form a more cleanly people, and superior healthiness would follow."

Mr. Parker observes, that the construction of the cottages in Buckinghamshire is frequently unwholesome:—

"The improper materials of which cottages are built, and their defective construction, are also the frequent cause of the serious indisposition of the inmates. The cottages at Waddesdon, and some of the surrounding parishes in the Vale of Aylesbury, are constructed of mud, with earth floors and thatched roofs. The vegetable substances mixed with the mud to make it bind, rapidly decompose, leaving the walls porous. The earth of the floor is full of vegetable matter, and from there being nothing to cut off its contact with the surrounding mould, it is peculiarly liable to damp. The floor is frequently charged with animal matter thrown upon it by the inmates, and this rapidly decomposes by the alternate action of heat and moisture. Thatch placed in contact with such walls speedily decays, yielding a gas of the most deleterious quality. Fever of every type and diarrhoea are endemic diseases in the parish and neighbourhood. Next to good drainage and thorough ventilation, the foundation of a cottage is the most important consideration. A foundation, to be good, must not only be sufficiently strong to bear the superstructure, and of sufficient depth to cut off all connexion with the surrounding vegetable mould and that beneath the floor, but also be constructed of materials calculated to resist moisture. The best materials for this purpose are concrete and sound bricks, partially vitrified in the kiln or clamp. If such bricks be well laid with mortar composed of sharp sand, containing no vegetable substances, and the concrete be free from earthy particles, well mixed and firmly thrown together, the admission of damp will be entirely avoided. Stone, chalk, bricks which are not thoroughly burnt, impure mortar, and wood, have all a tendency to absorb moisture, which, if once received by such materials, ascends, or 'creeps up,' as it is technically called by builders, and thus affects the whole building. To avoid this 'creeping up,' builders are in the habit of placing a tire

of slate in foundations above the surface mould, a remedy of a temporary character only, for the action of damp entirely destroys slate. Roman cement has also been used for this purpose, but the sand mixed with this material renders it in some degree porous. It has lately been suggested that a course of well-burnt bricks set in asphalt would effectually prevent this absorption of surface-water, and a favourable opinion of this plan has been expressed by two intelligent architects."

He adds that—

"In Berkshire the floors of the cottages are laid with red tiles, called 'flats,' or with bricks of a remarkable porous quality, and as each of these tiles or bricks will absorb half a pint of water, so do they become the means by which vapour is generated. The cleanly housewife, who prides herself upon the neat and fresh appearance of her cottage, pours several pails of water upon the floor, and when she has completed her task with the besom, she proceeds to remove with a mop or flannel so much of the water as the bricks have not absorbed.

"After having cleansed the cottage, the fire is usually made up to prepare the evening meal, and vapour is created by the action of the heat upon the saturated floor. Thus the means adopted to purify the apartment are equally as injurious to the health of the inmates as the filth and dirt frequently too abundant in the cottages of labouring persons.

"It is usual to insert in local Acts for the regulation of towns a clause prohibiting the use of straw and similar vegetable substances for roofing; and it appears to me to be desirable that some provision should be made for the rural districts, by which the thatch of cottages, when in a decomposed state, might be required to be removed. In the parishes of Binton, Dorsington, and Long Marston, in the neighbourhood of Stratford-on-Avon, simple continued fever, described to be similar in character to the form of fever which frequently occurs in the autumn and beginning of winter throughout England, prevailed very extensively in the winter of 1839. Of 31 patients attacked by it, seven died. Dr. Thompson of Stratford-on-Avon, the physician who visited all the cases by the desire of the Board of Guardians of the Stratford-on-Avon union, observes:— 'As almost all the cottages in which there has been fever are thatched, and the thatch in many of them is in a very rotten and insufficient condition, it is not improbable that slow decomposition in the thatch, from the unusual quantities of rain which has fallen, may have been going on, and contributed to the production and continuance of fever. It has been observed by others, I believe, that it is more difficult to get rid of fever in thatched than in slated cottages.' Dr. Thompson also remarks, that in thatched cottages it is not usual to ceil or plaster the inside of the roof; and he recommends that this should be done, and that the plaster should be lime-washed once a-year."

