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LOSS OF WEALTH BY THE LOSS OF HEALTH.

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BY JOHN WATTS, PH.D.

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IN calling attention to the money value of health, I am doubtless introducing a novel, but I hope not an unimportant subject, since I am only trying to add one more reason to those which at present actuate sanitary reformers in their work.

The Bible sets down the natural term of a healthy life at from 75 to 80 years, and all experience confirms the reasonableness of the dictum. The last census (1871) shows that there were then living 127 persons of 100 years of age and upwards, whilst those under the age of 80 years were 124,808, and those over 70 years were 624,587. Adopting 75 as the natural term of years which ought to be reached, the mean term of the census ought to be 75 years, but the actual mean age in 1871 was 26·4 years, and after allowing for the increase of births it was 32·1 years, thus showing a deficient average of 5·4 years in the mean age, and the excess of females exceeded those of males by ·5 of a year.

In France the actual mean age in 1866 was 31·5 years, being 5·1 years more than in England. How much of this difference is due to the lesser fecundity of French women, thus lessening the proportion of the population at the earlier ages, I have not tried to make out, as it scarcely comes within the scope of my paper.

It is sufficiently clear that the French people live longer than we do upon the whole; and those who look from time to time at the English tables of mortality will be aware that life is also much longer in some localities than in others. Mr. Edwin Chadwick says he could so build houses as to secure any rate of mortality

from 10 per 1,000 upwards; and we know that there are places where the mortality is now as low as 14 per 1,000. To the extent that the localities of the highest mortality can be improved, sickness will also doubtless be lessened.

At Bellingham, in Northumberland, the deaths at all ages (1861-70) show about 14 per 1,000 per annum, giving an average of 70·5 years of life; whilst at the same date the death-rate at Liverpool was 33, and at Manchester 31 per 1,000, giving only 30·3 and 32·25 average years of life respectively. But the mortality of Manchester during 1877 was only 25·16 per 1,000, thus raising the average of life to 39·7 years. And in the township of Beswick, which has been nearly all newly built within the last few years, and where accordingly the City Surveyor and the Office of Health have had fair play, the death-rate last year was only 19·9 per 1,000, giving an average of 50·28 years of life; and the Officer of Health expresses a confident opinion, that at no distant date the death-rate for the whole city may be brought down to 10 per 1,000, giving then an average life of 55·5 years. The registration sub-districts which show more than the average death-rate are Deansgate, London Road, St. George's, Hulme, Market Street and Ancoats, in the order in which they are here placed; whilst Chorlton, Beswick, Ardwick, and Cheetham fall below the average in the same order; the death-rate in Cheetham being only 16·6 per 1,000, and giving therefore an average term of 60·2 years of life. We need go no further than this statement to show that great improvement is possible amongst us.

And if we look to infant mortality, we find that in all England the deaths under 5 years of age are 26 per cent of the whole number born, in the healthiest districts of England they are 10 per cent, and in Norway they are only 17 per cent, whilst in 3 of the large town districts of England they are 36 per cent, and in Liverpool and Manchester they are between 50 and 60 per cent of the whole number born. The total death-rate in Manchester in 1877 was 25·16 per 1,000, and those at and under 5 years of age were 10·7 per 1,000 of the whole population, or 43·5 per cent of the total deaths. And here again the bare statement of the facts is sufficient proof of the possibility of great improvement.

Mr. Edwin Chadwick, in his address at the Social Science Congress at Aberdeen (1877), spoke as follows:—

“In 1838 there fell to the direct administration of the Poor-Law Board, which I was the Secretary, two large institutions for the care of destitute orphan children, which suffered severely from passing epidemics or from typhus

