Public Health.

AN ENQUIRY INTO THE CAUSES OF THE EXCESSIVE MORTALITY IN No. 1 DISTRICT, ANCOATS.*

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LAST winter, when looking over some of the reports of our late Medical Officer of Health, with the object of comparing the density of population with the death-rate in the various districts of Manchester, I was very much struck with the anomalous position occupied by the above district. If the fifteen most densely populated districts of Manchester be arranged in order according to the density of the population, Ancoats No. 1 is at the very foot of the list; but if, on the other hand, we arrange these districts according to the magnitude of their respective death-rates, Ancoats No. 1 occupies the unenviable position of second on the list. In other words, there are fourteen more overcrowded districts, only one of which has a higher death-rate.

The lowest death-rate in Ancoats is in the No. 8 District (18·5), the highest in No. 1 (29·4). In No. 1 District every available inch of ground is covered with cottages, workshops, and factories; in No. 8 there are no less than five large plots of vacant land, affording breathing spaces to the dwellers around. No. 1, again, is almost perfectly level, and is surrounded on all sides by areas densely inhabited, and by factories and workshops innumerable, whilst No. 8 lies on the south-east slope of the river Medlock, and is not nearly so hemmed in by mills and works. But there is a still more marked difference in the character of the houses in the two localities. In No. 1, practically the whole of the cottages are a century old, some considerably older, whilst in No. 8 a very considerable proportion has been erected since 1870. The reasons, therefore, why the former district, with a population density on the ground covered of 201 per acre, has a death-rate very considerably higher than No. 8, where the density of population is 211, is easily understood.

In St. George's District No. 5, which is only separated from Ancoats No. 1 by Oldham Road, quite as large a proportion of the property is very old, and the population densities are practically identical in the two districts, whilst the density on the ground actually covered is greater in St. George's in the proportion of 231 to 201. Yet, in the latter district, the death-rate is only 22·9, or 5·8 less than in the former. But here the streets are wider and more regular, the principal ones opening into two great thoroughfares, Oldham Road and Rochdale Road. The houses, though old, have not nearly the same time-worn, soot-begrimed, dilapidated appearance which is so characteristic of the district with which we are now

comparing it. There are but few courts and not nearly the same number of long, narrow, tortuous passages running through the blocks, nor is the central portion hemmed in by loftier buildings. The majority of the houses also are tenanted by a better class of people, and the yards and courts are kept much cleaner.

If, in the same way, the district is compared with the others surrounding it, we find very similar differences, and the conclusion forced upon me was, that in No. 1 Ancoats were to be found, accentuated, all those factors which tend to produce the high death-rate of Manchester.

A thorough examination of the locality, therefore, seemed desirable; and having secured the valuable co-operation of Mr. Sanders, of Ancoats, the work was forthwith commenced. Every cottage home in the district has been examined, often upstairs as well as down—the garrets as well as the cellars; we have searched every alley and court, every common yard and every private yard; we have taken the dimensions of over two hundred different and typical rooms, measured the height of the houses and the sizes of the doors and windows; we have measured the height of numerous closet ventilating shafts, and their distance from bedroom windows; we have experimented with the ash-places, and endeavoured to ascertain the exact action of the ventilators; and I have examined numerous samples of air from the streets and bedrooms, and have compared them with the air taken from similar positions in more favoured localities. In fact, we attempted to make ourselves acquainted with every possible factor in the production of the high death-rate.

The district examined comprises forty distinct blocks of property, four of which consist wholly of manufactories. From notes, taken on the spot, we afterwards drew up a detailed description of each block, and these descriptions form the basis of the present report.

General Description.—Sanitary District No. 1 Ancoats is an almost perfect square, bounded by Great Ancoats Street, Oldham Road, German Street, and Union Street, with an area of 32 acres, and a population of 5,654 (Dr. Leigh's estimate, 1884). It is nearly level throughout its whole extent, the difference between the lowest and highest points being only 7 feet. The lowest point is at the junction of Great Ancoats Street and Oldham Road (161 feet 9 inches above sea level) the highest is at the junction of German Street with Oldham Road (168 feet 9 inches above sea level), the ascent being gradual and imperceptible. The central portion of the area is much shadowed by immense factories on the Union Street side, and by comparatively lofty business premises on the Oldham Road and Great Ancoats Street sides, preventing the smoke, etc., getting away as readily as it otherwise would do. There is only one street which runs straight through the district (Bengal

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Street); all the others are either short or obstructed by angles, interfering seriously with the supply of air to those places, where, unfortunately, it is most needed. Altogether there are about 25 streets and over 50 courts and places. All the streets are narrow, many of them not exceeding 17 feet 6 inches from house to house. The more important of these very narrow streets are Loom Street, Primrose Street, Silk Street (each 17½ feet wide), which are parallel, and run through the oldest and most densely populated portion of the district.

