MEDICINE AND SOCIETY IN SOUTH AFRICA – SOME PLAIN SPEAKING

INAUGURAL LECTURE

by

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Mr Chancellor, Mr Deputy Vice-Chancellor, Mr Dean, Mr Mayor, Professor Bothwell, Members of Council, Members of the Institute for the Study of Man in Africa, Ladies and Gentlemen:

I am doubly honoured tonight by the invitation from the University to deliver this inaugural address and at the same time to participate in the programme of lectures of the Institute for the Study of Man in Africa. For this occasion I have chosen to cover a rather broad area, namely the patterns. of disease in White and Black populations with particular reference to the Republic of South Africa, the factors responsible for these patterns, what we might do in the way of remedies, and finally some thoughts on medical research in this country.

At the outset let me emphasize that the revelations which I shall be placing before you are not new. Much is in fact platitude but I do not apologize for this since it is perhaps the very obviousness of, and familiarity with, our disease situation which has bred complacency and inactivity. On the other hand I am very conscious of my limited credentials for undertaking this type of wide-ranging review. I am basically a very simple kind of doctor who has frolicked around many fields of medicine but who is expert at nothing. I belong in fact to a breed of medical citizenry called general physicians which is virtually extinct. Even worse I shall be venturing into areas such as sociology, economics and politics where I am a complete novice. Hence to superficiality will be added *naïveté*. However, the problems of disease are inseparable from those of society. Nowhere is this more true than in South Africa and we have a moral as well as an intellectual obligation to demonstrate and expose this relationship, even if the attempt has to be made by amateurs such as myself.

THE DISEASE PATTERN IN WHITES

Firstly, let us look at disease patterns, and to begin with let us examine the disorders which maim or kill Westernized, sophisticated people like the members of this audience. I am sure you are all eager to learn how you will meet your end. In fact, the majority of us die in very few ways. Two in five or 40 per cent will fall victim to disease of the arteries which kills by heart attacks or heart failure, or by stroke, and another 20 per cent will die of cancer, involving mainly half a dozen organs – lung, colon, stomach, prostate, breast and womb – a situation of stark simplicity.

The arterial disease is basically of two types. The first is called atheroma, a term which, considering the importance of the condition it describes, seems to be relatively little known to the general populace. Basically what happens in this disorder is that the arteries become silted up with fat and blood clot. The condition is so lethal because it commonly affects the arteries of those two vital organs, the heart and the brain. The heart is especially vulnerable because our Maker provided it with only two very small arteries which are readily obstructed by the deposits of atheroma. The life of Western man literally hangs by two slender threads. In Europe alone deaths from atheromatous heart disease number about one million annually, thereby exceeding the mortality records established by the Great Plague.

While the fundamental details of the development of atheroma remain to be worked out, there is a mass of evidence indicating that it is related to our Western way of life, or should we say, death. Affluence, the pleasures of the palate and the vested interests of the food industry combine to produce the wholly unnatural gastronomic extravaganza which we refer to as a Western diet. This diet which is superabundant in many nutrients and calories ends up in fat – fat in the body generally, hence the pandemic of obesity in modem man, fat in the blood, and probably fat in the arteries. This form of dietary intoxication commonly commences at birth, if not in the womb, and it is not

surprising that atheroma, or lesions resembling it, are detectable in infancy or childhood. By the time adulthood is reached Western man has given himself wholly over to gluttony, and when to this are added other adult vices such as sloth and smoking the atheromatous process is markedly accelerated. Against this background two conditions which are very common in urban dwellers, namely, a high blood sugar or diabetes and a high blood pressure, are important aggravating factors. The stresses of modern life may also be incriminated, it being suggested that the principal candidates for atheroma are the most aggressive competitors in the rat race for an ever larger slice of the material pie. Underlining the association of the atheroma epidemic with modem Western living is its very recency. For example, the epidemic hit the United Kingdom in the mid-1920s while in Holland and Norway it really only got going as recently as 1950.

