where they now pay 4d. If so, it would indeed be gross extortion, an exaction of 50 per cent. excess of payment in return for 14 per cent. only of partial extra accommodation; for mark you, it is only the air space that is to be increased, no extra bedding or other thing is called for. No, the argument will not bear looking into; it is of a kind that might be set up as an excuse for short weights and measures, and to show how little this money plea is worthy of consideration I may mention, what I think it will shock you to hear, that Maidstone stands alone in this matter. After diligent inquiry throughout the whole of Kent, many places in Sussex, and not a few others of standing similar to Maidstone in various other parts of England, I have been unable to discover a single instance where the standard for air space is so low as 240. 300 feet is all but the universal figure, but in some cases it is 350, and yet, as far as I can learn, there is no reason to believe that a night's lodging is to be had for less money here than elsewhere. In point of fact, I have interviewed regular habitués of these sort of places, from whom I learn that the established charge here and elsewhere, at Rochester, Chatham, Sittingbourne, Faversham, Canterbury, Dover, Gravesend, Dartford, Woolwich, etc., all alike is 4d. per bed per night, 2s. 4d. per week, which sum works out in some cases, as at Broomfield's lodgings for instance, for a single room from 32s. 8d. to 35s. per week, say £90 a year ready money, in return for which a miserable pittance of air space is provided, amounting only to from 257 to 266 cubic feet per head.

Surely such a state of things, if not in exact line, at least is on a level with the so-called practice of trade "sweating."

Nothing more need be said concerning so transparent a subterfuge; it is not likely to mislead any right thinking man. . . . I trust by the disclosure of these details you will be led to the conclusion that for a wayworn creature to recruit his wasted energies 240 cubic feet of air space is not enough, and that the concession on the part of the landlord of 300 cubic feet of air space in place of 240 cubic feet, which after all is but a fraction of the proper allowance required under wholesome conditions, is not to be reckoned too much of an indulgence, even for a poor tramp.

Without troubling you with the scientific explanation of the fact, one consideration yet remains that ought not to pass altogether unnoticed. I refer to the personal conditions of the people frequenting these places; ill-fed, ill-clothed, dirty, and degraded as they sometimes are, common lodging-house lodgers are less able to resist the evil effects of foul air, and thereby stand in greater need than better conditioned people of the purifying and restorative effects of restful sleep in wholesome surroundings, a thing impossible with less than the fourth part of the air supply which the functions of nature demand.

THE NON-PARTICIPATION OF THE HIGHER AGES IN THE IMPROVED EXPECTATION OF LIFE IN ENGLAND.

By ARTHUR NEWSHOLME, M.D.*

THE question why the expectation of life has not improved for ages beyond twenty in males and forty-five in females according to the experience of England and Wales (1871-80), an experience which appears to be shared to a certain extent by Brighton in the decennium 1881-90, is an interesting and important one, and deserves careful consideration.

1. An initial doubt is thrown by some on the accuracy of the data which show such a result. It is suggested that with advance of time, the age returns at the census enumerations and in death certificates have become increasingly accurate, and that the increased mortality and diminished expectation of life at the higher ages is the result of this increased accuracy of statement, and, therefore, only apparent. That there is occasional exaggeration in the statement of age at advanced years, and that among females between twenty and fifty there is a not infrequent understatement of age is well known. It cannot, however, be supposed with an appearance of reason that any alteration in the operation of these or like causes will explain the diminished expectation of life in England in 1871-80 as compared with 1838-54.

2. A favourite explanation of the diminished expectation of life in adult years is that, owing to the saving of life in the earlier years of life—a saving which has been especially in zymotic diseases and phthisis and other tubercular diseases—there has been a larger number of weakly survivors, who would under the former *régime* have been carried off by these diseases. In other words, the operation of the law of the survival of the fittest has been impeded, with results unfavourable to the health and vigour of adult life. This argument assumes that weakly children are more prone to attack by infectious diseases than robust children, an assumption which experience does not confirm. These diseases appear to attack the majority of children, weakly or robust, who are exposed to their infection. It might be reasonably expected, therefore, that with a decrease in the total deaths from infectious diseases there would have been at least a corresponding decrease in the number of those who are left maimed by an attack of one of these diseases to survive to adult life. We personally think that the weeding out of weakly lives, caused by the greater mortality among weakly children suffering from an infectious disease, is almost entirely counterbalanced by the greater number of children made weakly in former times by non-fatal attacks of an infectious disease.