Subsoil Drains and Sewers.—The whole of the cottages are upon the clay, or upon the clay with a small substratum of gravel. The sewers all run either into the Oldham Road or the Great Ancoats sewer, and, according to the late Mr. Leigh, they all “require, and have, a good fall (artificially).” (M. O. H. Report, 1884.) Unfortunately, in our investigations, we are not armed with powers to have the drains pulled up in order that we might ascertain their precise condition; we have, nevertheless, seen them opened in several places, and we have had convincing proof in other cases of their being blocked. Many houses and yards are infested with rats, which are said to come from the old brick drains. Numerous complaints were made to us about the vile odours coming from the grids, and, in one case, we saw steam issuing freely from a grid in an enclosed yard. We were informed that it was not an unusual occurrence, and that sometimes it actually came up the slopstone waste-pipe into the kitchen. In two places, where the drains were up, large quantities of black, foetid matter were being scooped out, and, doubtless, when the drains we saw stopped were cleared, a similar deposit would have to be removed. In an adjoining district we saw an old brick drain being replaced by pipes. With reference to this matter, I consulted an intelligent property repairer, who has resided in Ancoats nearly half a century, and he expressed his decided opinion that the sewers were in a most unsatisfactory condition. In many places the old defective brick drains are still in existence; many of the syphon and gully traps are ancient and defective, and the sewers have not a sufficient fall, and are not efficiently ventilated. He assured us at the present time there were many yard grids not trapped at all, but in direct communication with the drains. It is no wonder, therefore, that nauseating odours should so often be noticed near the grids, that such foetid matters should accumulate in the drains, and that the latter should so frequently be blocked.

In very few instances, however, is there any communication between the drains and the houses, either directly or indirectly. In one house, where the grid is in the centre of the scullery floor, there had been six deaths in five years, the last being from diphtheria, and attributed by the tenants to the “smells from the drains.” The walls and floors of this place are very damp, the window is

small, affording little light, and, unfortunately, though made to open, it never is opened.

General Character of Property.—So far as I am aware, not a single cottage has been built in this district since 1850. About sixty were erected between 1830-1850, the whole of the remainder (over 800) date back prior to 1830. Very many of them are older than the century, and we are informed that some of them are at least two hundred years old. In many of the blocks the houses are of the most diverse character.

The majority are of two storeys, and either back to back or through houses with two living-rooms downstairs, and two bed-rooms of the same size over. There is a fair number of houses of three storeys, having two living-rooms, two bed-rooms, and a garret, the latter usually let off for fustian-cutting, hatbox making, or other purposes of this character. Many, again, both of the two and three storeyed buildings, have cellars under, some of which are let off as workshops, or used for storage purposes; the remainder are unoccupied. The steps leading to the latter are almost invariably used as receptacles for filth and rubbish. In not a few instances the windows of these places are broken, and inside is an accumulation of offensive matters which have been thrown through. Almost invariably the cellars are damp and musty, and then, where the floors above are in bad repair, as is too often the case, the damp, unhealthy atmosphere pervades the rooms above. With the exception of these cellared dwellings, and of a few of the houses built since 1830, the living-rooms of all the cottages have stone floors. Subsoil drainage, damp-proof courses, ventilation under the floors, artificial ventilation of the rooms, etc., in this district are conspicuous by their entire absence. All the buildings are of brick, and rise directly from the clay beneath; the outer walls are 9 in. thick, and the inner walls 4½ in. The condition of the majority of the cottages can be summed up in few words. They are in a state of “general dilapidation”—roofs, windows, doors, everything. In some blocks the walls bulge in all directions, the mortar has crumbled from between the bricks, and the bricks themselves are crumbling away. In many places an attempt is made to keep up appearances in front, so that, to see the real condition of things in Ancoats, one must get inside the houses, and into the courts and yards.

Size of the Cottages.—And the size of these houses! In many cases the dimensions are extraordinary. In one row the distance from the causeway to the eaves is only 12 ft., in another 13 ft. 9 in., in another 14 ft. 4 in., and very many are under 15 ft. 6 in. At a little distance they look as if a tall man could easily touch the roof. The doorways and windows are diminutive in proportion, and, in order to enable the occupants to move about in an upright position, the builder has “heightened the ceiling” by “lowering the floor!”

In some cases the ground floor is a foot below the causeway level. How can such houses be other than dark and damp and unhealthy? The roofs are often picturesque, and very defective. The woodwork of the doors, windows, etc., varies much in condition. In front it bears evidence of having received an occasional coat of paint, but behind too often no signs of paint are visible, and the window frames are rotting away.

Size of Windows.—Many of the windows have an area of less than 4 square feet; some of them, in fact, are only about 1 foot square, and in some blocks 30 per cent. will not open.

A considerable proportion of the windows are built on a principle which provides a maximum amount of frame and a minimum amount of glass. Very many of the lower front windows open by a panel sliding horizontally, and, when open, exposing an aperture of about 2 square feet in the middle of the lower half of the window. This arrangement leaves the upper third of the room entirely unventilated, for the doorways also are very low.

Size of the Rooms.—Internally, what usually strikes a stranger first is the lowness of the ceilings and the smallness of the rooms. In some cases the living rooms are only 6 ft. high. Many of the rooms are under 7 ft. in height, but the majority are between 7 ft. and 8 ft.; not many exceed the latter height. In cubic space the rooms range from 333 cubic feet to about 1,200, the average being under 1,000 cubic feet for all the cottages we have examined. The following are the dimensions of the rooms in one lot of cottages:—

Front rooms 6ft. 10in. × 8ft. 6in. × 8ft. 8in. — 502 cubic ft.
Back „ 6ft. 10in. × 7ft. 6in. × 6ft. 6in. — 333 „ „

Yet in these houses families of six, seven, and eight people contrive to exist. One house is occupied by two families of five and three persons respectively. There are no fireplaces or other means of ventilation (save the door and window) in the back bed-rooms. One hundred and eight cubic feet of air per head! Truly a liberal allowance, especially of the smoke-laden atmosphere of Ancoats.