High blood pressure, the second form of arterial disease, may, as I shall indicate later, also be a consequence of stress. Apart from aggravating atheroma, high blood pressure is a killer in its own right by overloading the heart, or by damaging the kidneys or, most characteristically, by bursting a blood vessel in the brain.

Turning to cancer here again the evidence indicates that the bulk of the disease is environmentally determined. Western man is exposed to an ever increasing number of cancer-producing chemicals or carcinogens. This is best exemplified by the major cancer in males, lung cancer, most of which is the result of cigarette smoking. This vile habit, it cannot be too often stressed, is also responsible for, or associated with, much other suffering, including chronic bronchitis, arterial disease, cancers of the mouth, throat, larynx, gullet and bladder, delayed healing of peptic ulcers, an increased rate of breakdown of lung tuberculosis, and in pregnancy the birth of stunted or premature babies.

Another common cancer in Whites is that involving the colon or large bowel. Burkitt has stated that there is no other cancer whose incidence is so closely correlated with economic develop-

ment. The most likely explanation again incriminates our Western diet and this is worth examining a little further. This diet is not only extravagant, it can also be described as a nutritional mutilation. A great deal of the food we eat is highly refined and processed, and thereby polluted with a variety of chemicals some of which may well be carcinogens. In addition, such a diet may actually generate carcinogens by altering the nature and activity of the bacteria normally present within the colon. Finally, refinement of the diet involves stripping it of its natural fibre or bulk. We don't eat bread but something called white bread; we don't eat the whole apple but a manufactured monstrosity called apple juice. The result is that constipation is pandemic in modern man. By contrast with the large, beautiful stools expelled with such power and facility by man consuming a natural diet, Western man is capable only of squeezing out with great difficulty and effort a hard, diminutive product which can best be described as a faecal abortion. The constipated state would then serve to concentrate the carcinogens in, and prolong their contact with, the colon. Some believe that our fibreless, polluted diet may also be responsible for a number of other common afflictions of Western man, including piles, varicose veins, appendicitis, hiatus hernia, diverticulosis and ulcerative colitis. Certainly a diet polluted with sucrose or sugar, both brown and white incidentally, is to a very large extent responsible for the rotten teeth of modern man. The sugar barons proclaim that "sugar makes you go" - this is certainly true of your teeth!

Finally, if you haven't died from arterial disease or cancer you may do so from an old-fashioned disorder such as infection, but you also have an excellent chance of death by violence. Here we must add to the bullet, the knife and the motor car a form of assault which has recently become very common in Western communities and which may be termed pharmacological assault. I refer here not only to the illicit peddling of dependence-producing drugs but also to the legal prescriptions of the medical profession. It is a sad truth that the ingenuity of the pharmaceutical industry in inventing ever larger numbers of powerful and

sophisticated medicaments, has not been matched by a corresponding degree of understanding or discrimination in prescribing them on the part of the profession. Vast quantities of drugs are pumped into patients unnecessarily with little or no awareness of their potential dangers. Only too often has the hastily scribbled prescription become a substitute for the proper examination and assessment of the patient. The results are frequently disastrous and it has been estimated that about 10 per cent of patients suffer from the ministrations of medical citizenry. For example, if you do die of pestilence nowadays it is only too often caused by a bacterial monster generated by the indiscriminate use of antibiotics.

These then are the modern epidemic diseases which are decimating Western man. They help to explain some interesting and at the same time disturbing characteristics of Western populations. Thus the life expectancy at birth of some of these, such as the inhabitants of the United States of America, is no longer increasing and appears to have come to a halt at about 3 score years and 10. In fact, at middle age life expectancy today is hardly better than it was a century ago. It is well recognized that modern man's longevity has been largely achieved by reducing deaths in infancy. However, the offspring thus saved are then cuddled and cossetted to produce those overgrown specimens of whom Western parents are so proud. There is increasing evidence, already partly alluded to, that in our overfed youth the foundations for premature destruction by degenerative disease may have been well and truly laid. Then again some of the principal disorders such as heart attack, high blood pressure, lung cancer and violence are commoner, more severe or occur earlier in males than in females. Western women thus outlive their spouses, the average life expectancies in South African Whites, for example, being 72 and 65 years, respectively. Taken in conjunction with falling birth rates we can see why Western populations have not only aged but have come to consist increasingly of old women. Some ladies may of course welcome the opportunity of having a ball on the proceeds of their

husbands' insurance policies. However, burying husbands is one thing. What is totally tragic is the fact that Western women, especially in South Africa, are not infrequently burying their sons. As is well known the leisured young princes of our White aristocracy have the highest incidence of heart attack in the world, and with their ever faster and fancier automobiles they are the principal victims of the slaughter on the roads.