The case for deterioration of the race by survival of patients who would formerly have died in early life from phthisis and other tubercular diseases

* From the Brighton Life Table, 1881-90.

appears to be a stronger one. It is probable that a larger proportion of phthisical patients are cured than formerly. It is probable also that many more children with a strong tendency to phthisis, or even suffering from its early symptoms, are prevented by the improved medical treatment and the improved social conditions of recent years, from developing the disease. These now may survive to adult life and become the parents of children with a strong tubercular tendency.

Such a fact need not, however, cause any serious apprehension for two reasons. In the first place, hereditary tendencies to phthisis only act under favourable predisposing conditions, such as damp and overcrowded houses, sedentary occupation in a cramped position, etc.; and in presence of the active exciting agent, the specific bacillus to which phthisis and other tubercular diseases are due. The exciting cause of tuberculosis is the introduction *ab extra* of the specific infection by inhalation or by means of food.

In the second place, assuming that more phthisical patients survive than formerly, is it not equally true that fewer persons become phthisical than formerly? With a diminution of the active cases of phthisis, the number of centres for phthisical sputum, which as dust is the chief cause of subsequent infection, must have diminished to a corresponding extent. Of the fact that the predisposing causes of phthisis—damp and overcrowded houses, ill-ventilated workshops, etc.—are steadily diminishing, there is evidence on every hand. It is therefore reasonable to suppose that much at least of the deteriorating effect of survival of tubercular persons is counterbalanced by the large number of persons who are prevented by improved sanitary and social conditions from becoming tubercular.

It is premature at present to attempt by statistical means to determine how far the counteracting influences which are at work balance each other, or, assuming that they do not balance, on which side is the preponderating effect.

3. The increased stress of modern life is supposed by many to explain the increased death-rate among adults. It is doubtful if such increased strain exists in the community as a whole. Each adult as he becomes year by year more deeply involved in the battle of life, comes to the conclusion that the general strain of life in the community is increasing, forgetting that the same causes operated as life advanced in previous generations. There is reason for thinking with Dr. Pye-Smith that much of the evil ascribed to "over-pressure" is really due to over-feeding and drinking.

Assuming, however, that over-pressure exists in certain stations of life, *e.g.*, among city merchants, medical men, etc., it cannot be said to exist generally among professional men. Clergymen, lawyers, civil servants are as classes long-lived.

Even assuming that over-pressure exists through-

out the whole of the professional and mercantile classes, these do not form the mass of the community. The majority of the population of England and Wales belong to the wage-earning classes, and the conditions of these classes will therefore necessarily have the greatest influence on the total result. What are the facts as regards these classes? They may be gathered from an important address by Mr. Giffen.* He shows that the wages of the agricultural labourer have increased, while his hours have decreased. In the textile, engineering, and house-building trades, he shows that the workman gets from 50 to 100 per cent. more money than 50 years previously for 20 per cent. less work. He sums up in the following general statement: "While the workman's wages have advanced, most articles he consumes have rather diminished in price, the change in wheat being especially remarkable, and significant of a complete revolution in the condition of the masses. The increased price in the case of one or two articles—particularly meat and house-rent—is insufficient to neutralise the general advantages which the workman has gained."

The conditions of housing of a large proportion of the wage-earning classes are still unsatisfactory, and leave ample scope for improvement, though they have immensely improved as compared with 50 years ago. It must also be admitted that there is a considerable (though probably a diminishing) residuum who are not included in the general improvement described by Mr. Giffen.

There are two other circumstances affecting the life of the community which must be considered in this connection. These are the effects of increasing "urbanization" and the associated increase of manufacturing (and largely indoor) occupations as contrasted with agricultural and outdoor occupations.

At the census of 1861, 37·7 per cent. of the total population of England and Wales was rural; at the census of 1881 this proportion had decreased to 33·4 per cent.; and at the census of 1891 to 28·3 per cent. The urban death-rates are generally higher than the rural, though the former have shown a greater reduction in recent years than the latter. It is impossible to deny that the conditions which go to form the sum total of urban life are less favourable to a healthy adult existence than those of rural life, though no attempt can be made at present to estimate the share of the increased number of the urban population in, say, 1871-80, as compared with 1838-54, in producing the higher adult death-rate at the more recent period.

4. Another consideration requires to be borne in mind. We are at present in a transition period. The Public Health Acts of 1871 and 1875 heralded immense improvements in sanitation, the fruits of which have not even yet been fully

* "The Progress of the Working Classes in the Last Half-Century," by R. Giffen, F.R.S. (Inaugural Address, Statistical Society, Session 1883-84).

reaped. There has been, more especially since 1875, steady and increasing improvement in the conditions under which people live. Men now 40 years of age were born in the pre-sanitary period; and the first twenty years of their life were spent under more unhygienic conditions than those now holding good. This fact would go far towards explaining a stationary death-rate at the higher ages. It does not, however, explain an increased death-rate at those ages.