er. In one at Norwood, containing 700 children, there was a severe outbreak of typhus fever, by which more than a third were attacked and 30 were killed. The general declaration of medical men at the time was that the mortality was occasioned by deficient food; but the food was better and more abundant than the food of the independent wage-receiving classes. I got the case examined by the late Dr. Neill Arnott, who was a specialist in one element of sanitation—ventilation. He pronounced the main evil to be not deficiency of food but deficiency of pure air, and that the remedy was the constant removal of putrefying matter by good drainage, and of foul air by ventilation. This was adopted, with the result of a reduction of the death-rate by about one-third. Next followed the production of clean skins, by regular head to foot washings with tepid water; and this was followed by the reduction of another third of the ordinary death-rate. Other improvements in detail have followed, chiefly in physical training. As sanitary improvement has advanced in these institutions there has been fewer inmates of the sick wards to the extent that only a fourth of the beds provided for sickness are now usually occupied. The particular institution first attacked and eight other large orphan institutions (strict asylums) are now in fact children's hospitals, where numbers are received only to die. All the inmates, as a class, are of the most wretched type of children, all weakly and susceptible to disease; but of those who come in without marked disease, there is now an almost absolute immunity from the children's epidemics. Cases of typhus, at one time scarcely ever absent, have not been seen there for several years. The mean death-rates in these institutions have been steadily reduced to about 3 in the 1,000—that is to say, to nearly one-fourth of the general death-rate of the children of school ages, including the children of the well-to-do classes of the population."

We cannot all, like the migratory birds, and like the late Lord Brougham, follow the sun, and thus secure a tolerably even temperature for the whole year; and we know that quick changes from heat to cold, and from cold to heat, are greatly destructive to human life. I have noticed that in some places during the past very severe winter the mortality has been doubled, and there have been weeks when, in Manchester, it has gone up from 25 or 26, the ordinary rate, to 33 or 34 per 1,000; and we can only by greater knowledge and greater care prepare to a small extent against such contingencies. Fixed as most of us are to a given locality, we must, therefore, look to our immediate surroundings, and try to learn in what respects we can improve the conditions of life, or how we can more thoroughly adapt ourselves to those conditions so as to make the best of them.

Looking at the stream of life as exhibited in the census returns, and that of all the children born amongst us in England and Wales there remain alive at 5 years of age about 74 per cent, at 10 years 71 per cent, at 15 years 68 per cent, at 20 years 64 per cent, at 30 years 64 per cent, at 40 years 50 per cent, at 50 years 43 per cent, at 60 years 34 per cent, at 70 years

23 per cent, whilst only about 16 per cent reach the full allotted term of 75 years.

If I ask, Why do not all these children live until 75 years of age the answers will be legion: "Defective at birth, born with hereditary diseases, born with weakly constitutions; whilst ignorant mothers, careless nurses, infectious diseases, accidents, mothers obliged to work too long during pregnancy, and to return too soon after delivery," will furnish a few of the more prominent reasons which will be properly urged. Leaving these matters to be dealt with by legislation, by education, and by further improvements in municipal and sanitary arrangements, let us advance to the working age, where the sickness which usually precedes death, and which often returns many times before proving fatal, is capable of being treated under a money aspect.

The life assurance companies ask a proposing assurer, among other questions, if he has had the ordinary diseases of childhood implying that if he has not, then the life is more risky to them. We are now taught that what are called zymotic diseases are not necessary for the establishment of health in adult life, but are only caught by contact with diseased persons or their clothes, by breathing an infected atmosphere, and that such diseases can be stamped out. We may therefore look with confidence for improvement in these respects. Dr. Haviland read a paper at the Society of Arts, on 31st January last, showing that certain classes of disease are very much localised; and the paper was of a thoughtful character that Dr. Richardson spoke of the labour involved in it as overwhelming. The broad conclusions drawn were that scarlet fever is most prevalent in Lancashire, in Durham and in the northern counties generally, and least prevalent in Suffolk, in Hants, and in Hereford; that rheumatism and heart disease are most prevalent where the high ground lies so as to obstruct the prevailing winds, and so to accumulate what he called air sewage in the valleys, or where the axes of the rivers cross instead of going with the course of the prevailing winds; and in instances the unventilated valleys of Devon, Dorset, Hants, and Hereford, as peculiarly liable to these diseases.

He states that cancer is most prevalent on low-lying river banks which are subject to flooding, as is the valley of the Thames, and that it is least prevalent on high and dry porous soils; that consumption is most prevalent amongst females on the eastern ridges of the south-east of England, and on the elevated parts of the west of England, where west and north-west winds prevail.

and that it is lowest in sheltered, well-drained places, on ferruginous soils; and that cholera and typhus arise principally from contaminated water and from sewer gases everywhere.