THE DISEASE PATTERN IN AFRICANS

Turning to the Black or African population the situation is very different. In many ways it is more interesting. It is also more complex and it is certainly far more tragic. If you have tears prepare to shed them now. I want first to look at the problem generally and then to focus attention on the more specific issue of urban-rural disease patterns.

The major over-all killers are even fewer than in Whites, namely malnutrition and infection. They affect Africans of all ages but their major impact is in infancy and childhood. They take a number of forms but the principal disorders are protein-energy malnutrition, infections of the alimentary tract and infections of the respiratory system, especially tuberculosis.

These diseases account for the much higher death rates in Africans than in Whites. There are no accurate figures for Africans hut some of the estimates are horrifying. At a symposium in 1971 Professor Sadie estimated the mortality rate in infants in the first year of life to be 140 per 1 000 live births. The figure for Whites was 22 per 1 000. Even in this metropolis of gold, liberal ladies and gentlemen and noble and wise municipal officials, the disparity in rates is very considerable: in 1970 the respective figures for Africans and Whites were 95 and 20 per 1 000. Mortality rates for Africans in the first 5 years of life vary from 12 per cent in city dwellers to estimates as high as 50 per cent in rural inhabitants. The figure for Johannesburg Whites is 3 per cent.

THE CAUSES OF DISEASE IN AFRICANS

There may be apologists for this situation who will point out that the figures for other developing populations are as bad or worse, or that there was a time when Whites suffered similarly. This is no defence whatsoever. In the Republic of South Africa in 1973 and for many years before we have had the means of substantially remedying this deplorable state of affairs. The causes are well known and reside largely in the social, economic and political structure of the country. They can all be summed up in the single word, maldistribution. The facts are familiar but they cannot too often be restated.

Africans who make up 70 per cent of the population are restricted to 13 per cent of the land. This most generous allocation in the Bantu Trust and Land Act was made by our benevolent White rulers as; far back as 1936 when the African population was 6½ million. It is now some 15 or 16 million. Small wonder that overcrowding in the homelands is so serious. For example the average density of the *de facto* population in the homelands in 1970 was about 120 per square mile; in the rest of the Republic the average density of Whites, Coloureds, Indians and Africans together was 35 per square mile. In 1972 Paramount Chief Matanzima stated that half the Transkei population was landless and that the other half had small plots averaging 2¼ morgen each. Yet in neighbouring East Griqualand White fanners found it difficult to subsist on 1 000 morgen. Other homeland leaders have been equally, if not more, vociferous on this issue.

Because of the combination of overcrowding, poverty, ignorance and the primitive subsistence type of agriculture, soil erosion is rife and productivity is low. In different homelands maize yields per hectare vary between 100 and 400 kg. The average yield of White farmers in the Transvaal is more than 2 000 kg. It has been calculated that the reserves with 32 per cent of the population contribute only 1,9 per cent of the production of the Republic.

In the White cities and towns there are some 5 million African tenants squashed into squalid match-box type dwellings. Indeed the density of living generally is extreme for these non-citizens. At a recent Council meeting of the South African Institute for Race Relations on housing Professor Hansi Pollak summed up: “Speakers pointed out what it meant to live one's entire life in overcrowded conditions – overcrowded houses, overcrowded pavements, overcrowded streets, overcrowded station platforms, overcrowded trains, unending bus queues, overcrowded buses. Day after day, night after night, that elbowing for room, the impossibility of any respite from pressure.”