This explanation will probably be evident, when at the end of another 20 or 30 years the improved conditions of life have endured sufficiently long to enable their full force and value to be determined. We must be content in the meantime to have stated the more important factors which appear to be at work, leaving the complete solution of the problem to a time when the statistical experience of our country is more mature.

ON AN EPIDEMIC OF ENTERIC FEVER DUE TO HERB TEA.*

By JOSEPH PRIESTLEY, B.A., M.D.,
M.O.H. for Leicester.

OF the 116 cases of typhoid fever notified in Leicester during 1892, 20 were connected with a small epidemic, which arose in the town in wards 3, 4, and 5, and which I succeeded in stamping out by tracing it to its source, viz., to the consumption of herb-beer infected with enteric (typhoid) fever contagium. The details are as follows: The first case was that of a boy, F. M., at 79A, Bedford Street (a five-roomed house). This child was notified as suffering from typhoid fever on May 7th, 1892, and on investigation it was found that he had been ill for eleven days previously, lying on an improvised bed in a back room—the front room being used as a shop where provisions, herb-beer, etc., were being sold. This back room was used as a living room for the whole family, consisting of Mr. and Mrs. M., seven children, and the grandfather. At the time of the inspector's visit, Mrs. M. was actually engaged in brewing the herb-beer in this back room, where the child was lying ill from typhoid fever. A puncheon containing a few gallons of herb beer was standing in the room, but without a cover, and in the act of being fermented with yeast. An iron pot of boiling herbs was on the fire. The mother was cautioned by the inspector as to the danger she was incurring by brewing herb-beer in a room in which a fever patient was lying, and the child was finally removed to the infirmary.

Since this case nineteen others have been notified as suffering from typhoid fever in wards 3, 4 and 5; and on making strict enquiries and close investigations as to drainage defects, milk and water supplies, etc., at the houses in which the cases occurred, I was satisfied that the facts brought out

were not sufficient to account for all the cases, nor even for the majority. I was, accordingly, led to look elsewhere, and a fact that attracted my attention was the "good trade" that was being done in the sale of herb-beer from the very shop at which the child (F. M.) had been found by the inspector to be lying ill of typhoid fever in the back room, where the herb-beer was actually made. Starting, then, from this shop (79A, Bedford Street) as a centre, I succeeded in tracing the herb-beer to fifteen of the houses where typhoid fever had been notified as having occurred, and in only five cases was I unable to get a history of herb-beer from that shop having been drunk. In this connection I may mention that I succeeded in obtaining the "gift"-tickets that were given away to purchasers of the herb-beer from this infected shop. Even in the five cases that could not be distinctly traced to this particular shop, the history of herb-beer drinking was clear; and I would add that young people are apt to spend their pennies without being able to tell exactly, a little while after, where they spent them; and further, that one or two small shops in this particular neighbourhood were accustomed to replenish their stocks of herb-beer from the infected shop on emergency.

In addition to the twenty cases notified, there have been many cases of illness which the medical men in attendance have not felt justified in notifying as typhoid fever, but which they have admitted were of a distinctly typhoidal nature. Through the courtesy of the medical practitioners in Leicester, I have myself seen and examined several such cases—cases presenting pseudo-typhoid symptoms.

An interesting, though tragic, episode in the epidemic deserves mention. On August 8th, Mrs. M., who brewed the herb-beer, was notified as suffering from typhoid fever. She had been ailing off and on for fourteen days previously, and on July 25th she, with her husband and family removed to 131, Martin Street (about half a mile away) taking with them six bottles of herb-beer which they had in stock from 79A, Bedford Street. Mr. M. was removed to hospital on August 12th, and died there on August 27th. The six bottles that were taken from 79A, Bedford Street, to 131, Martin Street, I have succeeded in tracing—two of them having been sold to a Mrs. B., who has had no ill effects, and the other four having been drunk by the M.'s themselves, of whom another was notified as suffering from typhoid on August 26th. Of the M. family (ten in all), the grandfather has alone escaped, while four have had typhoid (one dying), and the remaining five have suffered more or less with pseudo-typhoidal symptoms (*i.e.*, fever, purging, and depression), lasting a few days. The grandfather's escape is, perhaps, explained by his age—his Peyerian patches (the parts affected in typhoid) being atrophied.

* From Dr. Priestley's Annual Report for 1892.