Number and Variety of Houses.—The total number of inhabited cottages on the whole area examined is 845, of which 329 have only one sleeping-room; 446 have two bedrooms, whilst only 70 have three bedrooms. Houses in which we have found more than three bedrooms furnished I do not consider cottages, and have excluded from my report. (There are very few besides those in the boundary blocks.) Again, of these 845 houses, 360 are back-to-back, or have only one entrance. In twenty-three out of the thirty-six blocks containing cottage property, there are back-to-back houses, many containing but few, whilst in others they largely preponderate. A few of these houses with but one bedroom deserve special mention. In one court there are four two-roomed

dwelling, forming a portion of the basement of a manufactory and warehouse. The rooms in all are small and dark, but in one case the sleeping-room is behind the living-room, and lighted only from the front room by two small windows about one foot square. This so-called bedroom is simply a small, dark, damp, vermin-infested dungeon, the atmosphere of which has a pestilential odour.

In another block are five essentially cellar dwellings. In each case the bedroom is at the back, and has a window opening into a small yard belonging to the house above, which allows little light to enter. In one corner of the room is a narrow recess, in which is the privy. There is a kind of door between the two, but the only ventilation is from a very small window opening into the yard. In one or two cases the window is absent, and a brick or two has been knocked out of the wall to let in light and air. At each of our visits the draught was inwards, and all the effluvia from the privy coming directly into the bedroom.

In another block is a large court containing a number of back-to-back houses, and on one side are six closets and an ash-place. Over these are two single-roomed tenements. At our last visit we found the tenant (a widow with one child) packing rags between the floor boards, to prevent, if possible, the foetid products of fœcal decomposition ascending into the only room in which they have to live and sleep.

In another block are two instances in which there are closets and ash-places under bedrooms. In the adjoining kitchen, in one of these places, the cupboard and larder is against the side of a closet, separated only by a wall a single brick thick. Can we wonder that the housewife complains that nothing will keep in the cupboard? Butter, milk, or meat becomes tainted in a single night.

In Spittal Street a rainwater spout terminates immediately over a broken flag, and the water finds its way into a closed cellar beneath the adjoining house. It is now three parts full of this mixture of water and rubbish.

In another block is a small court containing four diminutive back-to-back houses, which have just been condemned. These damp, dark, wretched places are bad enough truly; but why they should have been selected for condemnation, when there are scores as bad or worse within a very short distance, one cannot understand. I should like here to protest strongly against the closing of houses in this fashion until other and better houses have been provided for the tenants to go into.

These are but a few of the very many cases which could be quoted from our block reports of small houses, which are barely in a sufficiently sanitary condition for keeping pigs in.

Back-to-back Houses.—Whilst very many of the back-to-back houses are in a generally neglected, filthy condition, often crazy beyond repair, there are three or four small blocks, on two of the larger

areas, of a very different character, and in which I should prefer to live rather than in any of the "through" houses in some of the adjoining blocks. Nearly opposite these is an area covered by a series of rows of three-storeyed back-to-back houses, with disused cellars under. These buildings are over 26 feet high, and the courts are 10 feet 9 inches wide. The houses are only prevented from collapsing by being propped up with immense beams of timber, which tend still further to darken these dark and narrow courts. Although mid-day when we first visited them, I could not see in the lower rooms to write my notes. The closets and ash-places are in the centre of each row, and the stench from them, which constantly hangs about the courts, is simply disgusting.

"Through" Houses.—Before passing on to other subjects, a few more words must be said about the condition of the "through" houses. Taking them as a whole, they are in a far worse state of preservation than the back-to-back ones. In front many of these "through" houses are dilapidated enough, but some slight attempt is made to retain an appearance of decency; at the back such an attempt is rarely made. Inside, also, the "through" houses do not compare favourably with the back-to-back ones. Here, again, it is the back rooms into which we must look. Almost invariably they are dark and damp and small. Usually more or less of the plaster is off the walls, and the floor and exposed bricks are saturated with filth. In many cases the fire-places are tumbling down, and the place is utterly uninhabitable, becoming a mere repository for lumber, which soon becomes fusty, and taints the atmosphere of the whole place. The back bedrooms are small and insufferably stuffy, and almost invariably without fire-places. In one block of thirty-five houses, thirty-four back bedrooms were without fire-places or other means of ventilation, save through the doors and dilapidated windows. The bedrooms, in the great majority of cases, swarm with vermin; and it is an undoubted fact that in warm weather, in scores of houses, the people cannot sleep upstairs on this account. This is so common a condition as to be considered natural by many of the denizens of these filthy hovels.