Well, if prominent diseases can be so localised, this knowledge will doubtless lead to further study of the various localities, and the peculiar causes which are operative in those localities to produce such results; and the diseases themselves will, without doubt, be more effectually dealt with in consequence.

In Lancashire we are credited with an undue amount of scarlet fever, and we are told by able physicians that this is a preventable disease; and on turning to the last report of the Officer of Health for Manchester, I find that the mortality from scarlatina is sensibly decreasing, and it may, I hope, be fairly assumed that scarlatina itself is also on the decline. The mortality from this disease per 1,000 inhabitants in 1874 was 1·18, in 1875 it was ·91, in 1876 it was ·89, and in 1877 it was ·80.

Whether the Officer of Health has yet arrived at perfection in his constructive alterations of our cottage property, so as to prevent disease, or whether the improvement noted be due simply to the prompt removal of patients into hospitals, or their isolation at home and the disinfection of clothes and premises, I am unable to say; but our gratitude is equally due to those who originated and who are carrying out these measures, which affect not scarlatina alone but the whole class of febrile diseases. Thus the mortality from fever in 1874 was ·54 per 1,000, in 1875 it was ·52, in 1876 it was ·50, and in 1877 it was ·39. In measles the mortality in 1874 was ·50 per 1,000, in 1875 it was ·45, in 1876 it rose to ·83, and in 1877 it fell again to ·50 per 1,000. In whooping-cough the mortality in 1874 was ·76 per 1,000, in 1875 it was again ·76, in 1876 it was ·74, and in 1877 it was ·82 per 1,000. These effects are upon the whole too regular to be accidental, and must evidently be traced to some cause which is in constant operation.

It would be well if in the next returns the Officer of Health would give us the numbers of cases of each of these diseases, and the number treated by the authorities, as well as the number of deaths, so as to show if there be any amelioration in the attacks, or whether we owe the improved condition of affairs to the treatment only.

In diarrhœa, which is thought to depend considerably upon the state of the atmosphere, the mortality in 1874 was 1·92 in 1,000 inhabitants, in 1875 it was 1·43, in 1876 it was 1·59, and in

1877 it was .84 per 1,000. And whilst speaking of atmospheric effects it may be useful to quote our fellow-citizen, Dr. Angus Smith, who says that the proportion of oxygen in pure air is 20.999 per cent, and that if  $2\frac{1}{2}$  per cent be abstracted, the atmosphere will not then support the combustion of a candle or sustain human life, and, of course, vitality is lowered in exact proportion to its withdrawal. In the outer circle of Manchester the quantity of oxygen in the atmosphere is 20.947, in the pit of a theatre it is 20.740, and about the backs of our cottage houses and closets it is 20.700. And in addition to our atmosphere being short of its proper quantity of oxygen, it is greatly overloaded with carbonic and sulphuric acids and ammonia, which are very deleterious.

Now the principle of the structural alterations carried out by the Officer of Health is to produce ventilation in closets and ashpits, and the small difference which now exists between absolutely pure air and that of the outer circle of Manchester is sufficient to assure us that, if we once get efficient ventilation in our back streets, we may trust to the natural law of the diffusion of gases for the rest.

Mr. William Thomson, in a paper read at the Society of Arts on the 13th of the present month (March, 1879), quotes a record by Dr. Clarke, master of the Rotunda Hospital, Dublin, in 1783 to the effect that during twenty-five years, when the ventilation of that hospital was bad, there were 18,000 children born there, of whom 3,000 died in the first fortnight after birth. That in the following twenty-eight years, after the adoption of improved ventilation, 15,072 children were born, of whom only 550 died during a similar period, being 1 in 27 instead of 1 in 6 births.

Our fellow-citizen, Mr. Peter Spence, proposed many years ago to carry the products of combustion from all our workshops and dwellings into the sewers, instead of letting them escape directly into the atmosphere. He proposed, also, to erect tall chimneys, with furnaces attached, through which to discharge these products, together with the noxious gases from the sewers, at such an altitude as would secure their complete and immediate diffusion and so to secure a pure atmosphere within the city. If this were accomplished, we might not only breathe a purer atmosphere, but see trees growing in our midst, and thus, whilst adding to the beauty of our city, also lessen our sickness and lengthen our lives.

