HOUSING AND HEALTH*

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There is overwhelming evidence that when people live in slum districts they develop higher sickness and death rates than when they are better situated. Vital statistics have proved this in the very many field surveys which have from time to time been undertaken in other countries. No such figures have yet been recorded among Europeans in South Africa. We do not even possess correct vital statistics for all non-Europeans, because native notifications are inaccurate. We have, however, correct figures for Europeans and coloured people. As the coloureds as a whole are much poorer than Europeans these statistics, though not comparable in every respect, do afford a means of comparing health conditions of the poor and the better-off in South Africa. If figures for Europeans and natives had been available the contrast would have been still greater, because the natives as a whole are still poorer than the coloureds, and from the few figures which we have—inaccurate as they are—there is little doubt that health conditions are much worse among natives.

Some Statistical Evidence

Let us analyse some of the figures for Europeans and coloureds for the year 1938. This year is chosen for no other reason than because it was the year before the war.

The general death rate, which reflects the chances of survival from all causes of death, was 9.48 per 1,000 for Europeans and 23.74 for coloureds. The infant mortality rate—that is, the number of infants who die in the first year of their lives per 1,000 live births—is a very good indication of existing health conditions. This figure for Europeans was 51.69 and for coloureds 165.7. Tuberculosis, a disease directly associated with poverty and bad housing, had a death rate per 100,000 of 38.83 among Europeans and 506.4 among Cape coloureds. Similar conditions are found in all vital statistics of these two sections in South Africa.

From other countries we have the same evidence of higher sickness and death rates among the poor.

In 1928 the infant mortality figures in eight different cities in the U.S.A. were studied and analysed and published in the Public Health Reports of the U.S.A. It was found, on the basis of 23,000 records of birth, that:

(1) The infant mortality rates decreased in direct proportion to the amount of money which the population paid in rent. For example,

Rentals under 15 dollars, infant mortality rate	..	..	65
" 15-20	"	"	43
" 20-25	"	"	45
" 25-30	"	"	31
" 30-35	"	"	36
" 35-40	"	"	18
" 40-45	"	"	17

(2) The infant mortality rate in families who lived in homes with two or more persons per room was 2½ times that in families from homes with less than 1 person per room.

The M.O.H. of Manchester in 1931 applied to the Corporation for the demolition and clearance of the Hulme slum area. In substantiating his case, and in proof of the fact that the area, on account of the bad state of the dwelling quarters, was injurious to health and should be demolished, he had collected the following statistics.

	City	Slum
General death rate	13.9	21.8
Infant mortality rate	91.0	135.0

and similarly there were higher mortality rates in this slum area from diphtheria, diarrhoea, tuberculosis, diseases of the heart and blood vessels, bronchitis, and pneumonia.

From the very many surveys undertaken it has been established that cerebrospinal fever (meningitis) is closely associated with overcrowding, and in epidemics the incidence rate increases in direct proportion to the degree of overcrowding and amount of space between beds.

Overcrowding and Infection

It must be borne in mind that overcrowding in slum areas does not only mean too many persons occupying a dwelling, though this is of major importance. It also includes overcrowding of buildings in the area concerned, lack of open

spaces, the so-called "lungs" of the city, lack of playing-fields, and too narrow streets. Apart from a higher accident rate these all create favourable circumstances for the spread of disease, particularly because such areas are always inhabited by the poorer section of the community, whose vitality is already lowered through the lack of sufficient protective foods, cold, sheer hunger, and all the misery associated with poverty. It is also true that poorer people have more children, which adds to the overcrowding. Under these conditions the human body, lowered in resistance, becomes fertile soil for the reception and cultivation of disease germs, whose power of infectivity is further increased by the herding together in close proximity.