In the course of some observations made on the construction of the cottages of the labouring classes in France, it is observed that—

"It is in vain that the workman breathes a pure air out of doors, if on his return to his home he finds an infected atmosphere. Air, which is so necessary to life and health, and which it is of the last importance to renew often, especially in small rooms, remains thick and loaded in the abode of the workman, because no currents can exist in consequence of

the window being almost always placed alongside the door. The form of the chimney is another great evil in the construction of country cottages. With a shaft very short and very large, it is impossible for the room to get warm, and the heat produced is almost entirely lost. This form of the chimneys is only explicable by the ignorance of the constructors. However large a fire may be required by the diverse needs of the family, it does not involve the necessity to make the chimney shaft of a corresponding size; on the contrary, the facility with which the smoke ascends is altogether proportioned to the smallness of the latter, as may be seen in the chimneys of stoves, which are always extremely narrow."

The *Rev. C. Walkey*, of Collumpton, gives instances of the want of provision for ventilation in the cottages of the labouring classes:—

"Cottages for the most part are without sufficient ventilation, particularly in the up-stairs apartment, this being almost invariably without a chimney, with a low window, commonly about two feet from the floor, and having no ceiling, therefore the thatched roof, lofty in itself, and full of cobwebs, contains the foul air; and in several instances I have been the means of restoring health apparently by blowing gunpowder in cases where fever has raged for months, the ground-floors being often damp—very seldom above the level of the land."

The proceedings of the Highland Society for the improvement of the material condition of the labourer, especially on the subject of cottage economy, appear to be extremely well directed. They have sought to make improvements in detail, which are thus described in one of the reports of a committee appointed to inquire into the subject:—

"Medals have been offered by the society to proprietors for building cottages of a good construction; and these medals are already in demand. The subject was again brought forward by the Marquis of Tweeddale, who filled the chair at the last general meeting; and throughout the whole of Scotland it is attracting increasing attention. The style of such buildings is everywhere improving, and the measures of the society will make the country acquainted with the best models. Still, without a considerable diminution of the expense, the rapid introduction of a better system is hardly to be expected. To that point, accordingly, the directors have turned their serious attention.

"Their first object has been the improvement of the windows, which always form one of the principal items of charge, and have been generally one of the worst constructed parts of the building. In many districts of the Highlands the huts of the peasantry have nothing of the kind, nor are there tradesmen within reach from whom they can be obtained; and even in many of the more improved parts of the country the cottage windows are seldom large enough to admit a sufficiency of light; they are almost never provided with the means of ventilation; and in a few instances can they be repaired without applying to a tradesman. This is always attended with considerable expense; and, in remote situations, skilful workmen are hardly to be obtained on any terms. Accordingly, when glass is broken, recourse is had to the most unseemly substitutes. These may annoy the inmate at first, but he

soon becomes habituated to them; one eyesore prepares him for another, and in a short time the same slovenliness and disorder spread over the whole establishment.

"It appeared to the directors that much of this would be avoided if the public could be made acquainted with the best description of a cottage window. The demand would necessarily lead to their being extensively manufactured, and consequently supplied at a moderate price; and, what is of still more consequence, the general adoption of such windows would lead to glass of the proper size being kept in every village, and labourers would then be enabled to repair their own windows. A premium was accordingly offered last year for the best cottage window, not so much in the expectation of bringing forward anything altogether new, as of enabling the directors to select the best of the forms now in use.