Water Supply.—Very few, indeed, of the back-to-back houses have a supply of water in the house. Usually water is obtained from a tap either in the court or in the street, and in some cases the houses are 40 to 60 yards away from the nearest available supply. Slopstones are luxuries almost unheard of in such houses. In probably half the "through" houses there is neither water nor slopstone, and, in many cases where water has been laid on, no sink or waste pipe has been put in, and such places are always sloppy and dirty, sometimes a pool of water stands near the tap, making the floors and walls damp throughout the house.

Undoubtedly, over 50 per cent. of all the houses have no convenience whatever provided for washing either crockery or clothes, and the difficulties placed in the way of becoming and keeping clean, encourage the dirty, idle habits to which so many of the inhabitants are only too prone.

Trades Carried On.—It is obvious that, in these small houses, the front room cannot be set apart for shop-keeping, or for use as a workshop, without seriously interfering with the living accommodation; nor can the upper rooms be used for fustian cutting, paper-box making, etc., without interfering with the sleeping accommodation. In very many cases, families eat, sleep, and work in the same room. Most of the trades carried on are unobjectionable in themselves, but poultry dressing, rag and bone and paper sorting, dog dealing, etc., are decided nuisances, not only in the houses in which they are carried on, but often to the neighbours on each side.

In the 845 houses examined, some kind of trade or business was carried on in 288, or 34·1 per cent.

Sometimes the lower room or rooms are used for trade purposes, and the family reside in the one or two rooms upstairs. More rarely the lower room or rooms are used for living and sleeping in, whilst the work is done upstairs. Almost invariably these arrangements lead to overcrowding, and yet the population density of a block containing a number of houses of this character may appear to be low.

Lodgers.—250 houses out of the 845 reported upon are occupied by more than one family, and of the 3,859 inhabitants, 545 are stated to be in lodgings. We have therefore—

Proportion of Cottages occupied by more than one family	29·6 per cent.
Proportion of lodgers to total population ...	14·1 „

There is every reason for believing that both these figures are below the truth. In many cases our questions cause the tenant to suspect we were collecting evidence as to overcrowding, and the answers were evasive or untruthful. As instances, I may mention two typical cases. In a small back-to-back house an old woman who was interrogated said that only five people lived there. Four distinct families (ten people) in fact, were living in the two small rooms. In the second case a couple of houses have been thrown together, to form an Italian lodging-house. We were assured that only ten lodgers were taken, but outside inquiry leads us to believe that frequently as many as thirty people pass the night there. It is probable, therefore, that a number of even the worst cases of over-crowding may have escaped our observation.

Over-crowding.—In a large proportion of the cases one or two lodgers only are taken, and these reside with and seem to form part of the family. In other cases the houses are divided, one family using one part and another the other part. Generally, under such circumstances, the lodgers occupy the front room and front bed-room, whilst the

tenant proper and family live behind; sometimes the front downstairs room only is let off, and the lodgers use it both for living and sleeping purposes, and it is not unusual to find that to insure privacy a passage leading to the back room has been boarded off, thus diminishing materially the size of an already too small room. As many as five people may occupy a room of this character. With reference to this subject I will quote in full my note upon one house in Block 23, because it is typical in many respects:—"This is one of the worst houses in the row, and has a small, very dark scullery. This and the back room or kitchen are both damp. The house generally is dirty, and has a neglected appearance. The yard is small, and the walls are falling. The drain is blocked, and water standing in a pool round the grid. Rats abound. In the wretched little kitchen of 647 cubic feet, lives the tenant with his wife and family of five children. The poor man is in an advanced stage of phthisis, and several of the children have blepharitis. The front rooms are let off to a family of five." Bad as it is, this house is vastly superior to the majority of the cottages in the district, and the inmates, though of the poorest, were not of the lazy, good-for-nothing class which predominate so largely in some of the blocks. It makes one's heart ache to see such unfortunate poor crowded together in this fashion, the bread-winners hurried off to untimely graves, and their innocent offspring contracting and inheriting disease. Instances of this kind are only too numerous, and it is not necessary here to give particulars of more. This sub-letting and lodger-taking is one of the most fruitful sources of overcrowding, and the extent of the evil is likely to be seriously increased if groups of houses are to be condemned, and tenants turned out without any provision being made for their reception elsewhere.

The number of cases of overcrowding in the district is very large, yet it does not reach the average arrived at by Mr. Fred Scott in his paper on "The Condition and Occupations of the People of Manchester and Salford." Allowing two persons to each bedroom, Mr. Scott found that 49·3 per cent. of the houses in Salford, and 61·5 per cent. of those in Ancoats were overcrowded, whilst we find 51·6 per cent. in the No. 1 District. [In tables appended to the original paper details as to the overcrowding, air space, etc., are given for each block.] To compare the overcrowded condition of each group of cottages with the death-rate, a copy of the names and addresses of all the people who had died in the district during the years 1881-5, inclusive, was furnished me by Dr. Ransome. From this the death-rate in the homes of the people for each block was ascertained. These rates proved somewhat paradoxical, some of the worst and most overcrowded parts having the lowest death-rates. Inquiries were therefore made at the workhouse and all the hospitals, and the total deaths from this district in 1887-8 ascertained. The names and

addresses of those dying in 1887 were obtained, and the two death-rates for the various blocks calculated from these data. The oldest, most dilapidated, and most overcrowded property was then seen to have an exceedingly high rate of mortality. In some of the courts the death-rate exceeded 80, and in one street the rate was 91·6. A table giving the death-rate for the various streets, large courts, etc., is given in an appendix.