This ventilation of sewers appears to have been successfully accomplished at Torquay, by the erection of a tall chimney with a

rnace, in connection with a high-level sewer, which discharges to the sea at all states of the tide ; and I am told that the houses in that delightful locality are in consequence no longer full of sewer gas at high tide. If this be so, there is hope for us in Manchester.

Mr. Thomson, in the paper already quoted, says that all the houses at the new Law Courts, London, are connected with one chimney, with the view of securing complete combustion and the absence of smoke. It is questionable whether such a system will much improve the atmosphere for health purposes, apart from special arrangements to secure complete diffusion.

Those who know Manchester will not fail to recognise overcrowding of dwellings, together with want of ventilation, as active elements in producing measles, whooping-cough, fever, and scarlatina, when they hear enumerated the districts where they are most prevalent. I have taken the average of deaths for each of these diseases for the years 1874-7 in each registration sub-district, and have massed the whole to see which sub-districts come above and which below the general average for the city most frequently. For measles, Ancoats is above the average in three years out of four ; St. George's and London Road for two years each ; Market Street, Deansgate, Ardwick, Hulme, and Chorlton for one year each ; whilst Cheetham is regularly below the average.

For whooping-cough, Ancoats is constantly above the average ; London Road, St. George's, and Ardwick are above it in three years out of four ; Deansgate and Chorlton for two years each ; Hulme for one year ; whilst Market Street and Cheetham are regularly below the average.

For fever, Market Street is constantly above the average ; Ancoats above the average for three years out of four ; St. George's, London Road, Ardwick, and Hulme are above the average for one year each out of the four ; whilst Deansgate, Cheetham, and Chorlton are regularly below the average.

For scarlatina, St. George's and Hulme are above the average for three years out of four ; Ancoats, London Road, Ardwick, and Cheetham for two years each, and Deansgate and Market Street for one year ; whilst Chorlton is regularly below the average.

And taking the whole of these four diseases for four years, thus making sixteen terms, Ancoats is above the average in twelve cases out of the sixteen, St. George's nine, London Road eight, Ardwick seven, Market Street six, Hulme six, Deansgate four, Chorlton three times, and Cheetham twice ; and there is no doubt

that these figures show very fairly the comparative healthiness of the various districts of the city.

Now although the money cost of these diseases is, by hindrance to the work of various members of the household where they occur, very great, in addition to that of medical aid and medicine and of the extra food adapted to the cases, yet there are no means of estimating its amount, and therefore no means of assessing the money value of sanitary improvements in these cases for the present. I turn, therefore, to the sickness of the wage-earning class

And even here it would, of course, be simple waste of time to occupy my hearers with a disquisition upon sickness which is unavoidable, since, however costly it may be, it must be borne. But my impression is that much of the sickness which afflict adult society is quite as capable of prevention as are the zymotic diseases amongst children.

The average annual sickness for the whole of England, deduced from the experience of friendly societies, is given in weeks by Mr. Neison, in "Vital Statistics," as follows:—

Age. Yrs.	Rural Districts. Weeks per annum.	Small Towns. Wks. per annum.	Large Towns. Wks. per annum.	The Whole. Weeks per annum.	Age. Yrs.
20	·8387	·8564	·5659	·8398	20
25	·8630	·8649	·9650	·8744	25
30	·8753	·8794	1·1059	·9107	30
35	·8991	1·0114	1·2372	·9836	35
40	1·0677	1·2669	1·4663	1·1808	40
45	1·2537	1·8323	1·8125	1·4931	45
50	1·5896	2·5559	2·3831	1·9603	50
55	2·3260	3·3029	3·3036	2·7047	55
60	3·8531	4·9132	4·4973	4·1657	60
65	7·6305	9·1387	5·9019	7·7501	65
70	14·1949	15·4995	9·9610	14·0391	70
75	20·7848	24·0134	22·3864	21·4661	75
80	24·3545	32·9841	35·2065	26·9405	80

It will be observed that sickness at about 46 years of age double that at 20 years; that at about 54 years of age it is thrice as much as at 20 years; that at 60 years of age, it is five times as much as at 20 years; and that at 65 years of age it is nine times as much as at 20 years.