In regard to education the situation is equally shameful. In March Mr Lulofs, President of the Durban Chamber of Commerce – you will note how careful I am to quote sober and conservative sources – stated that in 1973 the Government would be spending R900 million on White education and only R109 million on African; this gives an annual per capita figure of R280 for White and R25 for Africans. The report of the Department of Bantu Education for 1971 revealed that 87 per cent of African teachers do not have a matriculation certificate, and that only 1 per cent of African children who started school in 1958 reached matriculation. The position is particularly bad in the rural areas. In a survey conducted in 1968-1970 among female patients admitted to the Jane Furse Mission Hospital in Sekhukhuneland we found that 65 per cent were illiterate, having never been to school at all.

As far as the rewards of labour are concerned, 1973 has of course been characterized by a plethora of revelations which have put the entire White oligarchy in the dock. Figures released by the Department of Statistics indicated that in 1970 over 70 per cent of the work force in the Republic was made up of Africans. In 1971 their average monthly wage was R40 or only one seventh of that received by Whites. Yet in 1972 the Johannesburg Chamber of Commerce Non-European Affairs Committee estimated the minimum budget for an African family of 5 in Soweto to be R82 per month or double the average wage

just cited. In the rural areas the situation is even more serious. Unemployment or underemployment is rife and cash income is particularly low. For example, a survey conducted by the Charles Johnson Memorial Mission Hospital at Nqutu in Natal revealed that the average monthly cash income of African families was R11,44. Bearing in mind that each family has 7,26 members, this yields the princely income per person per week of 39½ cents. In our Jane Furse Mission Hospital survey the monthly cash income of 70 per cent of the households was less than RlO, the mean number of dwellers per household being 6. I cannot resist quoting here from a letter written to the London *Sunday Times*. The writer, investigating the wages paid to Africans by a British subsidiary, discovered "that the payroll did not include any obvious Bantu names." When asked to explain this omission they replied that Bantu employees did not come under the heading of "manpower." They came under "fixtures and fittings."

This then is the social, economic and political reality which is responsible for the vast contrast in disease pattern and incidence between Blacks and Whites, why Africans perish by famine and pestilence while Whiles are overwhelmed by excess and extravagance.

DISEASES IN URBAN AND RURAL AFRICANS

This picture, however, is incomplete as far as the African is concerned. As we know the African population can be broadly divided into those who live under tribal or semi-tribal conditions in the rural areas and those who have come to live and work in our cities and towns. There are both similarities and differences in the diseases experienced by these two groups and their study is a matter of the greatest importance. Not only because this has far-reaching implications for public health programmes, but also because of the light such studies may shed on the causes and mechanisms of the major medical problems of the increasingly urbanized and industrialized populations of this planet. The

modern plagues of Western man are seen at their worst in the metropolises, and, as is well known, one of the most striking phenomena of our time is the massive shift of people from country to town. This is a feature of both the developed and developing world. For example, in the U.S.A. 60 per cent of the population has packed itself into 1 per cent of the land surface area, while in some developing countries a third or more of the total population may be found in a single city.

How then does the disease pattern of Africans in a city such as Johannesburg compare with that in their rural brethren?

Urban-rural similarities

These pertain largely to infection and malnutrition. It is true that the higher living standards and the better public and personal health services of the city have resulted in a falling incidence of some of these disorders, especially among Africans who live in family units in Soweto or the suburbs of Johannesburg, but there is certainly no room for complacency. It is also true that there are differences in the patterns of infection and malnutrition between town and country but we need not dwell on these here. Another condition which is common in both urban and rural Africans is a form of heart failure due to disease of the heart muscle for which no cause is apparent. This disorder is rare in White populations and my own belief is that it results from chronic malnutrition and/or the excessive ingestion of alcohol. The major cancer in African women, that involving the mouth of the womb, also appears to be equally prevalent in city and country.