THE TRUE DEATH-RATE IN NO. 1 ANCOATS. 1887 and 1888.

Year.	Population.	Deaths in Homes of People.	In Workhouse and Hospitals.	Total.
1887	4,522	171	79	250
1888	4,388	137	77	214

DEATH-RATE.

Year.	In Homes.	Workhouse, etc.	Total.
1887	37·8	17·4	55·2
1888	31·2	17·5	48·7

The above table shows that nearly one-third of the inhabitants of this district die in the workhouses or hospitals. When we consider the large proportion of children dying in the homes of the people, it is evident that only a small proportion of the adult population die there. There is no room for ailing people in these wretched little dwellings, and as soon as they are seriously ill they are removed to the workhouse, or in some few cases to the hospitals, where they die.

The Inhabitants.—Our attention must next be directed, though but briefly, to the people themselves, to their habits, character, etc., and necessarily also therefore to the internal condition of the cottages they occupy. The character of the inhabitants varies in almost every block. In the oldest and most dilapidated groups of dwellings we find, naturally, the most abject poverty and the greatest filth. But even amongst those who are by no means to be classed amongst the poorest, in too many cases dirt reigns supreme. A considerable proportion of the men are labourers, hawkers, street vendors, market porters, scavengers, and unskilled workmen generally, a small fraction only earning their livelihood in any employment requiring skill. Many of the women and girls are employed in the factories around. In one or two localities there are undoubtedly a few vicious characters, but these are not nearly sufficient in number to materially affect the reputation of the neighbourhood.

In the newer houses live a more industrious, frugal, and cleanly people, and in one or two instances such tenants are found occupying rows of the older property, which has been and is kept in good repair. When examining one such row, and admiring the exceptionally good condition of the houses generally, the neat and tidy appearance inside, and comparing them with tumble-down wretched places not far away, which were let for as much or even a higher rent (3s. 6d. per week), we were accosted by a person whom we believe to

have been the landlord. Upon informing him of the object of our inspection, he remarked that the high death-rate of Manchester would soon be reduced "if landlords looked after their own property, and at the same time encouraged their tenants to make a more liberal use of soap and water." There is no doubt a good deal of truth in the observation.

Comparison of Back-to-back and Through Houses.

—The back-to-back houses cover some of the very poorest of the people, but probably not so large a proportion as the through houses, and my decided impression is that, taken collectively, the back-to-back houses will compare most favourably as to their condition internally with the through houses. In the latter no attempt, as a rule, seems to be made either by landlord or tenant to keep the back portion of the house clean or in repair, and consequently the back premises generally are in a shocking condition—dirty, filthy, and dilapidated. The back-to-back houses, on the other hand, have no back rooms to get into this condition, and the agents and landlords know that this class of property receives the attention of the sanitary officials, consequently they look after it better. If a house has a front and back door it seems to be assumed that its sanitary condition must be satisfactory, but undoubtedly now the houses which require supervision are those with back premises.

I need not attempt to describe to you the condition of many of these homes of the poor, saturated with filth from floor to ceiling, and swarming with vermin. It would require a much more graphic pen than mine to do it justice. In many cases I assure you the conditions are so vile that it is almost impossible for a description to be overdrawn.

Ventilation of Bedrooms.—Before leaving the houses to consider perhaps the most important part of the subject—the condition of the yards, passages, ash-places, etc.—a few words may be said as to the ventilation of the houses and the atmosphere of the bedrooms. The rooms depend for ventilation entirely upon the windows, doors, and fire-places, and I have already remarked upon the proportion of windows which cannot be opened and the number of rooms without fire-places; and with reference to the doors, it is only necessary to add that the majority of them are very diminutive, some being only 5 ft. 4 in. by 2 ft. The windows which will not open and the rooms which have no fire-places are only found in the through houses. Few families sleep with the windows open, the natural ventilation through the crazy frames or broken panes being regarded as amply sufficient to maintain health. I have made a number of determinations of the proportion of carbonic acid gas in the air of these bedrooms, and the results are tabulated below. Unfortunately I have only been able to experiment in such houses as contained a tenant sufficiently intelligent to be trusted to carry out my

instructions, so that my results will not at all represent the worst cases.

Capacity of Room in cubic feet.	Kind of House.	Number of Occupants of Bed-room.	Parts of Carbonic Acid in 1,000 parts of Air.
1,100 ...	Back-to-back ...	2 Adults and 3 Children ...	1'79
1,008 ...	" " ...	1 " 0 " ...	0'68
1,008 ...	" " ...	2 " 2 " ...	1'20
502 ...	Through ...	2 " 2 " ...	1'31
660 ...	Back-to-back ...	3 " 0 " ...	1'79
664 ...	" " ...	2 " 2 " ...	2'53
1,134 ...	" " ...	2 " 1 " ...	0'95
724 ...	" " ...	2 " 4 " ...	1'18
1,120 ...	" " ...	3 " 3 " ...	2'37
1,377 ...	" " ...	3 " 3 " ...	2'21
1,088 ...	" " ...	2 " (?) " ...	1'77
665 ...	Through ...	2 " 1 " ...	2'62
517 ...	" " ...	1 " 2 " ...	1'68
1,003 ...	" " ...	2 " 2 " ...	0'82

I am surprised that the air is not even more vitiated. Doubtless the reason is that the dilapidated doors and floors, crazy, badly-fitting and rotting window frames allow a very considerable interchange to take place between the foul air within and the fresher air without. That people who night after night, and year after year, breathe such an atmosphere, should be anæmic and dyspeptic, stunted in stature and lacking in physique, is not only what we should expect, but is only too truly what we find.