I think, however, that this table, elaborate as it is, gives us but a very inadequate view of the general sickness experienced by the wage-earning class in England, for the following reasons: (1) The members of friendly societies are for the most part, by a proce



of natural selection, the most prudent of the working classes. (2) They must be healthy when admitted into the societies. (3) Sickness brought on by their own misconduct is not recognised. (4) If they become very poor, or dissipated in habit, they generally neglect to pay subscriptions, and so fall out of benefit. The Manchester Unity of Oddfellows admitted 40,000 and lost 20,000 members in the year 1844, and the experience of 1877 does not differ materially in this respect from that of 1844.

But if we adopt the sickness measure of the friendly societies, as given above, we shall find much work for sanitarians to do, in order to bring up large towns to the position of the rural districts, where we know that except for outdoor occupations the means of health are not greater than in large towns; and we must not forget that a very considerable proportion of the town members of benefit societies are also employed in outdoor occupations. Nevertheless the sickness in large towns exceeds that of the rural districts, according to Neison in "Vital Statistics," 1857, as follows:—

At 20 years, 32·76 per cent.

30 26·33

40 37·34

At 50 years, 49·91 per cent.

60 16·72

70 29·81

The average excess during the best years of life, say from 20 to 50, is about 36·58 per cent, and seeing that members of friendly societies are a select class, we may safely conclude that the sickness of the outsiders, especially in large towns, is much greater. Mr. Neison gives another very interesting table, showing the percentages of members of benefit societies who are sick at various ages, and the mortality resulting therefrom, together with the average total sickness to each death.

Ages.	Percentage of Members Sick.	Mortality per cent of those sick.	Aver. Term of Sickness per ann. in weeks.	Total Sickness to each death in weeks.
21-25	22·03	3·05	3·85	126·12
26-30	21·69	3·32	4·19	125·99
31-35	21·01	3·75	4·35	115·94
36-40	21·54	4·06	4·94	121·57
41-45	22·98	4·53	5·94	131·14
46-50	24·60	5·16	6·85	132·71
51-55	27·64	6·24	8·51	136·38
56-60	30·24	7·27	10·92	150·22
61-65	35·56	8·61	15·19	176·38
66-70	46·84	9·60	24·22	252·29

Thus we get a general average of 27·41 per cent of members (ages 21-70) sick during a year for an average term of 8·89 weeks each, and resulting in a mortality of 5·55 per cent of the sick, or 15·2 per 1,000 of the whole of the members; and the total sickness, averaged on those who die, amounts to 146·87 weeks each. Thus 21·86 of those who are sick do not die, so that, speaking roughly, one-fourth of the members are sick, and four-fifths of these cases of sickness are not fatal.

I learn from the same book that the sickness in the English societies is more than is experienced in the Scotch friendly societies, the excess being at 30 years of age 8·02 per cent, at 40 years 17·28 per cent, at 50 years 5·38 per cent, and at 60 years of age 5·36 per cent, although the mortality in Scotland exceeds that of the English societies at 30 years of age by 4·79 per cent, at 40 years by 14·71 per cent, at 50 years by 10·95 per cent, and at 60 years by 16·13 per cent. Do Scotchmen persevere at work when Englishmen give up, and become claimants on the societies? and do Scotchmen die sooner in consequence?

I think it fair to conclude from the facts cited, and from the small mortality amongst the sick members of friendly societies in England, and from the fact that the general expectation of life between 20 and 70 years of age in friendly societies is greater by 7·74 per cent than that of the whole population at the same ages, that much of the sickness experienced even in these societies is preventable; whilst outside of them, where prudence is much less, and the resort to competent medical assistance is usually put off as long as possible, a very large portion of the sickness and suffering experienced might be avoided by more careful living. It must be remembered also that the only cases of sickness recorded by the friendly societies are where claims are made upon them, and we are all aware that the loss of work for a day or two frequently occurs by temporary illness, for which a claim is never made.