Urban-rural differences

These can be discussed under two headings. Firstly, these are *disorders which are more common in country than in city dwellers*. These usually reflect exposure to circumstances or hazards which are largely peculiar to rural areas. Examples include goitre in hilly or mountainous regions, the interesting bleeding disorder known as onyalai, and Transkei silicosis which affects the women

of this area who grind their cereal on stones indoors and consequently inhale air containing high concentrations of silica dust. Most important, perhaps, are two rapidly fatal cancers in respect of which rural inhabitants in southern Africa appear to have the highest incidence in the world. These are cancer of the gullet, again in the Transkei, and liver cancer in Moçambique and, to a lesser extent, in the north-eastern Transvaal. It should be stressed, however, that these malignancies, although less prevalent in Johannesburg Africans, are far from rare and in fact are the commonest cancers encountered among these people. The causes have not been defined but the available evidence incriminates dietary carcinogens.

The second group of differences concerns the *large number of diseases which are commoner in city than rural Africans* and which in some way appear to be the result of urbanization and Westernization. I wish to review some of these disorders to illustrate different types of urban pathology, and to begin with I want to look at alcoholism. This is a very serious problem in city Africans of all socio-economic strata but is seen at its worst among the male migrant labourers. They are a class of people created by our politicians and an examination of the problem of alcoholism among them reveals graphically how a sick society brings forth sick individuals. The migrants who are largely illiterate or semi-literate, do hard manual work, earn little and lead a wifeless existence in squalid, overcrowded hostels or compounds. Cultural and other amenities are largely non-existent and at the end of a hard day the men have basically two diversions – neither particularly elevated or elevating. The first is sinful sex which generates epidemics of venereal disease and myriads of illegitimate children – this I suggest, incidentally, is a potent and perhaps commonly overlooked cause of the African population explosion – and secondly, they drink. And they commonly drink heavily to merriment or intoxication because tomorrow will also be a hard day. And our city fathers in their wisdom have done everything to facilitate the imbibing by placing beer halls right next to the hostels.

Furthermore, because of their wifeless living circumstances they do not eat or cat very inadequately, their diet consisting of nutritional abominations such as buns, lemonade, white sugar, white bread and white maize, that is, the junk concocted by the technological geniuses of our food industry and then inveigled down their innocent throats by a continuous barrage of misleading propaganda from our equally ingenious advertising moguls. I also want to stress that, contrary to the usual belief, the Bantu beer dispensed in recent years by municipal authorities is not a very nutritious drink. It is made largely from maize grits and its vitamin content is very low. In addition, since 1964 Africans have been permitted to drink European wines and spirits and these are virtually devoid of nutrients.

The consequences of all this are serious and widespread. Nutritional disorders such as pellagra are common while beriberi heart disease, a condition which is decreasing in frequency or which is rare in many other developing populations, is being spawned forth anew in the hostel environment. Another nutritional syndrome is related to the high iron content of the beer consumed. Until relatively recently a major proportion of the beer ingested by urban Africans was prepared, stored or transported in crude iron vessels. Because the beer is acid it readily corrodes the walls of the containers and thus attains high concentrations of iron. As a result of drinking such beer many Africans suffered and still do suffer from what may be called chronic iron poisoning, characterized among other things by cirrhosis of the liver, damage to the pancreas with diabetes, scurvy, and thinning of the spinal bones with spontaneous fractures. As I tell my students, Johannesburg is a city of gold in which dwell men of iron, but the men of iron are as fragile as clay.

Alcoholism is also associated with a variety of other medical disorders including porphyria cutanea tarda, hypoglycaemia, hypothermia, lung abscess and all manner of disorders of the brain, spinal cord and nerves. In respect of the incidence of some of these afflictions Africans have the unenviable record of being world leaders. Finally, we must not forget the violence generated

by drinking sprees – the blood and booze syndrome which is so familiar to our surgical colleagucs, especially over weekends. And violence in different forms is, we know, the commonest cause of death in adult Johannesburg Africans.

No less serious are the social and economic consequences. Remembering that the migrant labourers earn little it follows that they must be spending a substantial proportion of their incomes on alcohol. Add to this what they spend on that vile and poisonous weed, tobacco, and on rubbish such as buns and lemonade, and it becomes clear that their meagre incomes are swallowed up by agents of self-destruction. Thus the major objective of the migrant labour system, namely socio-economic uplift of the migrants and their families in the .homelands, is largely nullified.