Yards and Closets.—Most of the through houses have common yards at which two, three, or more houses join, and containing one or perhaps two closets and an ash-place. The separate yards are usually very small, with the closet only a few feet from the door, and in many instances the yards are partially or entirely covered in, so that the closet is practically entered from the house. The yard to one house is 20 inches square. It is bounded on one side by the kitchen door, on another by the closet door, and on the two remaining sides by a high wall. All the yards are supposed to be paved, or flagged, but the general condition is bad, the floors being most uneven, allowing water to stand in pools. Very often the flags are broken and loose, simply resting on a bed of filthy mud; and unless one steps about with care, the clothes become bespattered with sludge ejected from beneath the stone upon which the foot has been incautiously placed. The number of grids and traps to be found blocked is simply incredible. It occurs time after time in almost every block, and in common yards as well as private yards, and not unfrequently in the large courts. The simple gully trap seems the one in common use, and this allows a large quantity of solid matter to accumulate before it becomes stopped. I was inquisitive enough the other day to have one of these opened, as several of the people in the court around complained of the noisome odour which arose from it. The catchpan contained a quantity of black, slimy mud, which, when stirred with a stick, effervesced almost like a bottle of soda water, giving off the

most sickening odour I have yet experienced. These places seem never to be thoroughly cleaned out. In one or two instances small sheds have been erected in the yards for keeping a pony or donkey in, and of course the manure heap grows apace in an adjoining corner. Stables or manure heaps in the centre of densely-crowded blocks of cottages should not be tolerated.

The Entries.—The yard doors usually open into a narrow entry running either straight down or, more commonly, in a zig-zag manner through the block. The ash-boxes are reached through these entries, each ash-place being supposed to be supplied with and closed by a door. Many of these passages are less than one yard wide—some only 2 feet 6 inches—and bounded on each side by the yard walls. Nearly all of them are in an abominably filthy condition. It is, I understand, no part of the duty of the Health Department to cleanse these places; but surely they possess the power to compel the landlords or tenants to keep them clean. I believe I shall be far under the mark when I state that there are no doors to over half the ash-places. In one passage there are seven ash-places, not one of which possesses a door; in another there are 16 out of 18 without doors. It will perhaps give you a better idea of the condition of these places if I read you my notes in reference to one of them: "The entry is less than one yard wide, and is in a very dirty condition. It runs down the middle of the block for nearly its whole length, but does not pass right through; so that it is only open at one end. All the yards and ash-places open into it; so does a stable, in which one or two horses are kept. Several of the ash-places are without doors, and some of the boxes are protruding into the passage, with ashes and refuse strewn around. The place is offensively dirty and the stench sickening. Many of the houses are occupied by people engaged in Shudehill Market, and in some of the yards pigeons are kept; in others, hens; in others, fowls are dressed; and in others, rabbit skins are hung up to dry." To go down the narrow entry, look into the yards, inhale the various odours—that of stable manure at one time predominating, that of the closets, or of the drying rabbit skins, or of putrifying vegetable and animal matters at another—and to see these small yards completely surrounded by such old and, in some cases, dilapidated property, makes one cease to wonder why the death-rate is so high.

All my remarks referring to private yards may, with almost equal truth, be applied to the common yards also. Here, however, we more frequently encounter another nuisance—offensively dirty closets. Where closets or yards or ash-places are common to two or more houses, what is everyone's duty becomes nobody's duty; so that all too frequently these places get into an abominably filthy condition, and give rise to endless bickerings, heart-burnings, and often to open quarrels.

The courts in the centre of large blocks, and around which so many of the back-to-back houses are grouped, are generally in a better condition. As a rule, they are better paved and drained. But in these we constantly received the same complaints about the offensive odours from the grids and from the closets. The latter are often placed very near the doors, and sometimes the closet line is only a few feet from the doorways. One such court contains 23 back-to-back houses and two single-roomed tenements, the latter being over seven closets. The court is approached by four narrow covered entries, some less than a yard wide, and, besides the houses, it contains 17 privies and ash-places. When we last visited it two of the grids were blocked, and pools of filthy water were standing around. The average height of the houses is only 14 ft. 3 in. In another court the only place provided for the reception of ashes is a recess (uncovered) between the row of closets and a house, and immediately under the window of the latter. The recess is only about one yard wide.

The Manchester Dry Ash Closet.—The system of sewage removal is so important that it merits special attention. What that system is theoretically we all know, what it is practically may not be so generally known.