"Various specimens were sent in. Some were made of zinc; but these were rejected, on the advice of tradesmen, as being too weak to admit of repair by an unpractised hand. Wood and lead are, for the same reason, equally unsuitable. One was constructed with astragals of malleable iron, so thin as very little to impede the light, and consequently admitting of glass of a very small size; but the astragals not being provided with flanges for the glass to rest upon, the repair must necessarily be a work of some difficulty; and these also were consequently deemed unfit for the purpose. Cast-iron appears to be the material least liable to objection; but astragals of cast-metal must be of considerable thickness; and such frames, therefore, could not be adapted to a very small size of glass without materially obscuring the light. It was made by Messrs. Moses M'Culloch and Co., Gallowgate, Glasgow; and, without the wooden frame, it costs 5s. Glass for such a window may be purchased at 2½d. per square. These windows would appear adapted for farm-houses and workshops as well as for cottages. They admit of being made of every variety of size, and, in most cases, they may thus be fitted with ease to houses already built. In many situations, it will thus deserve consideration whether it may be better to repair the glass of old frames, or to adopt windows of this construction, which may be purchased and kept up at so very moderate an expense. It is understood that Messrs. M'Culloch intend to establish agencies in all parts of the country, and light and pure air will thus be supplied to the humbler classes everywhere at a much cheaper rate than they have hitherto been obtained.

The directors have next turned their attention to the means of economizing fuel; and a premium for the best mode of accomplishing this will be found in the list of this year. It will be observed, that the object of the premium is not to obtain plans merely from Scottish tradesmen, but to ascertain the devices which are practised in foreign countries. In America, and several of the continental states, it is understood that stoves are generally used for this purpose, and some of these are said to be so perfect that no one who has been accustomed to them would tolerate the fire-places of the Scottish cottages. There may be a difficulty in introducing a novelty of this kind here; but if it should promise to be beneficial, it would be at least deserving of a trial; and if it should be generally adopted, this also would become the subject of an extensive manufacture, and be obtained at a cheap rate.

"It appears to the committee, that still further facilities would be afforded, both for the construction of new cottages and the improvement of those already built, were doors, shelving, and the other wooden work of the building manufactured in the same way as the windows. The committee do not at present see any means of contributing to the establishment of such works by the offer of premiums; but it occurs to them that extensive proprietors might find it worth their while to try the experiment, as an addition to the work of saw-mills. If it should succeed with them, it could not fail in the hands of tradesmen devoting their whole attention to the subject; and there would be no want of men ready to embark in such undertakings. Should an experiment of this kind be made, the committee hope that the directors will be made acquainted with the result.

"Such a supply of the leading materials would not only greatly facilitate the work of proprietors both in the erection of new cottages and the improvement of old ones, but labourers who have the prospect of being permanent tenants would likewise be induced, at their own expense, to make improvements, which they would at present find quite impracticable. As the reduction of the price of every article of dress now enables the humblest labourer to appear respectably clothed, so the reduction of the expense of so many of the essentials in the construction of a house would bring comfortable lodging equally within his reach."

To the above-recited measures of the Highland Society, which are so well directed to the improvement of the structure of cottages in the important points of economy as well as of efficiency, they have added prizes for the best-kept cottages and the best cottage gardens, which have everywhere excited competition, and have been attended with beneficial results.

I have as yet met with no similar instance of attention given by large and influential public bodies, to the improvement of the residences of the working-classes in towns. I have, however, been favoured with one communication from *Mr. Sydney Smirke*, the architect, who has had experience in planning and superintending the erection of residences for the men of the coast-guard service, and who, in some suggestions for the improvement of the metropolis, has endeavoured to direct public attention to the improvement of the structure of the residences of the labouring classes. He states that—

"The course that has been adopted by great manufacturers and others in some rural districts, of erecting ranges of distinct cottages for their labourers, is plainly inapplicable to large towns. If there were no other obstacle to this arrangement, the value of land would alone be fatal to it in such places; but my belief is that, without ultimate pecuniary loss, and with the utmost direct and indirect benefit, buildings, placed under some public control, might be erected for the joint occupation of many families or individuals, and so arranged that each tenant might feel that he had the exclusive enjoyment of a home in the room or rooms which he occupied, and yet

might partake, in common with his neighbours, of many important comforts and advantages now utterly unknown to him.

"I propose that there should be erected buildings, in various parts of the suburbs, consisting of perhaps 50 or 60 rooms, high, airy, dry, well ventilated, light and warm, comfortably filled up, fire-proof, abundantly supplied with water and thoroughly drained; such regulations might be laid down for the conduct of the inmates as may be necessary for the common good, without undue rigour or interference with natural and proper feelings of independence.