Now let us look at the emergence among city Africans of some of the White man's diseases which we discussed earlier. It is probably true to say that most, if not all, of the diseases of Western man, both lethal and non-lethal, have now appeared in urban Africans. As expected they have tended to emerge more commonly among the more prosperous and sophisticated sections of the population but there are important exceptions. Also of interest and not always easy to explain have been the differing birth rates of these diseases and their differing period of gestation or incubation.

Among the commonest and earliest to appear is obesity which is particularly prevalent and severe among the women. The fattest women in the world are to be found not in the fleshpots of Manhattan or the suburbia of Boston or even in. the elegant parlours of Sandton, but in the townships of Soweto and the backyards of Houghton. Their obesity is partly related to decreased physical activity by comparison with their rural sisters, but much more to the fact that the food supply in the city is perennial, and that for economic, traditional and other reasons the food eaten or the food which they are persuaded to eat by their benevolent employers and the mass communication media, consists largely of calorie-rich carbohydrates including the sac-

charine travesties of nutrition mentioned earlier. Add to this the facts that life in the city is not one long joy, that food is a socially acceptable form of addiction, and that corpulence is an African status symbol and a cause for pride – and we can readily understand the obesity explosion.

With obesity established, all the familiar complications and associations of this disorder follow. Most notable is diabetes which emerges with considerable frequency after two or three decades of corpulence. The precise prevalence is unknown but we have some evidence that the overweight domestic servants of Northern Johannesburg are on a par with their White madams as far as diabetes frequency is concerned. By contrast, the condition is uncommon among thin or malnourished rural dwellers. Other concomitants of the obese state seem to emerge more slowly and a good example is gall-stones which have only recently rolled onto the stage.

Atheroma with heart attack is one of the last Western diseases to appear in city Africans. There is, however, little doubt that the condition has arrived and, although still uncommon, that it is on the increase. The features of the first generation of African atheroma sufferers are characteristic and provide strong support for the view that the causes reside in our Western way of life. Thus by comparison with Africans in general, the patients with heart attack are considerably Westernized as indicated by their diet, occupation, degree of physical activity and their high prevalence of conditions such as obesity, diabetes; high blood pressure and high blood fats. Testifying to the importance of the dietary factor is the fact that a high proportion of the sufferers are cooks working in wealthy White homes and eating the same poison as their masters and mistresses.

Turning to high blood pressure we come to a condition which is at once extremely common; extremely lethal and extremely mysterious. After violence it appears to be the most important cause of death in Johannesburg African adults. Both men and women of all socio-economic strata are affected; and they are often in their thirties or forties when they are killed by the

disease. By contrast, the severe forms of hypertension appear to be distinctly rare in purely rural Africans. This is in keeping with extensive evidence that rural or primitive populations generally have lower blood pressures than urban communities and that their blood pressures may not even rise with age. In fact, the severity of hypertension in our city Africans appears to be fully comparable with that in the American Negro in whom the disease has long been known to be a major public health problem and to be significantly more common and more serious than in White Americans. Although no formal comparisons have been made, it is probable that a similar Black-White differential obtains in Johannesburg.

What is the reason for this extraordinary and most dangerous urban phenomenon? Astonishingly, we must confess to almost total ignorance. My own feeling, and. here I crave your indulgence while I speculate, is that hypertension is a psychosocial or neurogenic disease, that is, it is a disorder of psychological stress. This view is of course not new but nowhere in the world does the evidence seem so suggestive and, in my view, so amenable to study, as in this city of Johannesburg where the disease erupts so explosively. Consider that our urban Africans are a people in transition, a people who are having to make numerous and difficult adjustments from the ancient social and cultural patterns of the tribe to those of our vastly more complex and impersonal technological society. This is arduous enough but in addition the whole process of transition and adaptation is perforce effected within the context of a social, economic and political system which is virtually unique in our time and which is not exactly characterized by a surfeit of magnanimity or racial wisdom. This immensely compounds the difficulties of adaptation and in my view generates unique patterns of stress both qualitatively and quantitatively. The nightmares of urbanizing African man are populated by unique combinations of *tokoloshes*, angry ancestral spirits, the spectres of poverty and pestilence, harsh employers, influx-control officials and a variety of other stern custodians of the existing order. Consciously or subconsciously