The most common communicable diseases spread by close personal contact are sore throat, bronchitis, pneumonia, influenza, scarlet fever, mumps, chicken-pox, whooping-cough, diphtheria, cerebrospinal meningitis, and tuberculosis. Many of these illnesses are preventable. In most cases, particularly for measles, whooping-cough, diphtheria, scarlet fever, and the other more common communicable diseases, the earlier in life they are contracted the more serious is the prognosis. The first year of life is the most dangerous age for children to become infected, and the danger lessens as the child grows older. Particular care should therefore be taken to prevent any of these illnesses occurring in the early years of life. The chances of such prevention being effective, however, are very much lessened in overcrowded slum areas. The result is a higher incidence among the lower age group with a correspondingly higher death rate.

The City of Glasgow published the following illustrative figures showing the difference in health conditions in homes according to the number of rooms per house. The figure 100 is taken as a comparative number applied to the house of one room (taken from the *Practitioner*, Sept., 1943).

House of	General Death Rate	Pneumonia and T.B. Death Rate	Infant Death Rate	Death Rate Children 1-5 Years
One room	100	100	100	100
Two rooms	64	72	78	74
Three rooms	44	32	61	44
Four rooms	41	38	49	25

The writer who submitted these figures stated that it did not really matter which year was taken for the statistical inquiry; the relative incidence remained the same.

The Lot of the Slum Dweller

The literature is full of similar statistical proof of ill-health and high mortality rate of the poor. Figures unfortunately cannot register the misery, unhappiness, and wretchedness of squalor, cold, and hunger—the lot of the slum dweller.

Think of the discomfort of leaking roofs, absence of adequate bathing facilities, sharing common dirty w.c.s for whose cleanliness no one seems to be responsible, the lack of proper cooking facilities, and more often than not nothing to cook anyway; and then sitting down in overcrowded hovels to a meal with the smell of cooking, with dirty plates and cooking utensils staring you in the face, and the noise of the neighbours coming from all sides. No wonder the sickness and mortality rates are so high. But we only know of the registered figures of physical illness. What of the mental condition of people who grow up in these surroundings? What do they think of the world they live in, and who can blame them if their souls become filled with hatred and animosity? What sort of citizens do we breed under such conditions and what is their outlook on life? Is it a wonder that "civilized mankind" has been plunged into the greatest effort towards exterminating itself that has ever been known in history? The rich have their animosities and hatreds born and bred in greed and selfishness, and the poor have their minds warped by squalor, hunger, and suffering. Strife and bitterness can surely never end until we "liquidate" these factors; and on their liquidation depend the future peace and well-being of the whole world. These, then, are the inescapable and undeniable physical and mental havocs wreaked upon the slum dweller written in the figures which register life and death, and in the incalculable suffering of poverty and misery which can only be measured in terms of drudgery, depression, and mental anguish.

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No wonder, then, that people in South Africa are anxious to rehouse the poor and to remove the slums. It would, however, be dangerous to seek a solution of this problem by merely providing new houses. It is true that rehousing is a very great factor, but by itself it does not offer a solution. Along with it must come social and economic reconstruction. We must ask what are the most pressing needs of the slum dweller. We do know that people who are badly housed have high mortality and sickness rates. We also know that people who are badly housed are the poorest section of the community. Bad housing is not the only evil which goes with poverty. Inadequate clothing, cold, and sheer hunger apart from malnutrition, are most important factors, and it is useless leaving this problem to those who can think only in terms of dilapidated buildings and overcrowding, and to whom rehousing only means providing new buildings and who think only in terms of bricks and mortar.

The Stockton-on-Tees Object-lesson

McGonigle and Kirby in their book *Poverty and Public Health* (1936) give in detail an example of the folly of looking to rehousing for improving the health of the slum dweller. They describe how the medical officer of health of Stockton-on-Tees once decided to apply to the Council for the demolition of an unhealthy area and for the rehousing of the inhabitants. As the area was too big to be dealt with under one scheme it was decided to divide it into two portions and first to rehouse one group, and to leave the rest until later.

The slums in the one area were demolished and the inhabitants removed to a modern self-contained housing estate. There was no appreciable difference in the original social, economic, and housing conditions between the people removed and those who remained behind. In this way 152 families and 710 individuals were moved to a newly constructed housing estate, and 289 families and 1,298 individuals remained behind. This offered very suitable conditions for the study of the results of rehousing, particularly as a thorough record of the total statistics of the area had been kept prior to the demolition of the one portion.