Medical men are also well aware that many of the Monday calls for their services arise from over-indulgence on Saturdays and Sundays; that many others arise from imprudent changes of clothing, from night exposure to great contrasts of temperature, and from various other easily avoidable causes. So that without touching upon the notorious evils of over-indulgence in intoxicating drinks and tobacco, it is quite clear that more knowledge and more prudence would lead to a great decrease of sickness.

And whilst mentioning the matter of alcoholic drinks, I cannot help once more directing attention to the monstrous fact, that

whilst magistrates continually declare that nearly all their work, and a large portion of that of the Poor-Law Guardians, is due to drunkenness, they still continue to *give away* victualling licences which are immediately marketable at from £2,000 to £4,000 each) to people who regularly eschew victualling, and who care only to deal in intoxicating liquors. I am not aware that magistrates are obliged by law to grant such licences at all, and if they do grant licences for localities where they think them desirable, I think they certainly ought to seek power to enable them, by selling such licences, to raise a fund with which to buy off such of the existing licences as have become undesirable.

If there be any doubt remaining as to the preventability of much of the sickness now endured, an extract from the address of Mr. Edwin Chadwick, already referred to, will put it aside. He says:—

“ Sir Robert Christison, the distinguished consulting physician on the prisons of Scotland, declares that the general prison of Scotland—that of Perth—is apparently the most healthy place in the world. He states to me: ‘The healthiness of the general prison is almost marvellous. I have, down to the present time, inspected it as Government Inspector six times annually for thirteen years past, and have very seldom indeed found more than one man and one woman in bed amongst 750 prisoners—once or twice no one.’ In the common condition previously, from such a number of prisoners, a large sick ward would be occupied. He is most emphatic in his expressions of astonishment at the result. I have heard similar expressions from prison surgeons in England, and that they are wont to say of patients in their private practice, ‘Oh, if I could only have that case in prison I could save the life.’ It may be said that the epidemics which ravage the populations under the rule of the gailie bodies, vestries, and the like, do not now touch the populations in the prisons under the care of the State. Epidemics rage around them, but do not enter them, unless it be by some extraordinary accident, or some very culpable negligence.”

In looking to the various classes of workmen whose sickness is above the average, it is not surprising to find coal and iron miners at the top of the list. The general average of sickness experienced by men who are from 30 to 40 years of age, expressed in weeks, is 998 yearly; that of miners is 15621 or 5641 per cent higher. I believe that sickness and life assurance societies charge miners an additional premium of 25 per cent, which is none too much for the extra risk. But it is surprising to me to find in a table quoted from the late Mr. Ratcliffe, General Secretary to the Manchester Unity of Oddfellows, that, in their experience, stonemasons, agricultural and other labourers, and weavers, are all above the average of sickness; whilst mill operatives, plumbers, painters and

glaziers, carpenters, bricklayers, plasterers, and slaters, all fall below the average. I should think, with Mr. Neison, that it must be in consequence of the small numbers in these callings giving an uncertain result.

But there is no need to pursue this inquiry further. I have presented the diminishing stream of life from one year and onwards, to show how far we are from realising the Bible expectation of length of days. I have quoted the modern opinion that the diseases which destroy infant and child life are for the most part preventable; that many of the worst forms of disease which destroy adult life have been localised, with the prospect of getting a more accurate knowledge of the peculiar causes which produce them, and leading, we may hope, to treatment which will diminish their virulence, and lessen the mortality which now results from them.

With regard to sickness which does not end fatally we have no accurate data. We know generally that sickness is 36.58 per cent greater in large towns than in rural districts, according to the friendly societies returns; and, rightly or wrongly, we set down a large portion of that difference to a vitiated atmosphere, to overcrowding, and to defective construction of dwellings and of sewers connected therewith; and we have found what appears to demonstrate the correctness of that view by the lower and still lowering mortality of Manchester under the *regime* of the Health Committee, for we may safely assume that sickness and mortality generally run on parallel lines. We know also that the general mortality of friendly societies is much less than the general mortality of the whole population at similar ages. We know that whilst 27.41 per cent of the members of these societies are sick in the course of a year, only 5.55 per cent of the sick, or 1.52 per cent of the whole members between 20 and 70 years of age, die; and this knowledge forces on us the speculation: "How many more of these sick people would die but for the medical assistance which theirs by right, and which is always at hand? How much longer would be the sickness of those who do ultimately recover, if left without the prompt medical aid to which their membership entitles them, assuming that they would recover at all without such aid? How much more frequently would illness recur in all these cases but for the good advice which is always at their service, as to diet, clothing, management of the house, and as to general habits?"