In the 1874 report of the medical officer of health it is stated that the privy and ashpit system "has received its full development." (Plans, sections, and elevations of the Manchester dry ash closet accompany the report.) "Tubs or boxes have been provided for the reception of all house refuse, . . . whilst galvanised iron receptacles have been placed under the closet seats for the reception of the excreta. The latter are to some extent deodorised from day to day by the action of an apparatus which works without any automatic machinery, requires very little care or trouble, and is not expensive. By this apparatus the fine ash removed, with partially burned cinders, etc., from house grates is sifted and delivered over the excreta. Flues are constructed to improve the ventilation."

There is no account of any experiments made to test the efficacy of this system, but there is a considerable amount of theorising and reasoning, proving that the dry ashes will deodorise the excreta, and that if perchance during the summer weather ashes are not produced in sufficient quantity for this purpose, and putrefaction should set in, and offensive gases, etc., be given off, then in such case the effluvia must of necessity arise, pass out of the ventilating shaft, be diffused through the air, and become innocuous and inoffensive. If either the ashes deodorised the excreta, or the flues conveyed away all effluvia, the system would be a great success; but one of the first matters which attracted my attention in commencing this investigation was the abominable odour always hanging about these closets, and the ever-recurring complaints of the inhabitants as to their offensiveness. It was very

evident that the ashes did not deodorise the closets and that the flues did not carry away the malodorous gases; we therefore began to examine into the matter, and soon discovered that the cinder sifters are utter failures. We have not been able to discover a single instance in which they are used. Very many of the people were quite ignorant of the presence of such an arrangement until pointed out to them by us. Not only are the ashes not sifted, but the ash-boxes now are not placed under the sifter for the purpose of catching the cinders, but always in that position in which refuse can most readily be cast directly into it. This is the reason why the ash-box so often protrudes into the courts and passages with refuse scattered around, the reason why the doors are so often open, and also the reason why so many ash-places are without doors at all.

Still, granting that no ashes are mixed with the excrementitious matter, the ventilating flues "should" prevent any nuisance arising therefrom; the lighter gases evolved, with the warm ashes thrown into the ash-boxes, etc., etc., "should" cause an upward draught. Possibly the ventilators were defective, and undoubtedly a large number were found to be broken, disjointed, or otherwise damaged; or possibly they were not carried high enough, for a very large number end below the eaves, and many terminate on a level with the bedroom windows of the surrounding houses. To give the details of the experiments we have tried, to ascertain the exact action of these flues, would occupy too much of our time. I can only say that we have experimented with a number of closets and ash-places, perfect and imperfect, with doors and without doors, with long flues and short flues, and on some days in not one case in ten have we detected any tendency for either gases or vapour to escape through the passage by which they ought to escape. If hydrochloric acid and ammonia be placed in the closet pan or ashes box, in a few seconds dense fumes will escape from around the closet or ash-place door, but we often wait in vain for any signs of it at the mouth of the ventilating shaft. If sulphuretted hydrogen be generated in either of the same places, and its presence tested for with moistened lead paper, it is soon recognised round the ash-place door, but the paper at the mouth of the shaft may remain long unsullied. It is not necessary to be at so much trouble, however, to convince anyone that the present ventilating arrangement is in the majority of cases useless. It is only necessary to hold a lighted match under or over the closed closet or ash-place door. The outward and downward draught is sometimes so strong as to blow out the flame. This is the actual condition of things. This explains why the offensive odour from these places hangs so about the yards and courts. The effluvia is forced downwards, and can escape but slowly from the enclosures into which it is driven.

If it be contended that the ventilators, ash-place doors, cinder sifters, etc., are of service, then they should be kept in thorough repair, and the use of the latter insisted upon; but if they are useless, then the whole system stands condemned, and it should be modified or replaced by something more efficient.

Air Pollution.—A report of this kind would not be complete without some reference to the atmosphere of the locality. The fact that the central and densely populated portion is so hemmed in by loftier buildings, renders it absolutely certain that the smoke from the cottages and from the small works cannot clear away so readily as in more exposed places. The results of my determination of the amount of carbonic acid in the air at Ancoats, and comparison with the amounts found in the air of Victoria Park (about two miles away), and taken about the same time, may be of interest, and so far as they go tend to show that, in calm weather, there is an appreciable difference between the two.

REMARKS.	ANCOATS.	VICTORIA PARK.
Clear and bright.	Carbonic Acid.	Carbonic Acid.
Gentle breeze ...	'414 pts. per 1,000 ...	'432 pts. per 1,000
No breeze. Smoke falling. Very hazy	'755 " " ...	'605 " "
Commencing to rain	'431 " " ...	'395 " "
Dull. No perceptible breeze	'474 " " ...	'403 " "
Very clear. Nice breeze	'343 " " ...	'343 " "

There are several minor nuisances arising from offensive trades, but as they are only of secondary importance I shall not make further reference to them.