For the five years before removal of the one area the death rate for the whole of Stockton-on-Tees was 12.32, for the area not demolished 26.10, and for the demolished area 22.91. These figures show a higher death rate for the slum areas when compared with the whole city and a higher death rate in the area undemolished when compared with the area which was cleared.

Records were then kept for the next five years. The death rate for the whole of Stockton-on-Tees came down from 12.32 to 12.07, that of the people left in the slum area from 26.10 to 22.78, but the people who were removed to the new housing estate showed an increase in the death rate of from 22.91 to 33.55! It might be thought that the populations were not similar, and that there was, say, a preponderance of old people in one or other area. This can be dispelled, because all these rates were "standardized" to allow for any discrepancies in the make-up of the populations. There was also no untoward occurrence such as an epidemic in any particular area.

When these facts became evident it was necessary to determine the reason for such adverse conditions among the very people who had considered themselves fortunate in being rehoused in such attractive, new, well-appointed homes and under such pleasant conditions.

The cause was not difficult to find. The rentals in the old slum areas were about 4s. 8d. per family per week and the rentals for the new houses were 9s. per week. All these families were among the very low income group, and an increase from 4s. 8d. to 9s. is almost double. A survey was made of the income of the families in both areas, and it was found to range between 47s. 1d. and 30s. 5d. among the rehoused and 44s. 7d. and 30s. 9d. among those who remained behind. This shows that the income levels were about the same. But the occupants of the new homes were paying about 25% of their already meagre income in rent, and those in the old homes only 17%. To poor people this is a very big item in the family budget. In addition there were also new social obligations involving small extra expenditures among the rehoused. With an average weekly income ranging between 47s. 1d. and 30s. 5d. per family it goes without saying that these families never indulged in luxuries which could now be cut down to meet the increase in rentals. Their clothes already were of the bare minimum, and the only item on which they could save was food. They were actually dying of malnutrition—killed by the kindness of a well-meaning but short-sighted rehousing policy. This story serves as an object-lesson to all who deal with rehousing and slum elimination. It is a dangerous business unless all economic factors are taken into consideration.

A very interesting figure brought to light by this survey was the infant mortality rate. The authors hardly comment on it, but it really is of great significance and adduces further evidence of the importance of nutrition when coupled with rehousing.

Infant mortality was the only death rate which was reduced in the new estate. It came down from 172 to 117.8. As previously mentioned, infant mortality rate refers to deaths in infants under 1 year of age—an age period when for the most part nearly all children live on mother's milk, a perfect food for babies and the cost of which does not figure on the family budget, with the result that the general lack of food did not affect them. This substantiates two important findings. First, that malnutrition must have played a great part in increasing sickness and mortality rates among those over 1 year of age. There was actually an increase of 9.2% in the death rate of children between 1 and 10 years of age! And, secondly, that in the breast-fed and better-nourished infants under 1 year the healthy new surroundings and new homes played a great part in the reduction of the infant mortality rates.

Economic and Social Factors

Rehousing and slum elimination are essential. But what are the most urgent needs of the poor if we think in terms of mental and physical well-being? I would say without hesitation that it is at least as important to provide a sufficient supply of all the essential foodstuffs and adequate warm clothing. This provision must not be a "from-day-to-day hazard"; it must be part of a social security system which will provide these basic amenities of life for all those who are prepared to do an honest day's work. It must also provide for the children, for the sick, and for the aged. Such a system will remove the anxiety and mental anguish associated with insecurity. With this there should be adequate free medical attention and hospital provision.

It is essential that work should be provided for all. There can be nothing more demoralizing than being on the dole. There should be a remodelling of our economic system. The primary object of production should not be for gain or exportation but to meet demands and provide the people with what they need. This would secure lasting employment for everybody, with incomes, and with goods to buy with these incomes.