"Another class of structures should be raised, perhaps rather as dormitories than for permanent residence, from which families would be excluded; these should be arranged like some of the wards of Chelsea Hospital, with separate compartments appropriated to each tenant. Unlike the frail and worthless tenements that rise in great profusion around London, these buildings should be studiously planned and strongly constructed; all that the builder's art can contribute towards the safety, health, and comfort of each individual, should here be found. In the former class of buildings, a room or rooms should be let at a low weekly rent to any decent family that should apply: in the latter, each compartment should be let by the night.

"The exterior of these locanda, or public lodging-houses, should have a cheerful, inviting appearance, not entirely without architectural character, although free, of course, from the mere ornament and frippery of architecture.

"In throwing out these suggestions for such consideration as they may deserve, it seems superfluous at present to trouble you with explanatory plans and other details; it may be enough for me to assure you that buildings can be erected, affording all the accommodations above described, and offering to their inmates the luxury of a decent, cleanly, and healthy abode, at a cost less than is usually required by them for the purchase of the squalid resting-places they now resort to, and yet enough to repay a fair interest on the original expense of the new building.

"It may be said that in providing these commodious dwellings for their needy inmates, we shall be furnishing them with that which they do not desire; that habitual and long acquaintance with privation has taught them to regard and to endure, without any lively distaste, much of that misery from which others, more delicately educated, would shrink with disgust; but I consider this objection quite unfounded. A tainted atmosphere cannot be less injurious because by long habit it is breathed without nausea. If these deplorable habits have really acquired so much force, it should be our part to make corresponding efforts to teach the victims of them to become more sensible of their misery, not indeed by inculcating lessons of discontent, but by affording to them facilities for providing themselves with healthier and happier abodes.

"It is the true saying of an eloquent writer, that 'les esclaves perdent tout dans leur esclavage, jusqu'au désir d'en sortir;' yet surely no benevolent person would think himself idly or unprofitably employed in loosing from bondage those whom long endurance has caused to forget the blessings of freedom. I am, however, unwilling to believe, even now, that the classes of whom I am speaking are insensible to the

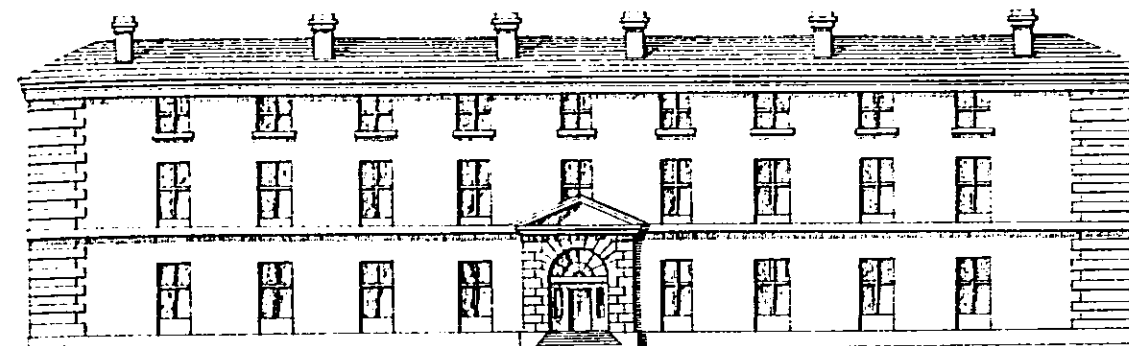
comforts of cleanliness, or unable to appreciate the benefit to be derived from improved habitations.

"I confess I cannot discover any objection to the adoption of such a plan for ameliorating the dwellings of the poorest classes of our fellow creatures that would not be counter-balanced by many direct and indirect advantages."