It would be a gross libel upon the medical profession generally to doubt that their best energies are continually devoted to their work, where duty and interest harmonise, and that the ev

widening circle of knowledge at their command is constantly made useful to all who are brought under their care ; and the very fact that this advice is needful is proof that with more knowledge there will be less disease—in other words, that much of the present suffering need not be.

And as we know that mortality is less in friendly societies than in the population generally, is it not fair to conclude that sickness is more rife amongst non-members also, seeing that they must be accounted less prudent, and can only be divided into those who run the risk of serious pecuniary difficulties if they need medical aid, those who go to the free medical charities for help, and those who entirely neglect any means of relief until they are past help and past hope ?

Now, if I have satisfied you that any considerable amount of the sickness at present experienced would, under improved conditions, be prevented, it will be well to learn to what extent personal and social suffering is accompanied by pecuniary loss. It looks a small matter that a man should miss a few days' work occasionally because he is not quite well ; but when we learn that in the Manchester Unity of Oddfellows alone there was paid for sickness in 1878 the sum of £347,213, or 13s. 4d. per member, and that this large society, whose ramifications extend all over the civilised world, only represents about 10 per cent of the heads of families in England and Wales, and only about 2 per cent of the whole population, it is no longer to be called an insignificant affair. The heads of families in England and Wales number about 5,111,111, of whom 4,259,259 are working-class families, whose weekly wages will amount to about £5,322,675, or £887,112 per working day. Now the heads of families do not comprise all the workers therein, but they are sufficient for my purpose. The experience of friendly societies, according to Mr. Neison (1867), shows an average of about 2.45 weeks per annum per member for all ages between 21 years and 70 years. But we have to include in our calculations the less prudent men, who are not members of friendly societies, and we may therefore safely assume an average sickness of 2½ working weeks per annum, and then we shall find that by loss of work through sickness the working men lose no less than £13,306,687 per annum ; and if we add 25 per cent to that sum for the losses of employers and dealers by lessened trade, we shall find a loss to society the measure of which is £16,633,359, or £1,108,890 for each day of sickness.

Here, then, is our additional motive for work as sanitary

reformers ; for every day that we can lessen the average sickness of the heads of families in England and Wales we shall add to the wealth of the country by more than a million sterling. I am quite aware of the duty laid upon us all, by the very fact of living in society, to assist in ameliorating the evils which are more or less inseparable, for the present, from what we are pleased to call civilisation—quite aware that philanthropy, apart from any other consideration, demands our best efforts—and aware also that if we ourselves are not repaid in kind for whatever we do, the improvement effected in society by our means will be experienced by our children. I recognise in its fullest meaning the doctrine laid down by John Stuart Mill, that we all of us owe much to posterity, for that we can only repay the advantages left to us by our forefathers, by handing them down with interest to those who are to follow us.

But I do not think, however much some men may sneer at the money view of philanthropy, that the arms of our rulers will be weakened for good work by the knowledge that while they are lengthening life and its opportunities, shortening sickness and its accompaniment of physical suffering, they are also, in return for the rates which they collect, so expending the money as actually to enrich the community which they seem to oppress. The money view of a subject needs no apology amongst men who recognise the fact that money consists only of orders upon the holders of commodities, or the means of producing commodities—consists only of orders for food, clothes, shelter, and the other comforts of life ; and that he who enables another to earn or to save money enables him to support life and to add to its comforts. He who destroys the props which support my house destroys my house, and he who takes away the means by which I live takes away my life ; and so he who helps to prop my house supports my house, and he who teaches me how to live sustains my life.