Any attempt to increase wages without price control or, what amounts to the same thing, without control over the supply and demand factors, is merely the beginning of another vicious circle. We must have adequate wages, but we must also see that labour is directed towards the production of the things we need most. It is only in this way that the wages of labour will have a purchasing power which will at least permit of sufficient food and clothing as well as satisfactory housing. But we must not let housing by itself be considered as priority No. 1; other factors are at least as important.

I do not desire in any way to detract from the importance of and necessity for decent dwelling-houses. There is no doubt whatsoever that slums and bad housing are factors of the utmost importance in causing ill-health and disease. But they are not the primary factors. It is good that slum dwellers should be rehoused, but it must be ensured that the rentals of the new houses are not more than those of the old, and that persons rehoused will at least have sufficient money left after paying rent to provide for other essentials.

A Problem to be Tackled as a Whole

My main point is that we must not take for granted that rehousing is a cure for sickness among the poor. Unless the whole problem is tackled by a combined team of engineers, town planners, architects, social welfare workers, doctors, health inspectors, health visitors, qualified housing managers, economists, and medical officers of health the problem does not receive the attention which is necessary to attain the desired result.

Are we doing this in South Africa, or does rehousing to us still only mean putting people into new structures? Perhaps we are "considering" all these factors, but it cannot be said that there is a co-ordinated effort for its practical application. How can we have full co-operation when housing is dealt with by municipalities, and economics largely by the central Government? The production of foodstuffs is regarded as practically a purely agricultural problem, whereas we know that it can receive full consideration only from the point of view of what

should and could be grown and distributed most economically in terms of "food value" for the people, when studied by a team of agriculturists, economists, veterinarians, and doctors.

It is quite evident that this question of health and housing is a problem which goes much further than most people realize. It requires to be viewed from a new angle and in its broadest aspects. It can be adequately dealt with only by a combined effort, based on knowledge and understanding.

THE R.A.F. MEDICAL SERVICE, 1939-45

On the formation of the Royal Air Force in April, 1918, medical officers who had served with the Royal Naval Air Service and the Royal Flying Corps were transferred or attached to the new Air Force and were granted R.A.F. ranks in November of the following year.

Although there were 415 officers in the medical branch when it was formed this number had dropped to 132 by the end of 1919, and the figure fluctuated with the rise and fall in strength of the Royal Air Force between the two wars. The formation of the R.A.F.V.R. in 1937 enabled a reserve of medical officers to be built up totalling 175 medical officers at the outbreak of war. The total strength on the same date was 554, including 91 officers from various reserves and the retired list. Recruitment for the R.A.F. as a whole had not reached any large proportions and the ratio of medical officers per 1,000 personnel was 4.5. This fell to 2.18 per 1,000 personnel by September, 1941, remaining practically at that level throughout the war.

The medical officers were faced with a formidable variety of duties, and lack of experience in total warfare placed an additional and unknown burden on them. The existing medical organization had to be expanded smoothly and rapidly, and facilities provided for the medical examination of entrants at medical boards all over the country. Health had to be maintained and sickness and disease prevented. Wounded had to be healed and rehabilitated and returned to their Service duties as quickly as possible, and the statistical organization had to be greatly expanded.

Organization

The R.A.F. Medical Services are in the Department of the Air Member for Personnel and are headed by the Director-General of Medical Services. The chain of medical liaison and control is maintained by the Director-General and his staff in the Medical Directorate through principal medical officers and senior medical officers down to the medical officers of units. The unit medical officer is a vital link in the chain. Being in close touch at his station or squadron with the practical problems of unit or station life he must maintain a constant watch over the physical and psychological health of all aircrews. All medical officers are given a series of lectures and demonstrations by experts on the psychological health of personnel. Psychologists visit stations and discuss problems with the unit medical officers and also explain to the squadron commanders the common-sense approach to the psychology of aircrews.