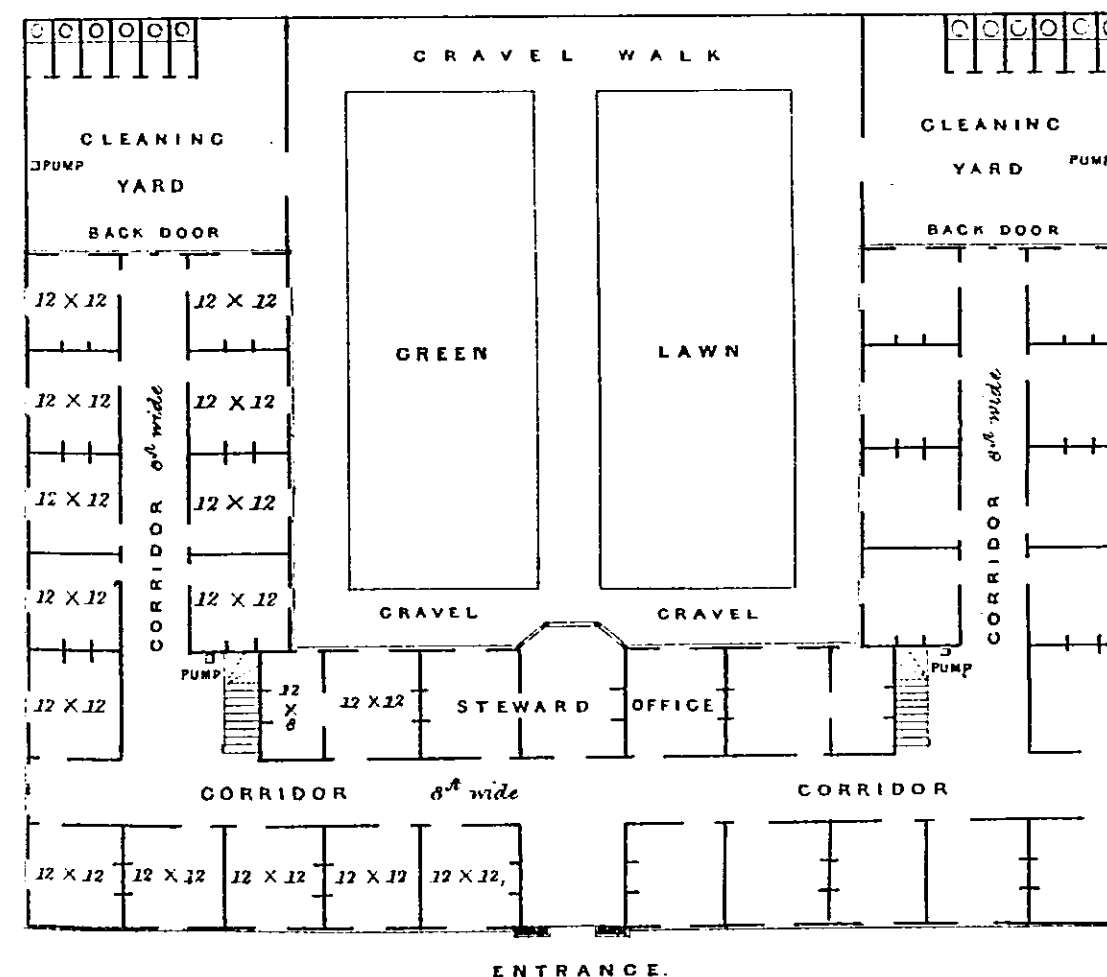
I beg leave to submit this communication and the plans with which Mr. Smirke has favoured me, that it may be made known and considered. Much importance will be attached to the testimony received from him as well as from other professional men, that it is possible to afford to the labouring classes the luxury of "a decent, cleanly, and healthy abode at a cost less than is usually required from them for the squalid resting-places they now resort to, and yet enough to repay a fair interest on the original expense of the new building."