The heads of families in Manchester and Salford are about 111,111, the working-class families being 92,593, whose weekly wages amount to about £115,741, so that the average sickness of  $2\frac{1}{2}$  weeks (this average is for the whole country, and is much exceeded by large towns) will cost £289,352, or £19,290 for each day of sickness. For every day that this sickness can be prevented by public sanitary measures, the authorities of Manchester and Salford will add to the wages of working men £19,292, and with 25 per cent added, for profits of employers and dealers, the gain to society will be £24,112 for every day so saved from

sickness. And if the sickness of the workers be lessened by public improvements in and about their homes, and by the isolation of cases of infectious diseases, the health of the non-workers will also be improved, and will thereby save money if it does not earn it; and this prevention of sickness amongst the wives and little ones will allow the bread-winner more frequently to rest in peace after his day's toil, and to leave home in the morning with a light heart and a smiling face, and to work on through the day without anxiety about the condition of affairs on his return.

Of course the work of the sanitary reformer will be incomplete, unless those who are principally to gain by its results can be got to take an interest in its progress. It is of little use to cleanse a house if the housekeeper understands not the importance of cleanliness; it is useless to erect ventilating shafts if they are to be stuffed up in order to prevent draughts; it is almost useless to disinfect the clothes of people who do not believe that infection is carried from house to house by contact; it is not of much avail to employ a public analyst, to prevent the adulteration of food and drink, if people wilfully and constantly put into their stomachs what they know, or ought to know, to be unhealthy. But if the Sanitary Association can, by lectures, or tracts, or visitors, or by all these means combined, spread common-sense views upon these subjects, then the work of the local authorities will be well supplemented, and a large measure of improvement secured. And if the working classes can be induced to put themselves in a position to secure prompt and efficient medical assistance as soon as illness commences, sickness will be much shortened, and mortality much decreased by that measure alone.

Until the establishment of the Provident Dispensaries this was not possible to the poor man who valued his independence, and who could not afford to pay the ordinary medical fees. Now, however, the case is very different. Provident Dispensaries, available for more than half of the two boroughs, now exist, and some 12,000 or 13,000 people, for whom friendly societies do not provide, are enrolled in membership, thus extending to the whole family, in each case, the efficient medical aid which the friendly societies provide for the workers only. And there can be no doubt that the multiplication of these dispensaries, so as to include all the poor families of Manchester and Salford, would do more than any other one plan to supplement the work of the Health Committee in shortening the term of sickness and lessening the mortality of the people.

The average day's wage is about 4s. 2d., and the annual subscription to the dispensary is 4s. 4d. for a single person, so that if the annual sickness was lessened by a single day the member would lose no money whilst he would certainly gain in health. But the probable annual average of sickness is 15 working days, and the difference between large towns and the rural districts is five days, most of which ought easily to be saved. Now 17s. is the annual subscription to the dispensary for a large family, and this is only about four days' wages, or less than the difference between the loss by sickness in rural districts and large towns; and this subscription includes efficient medical aid and medicine, together with free admission to the Royal Infirmary, to the Children's Hospital, and to the Clinical Hospital, in all cases where the peculiar treatment of these hospitals is advisable.

The Officer of Health believes in a reduction of mortality, within a reasonable date, from 25 to 18 per 1,000; a similar reduction in sickness would average 4.25 days per annum, and would save in wages £81,991 for Manchester and Salford workmen, or, adding 25 per cent for employers and dealers, £102,489. But this large sum represents very inadequately the real amount of saving which would be effected. Winnowed as the applicants to free medical charities have been in the last four years, by the inquiries in connection with the Provident Dispensaries, their out and home patients still count up to 96,689 in the course of a single year, or nearly 20 per cent of the whole population. Some of these probably turn up more than once per annum, but it is very obvious that the proportion is still very much larger than it ought to be, and than it would be, if restricted to those who cannot pay the Provident Dispensary subscription, and it is equally clear that the number might be, under proper arrangements, very much reduced.

Upon the whole it is evident to my mind that a common understanding amongst the local authorities, the medical men, and the Sanitary Association, would make practicable a much greater degree of improvement than can be expected to result from isolated effort, and that such understanding, whilst ameliorating the condition of the sick, and lengthening the average term of life, would also add considerably to the material comforts of the working classes, and to the wealth of society.