Recapitulation.—To recapitulate briefly, we find in this district an almost entire absence of everything which makes a locality healthy, and the presence of everything which tends to render it unhealthy. There are no breathing spaces, no straight wide thoroughfares; on the contrary, every available plot of ground is built upon, and the streets are narrow and short and crooked. The most densely populated portion is so hemmed in by factories and business premises that a free circulation of air is almost impossible, and the smoke from the houses and works, and the effluvia from the closets and yards, pollute the stagnant air. The subsoil is of clay, with most of the houses resting almost directly upon it, causing them to be cold and damp, and accounting for the prevalence of so much phthisis, bronchitis, and rheumatism. The district is nearly level and the drainage is most defective. It is true that here and there a ventilating shaft, connected with a drain, is found; but these are of little use in sewers so nearly blocked with foetid deposits, as many of these are known to be. The gully traps are generally filled with slimy matter, evolving offensive gases copiously, especially in warm weather. The grids and drains are so often blocked that the yards become saturated with slops, and the moisture gradually makes its way to and penetrates the walls and floors of the

houses. The houses themselves are of the oldest and worst description, most of them without a single redeeming feature. The few more modern houses are certainly a little better, but in speaking of them I can only endorse what one of the tenants said to me, when we were examining her dwelling: "Yes, anybody can see they are jerry-built, and they swarm with twitch-clocks and bugs." The rooms are low and dark, and vermin-infested, the walls saturated with the foetid products of respiration and perspiration. The property generally is very dilapidated, and the houses crowded together into blocks surrounded by narrow streets and surrounding still narrower courts. Even were the houses supplied with a purer air, the cubic space per head in the living-rooms and in the bedrooms is miserably inadequate for sustaining health, and in too many cases this space is encroached upon on account of the rooms being used for business purposes or as workrooms. The people themselves are, unfortunately, of the poorest class, almost utterly ignorant or indifferent to those laws the observance of which tends to prolong life and health. Lastly, we have seen the filthy condition in which everything in connection with the interior of these blocks of dwellings is kept, and the total breakdown of the sewage removal, or Manchester dry ash closet system. The former is due in a measure to the character of the property, whilst the latter, or failure of the closet system, affects not only our districts, but Manchester generally. With reference to this matter, do not let me be misunderstood. The dry ash closet system may be an admirable one when sufficiently carried out; but in Manchester there is no attempt even to carry it out, and we cannot wonder, therefore, that it is a failure, and that the death-rate remains high in consequence.

Causes of the Excessive Mortality.—This and most of the other conditions we have mentioned are, as we have seen, common to many districts in Manchester; but in no other district do we find such an aggregation of extremely old, low, damp, filthy, and dilapidated dwellings, nor in any other district do we find the houses so arranged as to enclose so much that is noxious and offensive, as can any day be seen in the yards, passages, and courts of this small portion of Ancoats. To these factors, therefore, we must attribute the excessive mortality.

From 3,000 to 4,000 people are dying annually here in Manchester from remediable causes. Were a radical system of treatment adopted, in a very few years this tremendous sacrifice of human life would be ended, and the general standard of vitality enormously increased. But the treatment must be radical; half measures will not suffice. Condemning a few houses here and a few there, is mere trifling, and cannot itself be too vigorously condemned. It is useless; it is worse than useless, for in many instances it increases the very evils it is intended to destroy.

The blocks of insanitary dwellings such as I have described must be removed from the very foundations. In the overshadowed areas new and wider streets and breathing spaces must be provided to let in light and air. Better houses must be erected. The drainage, at the same time, must be thoroughly overhauled, and the possibility of modifying the present system of sewage removal and closet ventilation, so as to render it satisfactory, should be experimentally and not merely theoretically investigated. The present system, or want of system, is a disgrace to any civilized community. Above all things the sanitary inspection of the densely populated district should be much more efficient, the staff of inspectors being increased if necessary. In all our investigations in the Ancoats districts, though we have frequently met the inspectors in the leading thoroughfares, and have seen them evince a good deal of curiosity as to our movements, we have never on any occasion had the pleasure of meeting one in any of the filthy passages or courts. The instructions issued for the guidance of inspectors, and published in the Medical Officer of Health's report for 1870, are admirable, and if acted upon would soon effect a change in many of the districts; but what is the use of saying that an inspector shall see that the doors of the ashpits are kept locked and in good repair, when in some large blocks 90 per cent. of the ashpits are allowed to be without doors altogether? and of what avail is their inspecting "all courts and passages," and reporting "all such as are in bad condition or in which there are collections of fluid or solid matter," if the Corporation has not the power or will not exert it to cause these nuisances to be removed? To read these instructions, and then to visit No. 1 District, Ancoats, almost drives one to the conclusion that the whole system of inspection, so far at least as that district is concerned, is intended to be a farce; and so it would be were not the results so tragical.

I will not discuss the question as to who is responsible for such an unhappy state of affairs, but merely point out that not only have the Corporation and the landlords duties to perform which too long they have neglected, but the tenants and the general public have also. The duty of the members of the Manchester and Salford Sanitary Association, is to educate and agitate; to educate the people in all matters pertaining to health, and to agitate and continue to draw the attention of the public to the grave defects in the sanitary condition and administration of Manchester, until both are remedied.

MEDICAL OFFICER FOR LEEDS.—Within a few days of the appearance of this number of PUBLIC HEALTH, the important office of medical officer of health for the town of Leeds will be filled up. It is to be regretted that the sanitary authority offer so small a commencing salary as £700 per annum, which is scarcely suitable to the responsibility of the post.