I see no reason to doubt the applicability of Mr. Smirke's plan to such places as those where ranges of buildings are now required as lodgings for workmen, and, without questioning the applicability of the proposition last cited, to all classes of residences. It is proper to mention, that in the course of this inquiry frequent instances have arisen of much social disorder arising from the too close contiguity of residences, or from the want of some control over the inmates. In the instances noticed of lodging-houses, or of one building, inhabited by different families, living as in the apartments of the same dwelling, the conclusion afforded by experience seems to be, that a power and discipline almost as strong as that of a man-of-war, is requisite to preserve order in such communities; and that until a degree of education of the lower classes is attained, which is hopeless for the present generation at least, it is desirable to avoid any arrangement which brings *families* into close contact with each other. A large proportion of the cases of assault and brawls which occupy the attention of the petty sessions and sessions in towns, arise from contentions amongst the inhabitants of courts and alleys, which are clearly ascribable to too close contiguity; and these effects have frequently given rise to the suggestion that if a city were rebuilt, the preservation of peace would be much easier if such places were entirely removed and the inhabitants separated. A common pump has gone far to furnish practice to a petty attorney. All the females wanted to use it at the same time, and perpetual quarrels and frequent assaults arose to get the first supplies. Several attempts have been made by benevolent landlords to get their labourers to make use of common bakehouses, common washhouses, to join for one common brewing, and have offered them the use of utensils; but they never could be got to agree upon it, and I have met with no instance in which such plans have succeeded. Unless the walls of contiguous cottages are very thick, detached cottages have social comforts and moral advantages superior to those houses built in

SKETCH OF A PLAN FOR A
PUBLIC LODGING HOUSE.



ELEVATION OF THE ENTRANCE FRONT



Some of the Rooms would be made to communicate with each other by Doors.

Sydney Smirke
Feb. 26, 1841.

Standard & Co. Lith.

rows; and persons even of the middle class pay a higher rent for detached tenements for the sake of the comparative freedom which they allow from disturbance by their neighbours. The information I received in Scotland respecting the assemblages of single men, farm-servants, in houses called boothies, showed that the effect was also extremely unfavourable to their moral habits.

In some of the new towns in Germany it is considered advantageous, for the sake of the circulation of air as well as for comfort and for security against fire, to have each house detached by a small space from its neighbours.

Effects of Public Walks and Gardens on the Health and Morals of the Lower Classes of the Population.

Whilst separation rather than aggregation, more especially for families, is the course of policy suggested by experience for the places of residence of the working-classes, accommodation is called for from every part of the country for public walks or places of recreation. The committee of physicians and surgeons of Birmingham state, in the course of their report on the sanitary condition of the population of that town—

“The want of some place of recreation for the mechanic is an evil which presses very heavily upon these people, and to which many of their bad habits may be traced. There are no public walks in or near this town; no places where the working-people can resort for recreation. The consequence is that they frequent the ale-houses and skittle-alleys for amusement. Within the last half century the town was surrounded by land which was divided into gardens, which were rented by the mechanic at one guinea or half a guinea per annum. Here the mechanic was generally seen after his day's labour spending his evening in a healthy and simple occupation, in which he took great delight. This ground is now for the most part built over, and the mechanics of the town are gradually losing this source of useful and healthy recreation.”

Mr. Mott, in his report on the condition of the labouring population of his district, observes, in respect to that in Manchester—

“There are circumstances attending the local position of Manchester which might be urged in palliation of some of the habits of the working classes.

“There are no public walks or places of recreation by which the thousands of labourers or families can relieve the tedium of their monotonous employment. Pent up in a close, dusty atmosphere from half-past five or six o'clock in the morning till seven or eight o'clock at night, from week to week, without change, without intermission, it is not to be wondered at that they fly to the spirit and beer-shops, and the dancing-houses, on the Saturday nights to seek those, to them, pleasures and comforts which their own destitute and comfortless homes deny.

“Manchester is singularly destitute of those resources which conduce at once to health and recreation. With a teeming population, literally overflowing her boundaries, she has no public walks or resorts, either for

the youthful or the adult portion of the community to snatch an hour's enjoyment.

"The prospect of obtaining any wide area to be appropriated as a public walk or otherwise for the use of the labouring classes, becomes more remote each year, as the value of the land within and in the neighbourhood of the town increases.

Mr. Joseph Strutt, of Derby, has presented to that town a public garden of eleven acres, which has been so laid out by Mr. Loudon as to give the advantages of a walk of two miles, and the interest afforded by an arboretum, displaying the specimens of 1000 shrubs and plants. The plan of laying out this public ground so as to make the most of the space, appears to be one deserving of peculiar attention; and I have appended to this report a copy with which I have been favoured. I am informed that his Grace the Duke of Norfolk has expressed an intention, as soon as some leases are out, to bestow 50 acres for the use of Sheffield as a public garden.