Sick Quarters and Hospitals

In 1940 there were seven R.A.F. hospitals at home and two abroad; by the end of 1944 there were 26 R.A.F. hospitals at home and 13 over-seas, as well as a number of mobile field hospitals abroad. The latter were well equipped and could provide all essential services for front-line medicine and surgery. In over-sea theatres of war the value of R.A.F. hospitals of all kinds was not only in the first-class facilities for treatment which they afforded; equally important was the expert technical knowledge necessary for determining a man's fitness for his trade. 92% of aircrews and technicians treated in forward areas at mobile field hospitals were returned to their units in a very short space of time, after assessment by R.A.F. medical officers.

The R.A.F. has hospitals and sick quarters in the United Kingdom to look after all R.A.F. personnel—ground, technical, and aircrew. R.A.F. hospitals abroad are primarily for aircrews and technicians. The Army method of dealing with casualties is to evacuate them down the line as quickly as possible to keep the front line clear for action. In the R.A.F.

it takes so long to train aircrews and technicians that it is necessary to save every man possible. If a member of an aircrew or technician is likely to be fit for duty in from 6 to 8 weeks he is treated in an R.A.F. mobile hospital in a forward area. Of selected cases approximately 92% have been got back to duty in the field. The R.A.F. treats its own cases, whether long- or short-term. It has instituted rehabilitation both in hospitals and at separate centres. Of rehabilitation cases, approximately 80% of all fractures have gone back to full duty, 60% of burns, and 46% of nervous breakdowns. It treats its own cases of tuberculosis and retains them in Service hospitals until local authorities can take them.

Dietetic Researches

A team of experts watched over the diet at hospitals both at home and abroad and advised upon any deficiencies in calorific value or vitamin content. This service also covered the dietetic needs of the whole of the R.A.F. at home and abroad.

All fronts were covered at different times, some fronts more frequently than others, to see that the nutritional state of the R.A.F. was satisfactory. In Europe there was an opportunity at the same time to ascertain the ill effects of under-nourishment on certain of the civil population, including children. By feeding these individuals with the substances that it was considered they were most lacking, not only was their condition improved or cured but valuable information was obtained for our own use. This information became useful sooner than we expected, as the sudden ending of the war cast on our hands a large number of prisoners of war who had been exposed to forced marches with little or no food and had suffered severely. The information gained previously in the treatment of civilians made it possible to give immediate and most satisfactory treatment to our ex-prisoners of war.

The results of the dietetic researches carried out in the R.A.F. are immediately passed to the sister Services, Ministry of Health, Ministry of Food, and the Medical Research Council for their benefit, as well as to the Dominions and the United States of America.

Sickness Figures

The highest incidence of sickness at home was during the years 1939 and 1940, and coincided with a severe winter under wartime conditions and the influx of a great number of men and women into the R.A.F. and W.A.A.F. from civilian life. In 1942 and 1943 sickness at home fell sharply to low level and the improvement in health has been maintained.

The worst years for incidence of sickness over-seas were 1940 and 1941. R.A.F. personnel were then being posted in substantial numbers to unhealthy climates, and the provision of preventive measures in the absence of the necessary materials was slow, laborious, and costly. The introduction of full preventive measures, including inoculation against a variety of diseases and the issue of drugs to personnel, and the improvement of hygiene and living conditions, produced a sharp fall in the rate of sickness in the R.A.F. abroad in 1943, and has persisted since.

Prevention of Disease

Hygiene during the war presented a variety of problems which had to be faced and overcome. Among them were the selection of personnel and the detection of disease, the maintenance of proper living conditions at home and abroad, the prevention of the spread of disease from one country to another by aircraft, control of hours and conditions of work, prevention of air-sickness, and the safeguarding of dental health.

The introduction of mass miniature radiography in the Royal Air Force in 1941 disclosed much of value and interest about chest conditions as a whole, apart from tuberculosis of the lung. By the end of the year 1944 a total of 480,492 examinations had taken place. The Royal Navy, which introduced mass radiography before the war, was the first Service to have it. The R.A.F. was the first Service to have mobile miniature mass radiography.

Evacuation of Casualties by Air

Great progress was made in 1942, 1943, and 1944 in the development of an organization for the evacuation of casualties by air. The figures for 1940 were about 300, and for 1941 some