Much evidence might be adduced from the experience of the effects of the parks and other places of public resort in the metropolis, to prove the importance of such provision for recreation, not less for the pleasure they afford in themselves, than for their rivalry to pleasures that are expensive, demoralizing, and injurious to the health. A benevolent gentleman near Cambridge, who wished to arrest the debauchery and demoralization promoted by a fair, and, if possible, to put an end to the fair itself, instituted on the days when it was held, and at a distance from it, a grand ploughing match, at which all persons of respectability were invited to attend. This brought from the fair all the young men whom it was desired to lead from it to a regulated and a rational and beneficial entertainment, and thus, without force and at a very trivial expense, the fair was suppressed by the quiet mode of drawing away its profit.

On the holiday given at Manchester in celebration of Her Majesty's marriage, extensive arrangements were made for holding a chartist meeting, and for getting up what was called a demonstration of the working classes, which greatly alarmed the municipal magistrates. Sir Charles Shaw, the Chief Commissioner of Police, induced the mayor to get the Botanical Gardens, Zoological Gardens, and Museum of that town, and other institutions thrown open to the working classes at the hour they were urgently invited to attend the chartist meeting. The mayor undertook to be personally answerable for any damage that occurred from throwing open the gardens and institutions to the classes who had never before entered them. The effect was that not more than 200 or 300 people attended the political meeting, which entirely failed, and scarcely 5s. worth of damage was done in the gardens or in the public institutions by the workpeople, who were highly pleased. A further effect produced was, that the charges

before the police of drunkenness and riot were on that day less than the average of cases on ordinary days.

I have been informed of other instances of similar effects produced by the spread of temperate pleasures on ordinary occasions, and their rivalry to habits of drunkenness and gross excitement, whether mental or sensual.

But want of open spaces for recreation is not confined to the town population. In the rural districts the children and young persons of the villages have frequently no other places for recreation than the dusty road before their houses or the narrow and dirty lanes, and accidents frequently take place from the playing of children on the public highways. If they go into the fields they are trespassers, and injure the farmer. The want of proper spaces as play-grounds for children is detrimental to the morals as well as to the health in the towns, and it probably is so generally. The very scanty spaces which the children, both of the middle and the lower classes, the ill as well as the respectably educated, can obtain, force all into one company to the detriment of the better children, for it is the rude and boisterous who obtain predominance. In the course of some investigations which I had occasion to make into the causes of juvenile delinquency, there appeared several cases of children of honest and industrious parents, who had been entrapped by boys of bad character; I inquired how the more respectable children became acquainted with the depraved; when it was shown that in the present state of many crowded neighbourhoods all the children of a court or of a street were forced to play, if they had any play whatsoever, on such scraps of ground as they could get, and all were brought into acquaintanceship, and the range of influence of the depraved was extended. The condition of the children in large districts where there are no squares, no gardens attached to the houses, and no play-grounds even to their day-schools, and where they are of a condition in life to be withheld from playing in the streets, is pronounced to be a condition very injurious to their bodily development. The progress of the evil in the rural districts has been, to some extent, arrested by a beneficent standing order of the House of Commons, that all Enclosure Bills shall include provision for a reserve of land for the public use for recreation. For children, however, the most important reservations would be those which could be made for play-grounds in front of their homes, on plots where they may be under the eye of their mothers or their neighbours. Where the cottages are near a road, they should be some distance from it, with the gardens or play-ground in front. The separate or distant play-grounds have many inconveniences besides their being out of sight; and where they are far distant, they are comparatively useless. I have great pleasure in being enabled to testify that the instances are frequent where the regulated resort to private plea-

sure-grounds, and parks has been indulgently given for the recreation of the labouring population.

Amongst the instances of practical attention to the improvement of the physical condition of labouring classes in the agricultural districts, I may notice the following statement made to me by the late *Mr. Monck* of Coley House, Reading, who had bestowed much care upon the cottages on his own estate. It comprehends the provision adverted to:—

“The care taken of these cottages and gardens,” said he, “afford an excellent criterion of the character of the labourers. I have paid especial attention to those labourers who have displayed cleanliness and order; and I pay the most respect to those who have achieved a situation of the greatest comfort, and keep themselves and their houses cleanly, and their children tidy. Formerly the cottages were in bad order, their pavements and windows were broken; I had them all paved, and their windows glazed. I told the cottagers that I did not like to see shabby, broken windows, with patches of paper and things stuffed in, or broken pavements which they could not clean; and that I disliked Irish filth and all Irish habits of living. I engaged, after the cottages were thoroughly repaired, to pay 1*l.* a-year for repairing them. I undertook to make the repairs myself, and deduct the expense from this 1*l.*; but if no repairs were wanted, they were to have the whole 1*l.* themselves. This course has, I find, formed habits of care; and their cottages are now so well taken care of that very little deduction is made annually from the 1*l.* Formerly they used to chop wood carelessly on their pavements, and break them; now they abstain from the practice, or do it in a careful manner, to avoid losing the money. In the winter, I give them two score of fagots towards their fuel. I have found that by this means I save my hedges and fences, and am pecuniarily no loser, whilst pilfering habits are repressed. Since the enclosures have been made, I think some place should be provided for the exercise and recreation of the working-classes, and especially for their children. I have set out four acres at Oldworth as a play-ground for the children, or whoever likes to play. They have now their cricket-matches, their quoit-playing, and their revels there. Sheep and cows feed on it; so that it is no great loss to me. I let it for 4*l.* a-year to a man, on condition that he cuts the hedges and keeps it neat. I have surrounded it with a double avenue of trees. The sheep and cows do good to the ground, as they keep the grass under, which allows the ball to run. I give prizes to the boys at the school, which is maintained by the cottagers themselves, and to which I contribute nothing but the prizes for reading, writing, and knitting.

“Many persons accuse the poor of ingratitude, but I find them the most grateful people alive for these little attentions; and what do they all cost me? why not more altogether than the keep of one fat coach-horse.”

VII.—RECOGNISED PRINCIPLES OF LEGISLATION AND STATE OF THE EXISTING LAW FOR THE PROTECTION OF THE PUBLIC HEALTH.

The evidence already given will, to some extent, have furnished answers to the question—how far the physical evils by which the health, and strength, and morals of the labouring classes are depressed may be removed, or can reasonably be expected to be removed by private and voluntary exertions. I now submit for consideration the facts which serve to show how far the aid of the legislature, and of administrative arrangements are requisite for the attainment of the objects in question.

It will have been perceived, that the first great remedies, external arrangements, *i. e.* efficient drainage, sewerage and cleansing of towns, come within the acknowledged province of the legislature. Public opinion has of late required legislative interference for the regulation of some points of the internal economy of certain places of work, and the appointment of special agents to protect young children engaged in certain classes of manufactures from mental deterioration from the privation of the advantages of education, and from permanent bodily deterioration from an excess of labour beyond their strength. Claims are now before Parliament for an extension of the like remedies to other classes of children and to young persons, who are deemed to be in the same need of protection. The legislature has interfered to put an end to one description of employment which was deemed afflicting and degrading, *i. e.* that of climbing-boys for sweeping chimneys, and to force a better means of performing by machinery the same work. It will be seen that it has been the policy of the legislature to interfere for the public protection by regulating the structure of private dwellings to prevent the extension of fires; and the common law has also interposed to protect the public health by preventing overcrowding in private tenements. The legislature has recently interfered to direct the poorer description of tenements in the metropolis to be properly cleansed. On considering the evidence before given with relation to the effects of different classes of buildings, the suggestion immediately arises as to the extent to which it is practicable to protect the health of the labouring classes by measures for the amendment of the existing buildings, and for the regulation of new buildings in towns in the great proportion of cases where neither private benevolence nor enlightened views can be expected to prevail extensively.

It will have been perceived how much of the existing evils originate from the defects of the external arrangements for drainage, and for cleansing, and for obtaining supplies of water. Until these are completed, therefore, the force of the evils arising from the construction of the houses could scarcely be ascertained.

The experience of legislation available for England for the regu-