these stresses breed tensions which again, because of the very nature of the society, are not or cannot be externalized. Instead they are suppressed or inhibited, internalized as it were along the well-known pathways from the brain to the arterial system which responds in the only way it can, by a rise in blood pressure. When stress is a way of life it is not difficult to understand how hypertension may become established as a severe and permanent phenomenon. Similar hypotheses have been advanced to explain the development of hypertension in the American Negro but relatively little has been done to explore them.

Finally, in respect of cancer in city Africans there have also been changes. To gullet and liver cancer have been added Western-type malignancies. Most noteworthy has been the emergence of lung cancer, particularly in Durban, but others such as colon cancer are also beginning to appear.

In summary, our urban Africans, who are a population in transition with all gradations of development from primitive to sophisticated, exhibit a correspondingly wide and varied spectrum of disease embracing both the ancient afflictions of the tribe and the new diseases of the city.

THE DISEASE PATTERN IN SOUTH AFRICAN INDIANS

We cannot leave this discussion on the effects of Westernization and urbanization on disease pattern without some reference to our local Indian population. In rural India as in rural Africa the major causes of death are infection and malnutrition. By contrast, the Indians who have come to affluence in the towns and cities of the Transvaal have within a couple of generations acquired a completely Western disease pattern. Indeed in respect of arterial disease it is possible that their mortality rate has outstripped that of Whites. How serious the situation has become was indicated in a study by Dr Walker which showed that at middle age the life expectancy of local Indians is less than that of their destitute fellows in India.

The reasons for this are not quite clear but in regard to several

atheroma risk factors such as dietary extravagance, physical inactivity and diabetes our Indians appear to have exceeded Whites. In fact, the prevalence of diabetes in Transvaal Indians is among the highest in the world: in one survey of middle-aged subjects more than one third were found to be diabetic. Then again it is probable that they are a more stressed population. To the usual urban stresses must be added the special political ones of a ghetto existence.

SOME SUGGESTED REMEDIES

Clearly the problems we have outlined are formidable and we shall not solve them tonight. However, I would like to make a few suggestions.

Different approaches are required for the Black and White situations but one thing which they both need is an educational programme aimed at applying the knowledge we already have in respect of health promotion and disease prevention. I know that there are many who despair of changing the habits of societies given to gluttony and indolence and the pleasures of the senses and viscera generally. My answer is that there will always be a responsive moiety and that even if this represents only a minority of the population the effort is worth it. More important I don't think we have really tried. Clearly what is needed is a programme of instruction in the principles of personal and social hygiene which is directed at, and appropriate for, all sections of the population, which starts in childhood and which, through the various communication media, is continued throughout life. At schools it should be a compulsory and properly organized subject, and perhaps given the prestigious title of "Science of Living". The present school courses, from what I have seen, are a joke and heavily influenced by the vested interests of the consumer industry. This brings me to the next point. Surely we can no longer tolerate the pernicious, evil and misleading propaganda disseminated by the advertising media which makes nonsense of our efforts to promote health. It is utterly prepos-

terous that our State radio should allow the tobacco industry, day in and day out, a hundred times a day, to exhort us to destroy ourselves.

Next we need to do much more in the way of disease detection in the population at large. A number of major diseases and risk factors are today detectable by mass screening techniques at an early stage when treatment is likely to be most effective. Such campaigns are also of the greatest value in defining the magnitude of these diseases and monitoring changes in their prevalence with time. The findings, especially in regard to diseases such as lung tuberculosis in Africans, should be given regular and wide publicity, with the additional objective of penetrating and stirring even the most elephantine conscience. It is to be hoped that the recent aberration of our Medical Association in respect of early detection of cancer of the mouth of the womb is a temporary phenomenon. I wish to endorse most strongly the programme recommended by the National Cancer Association, and to appeal in particular for its widespread application to African women in whom this type of cancer is so common and accounts for about one half of their total cancer incidence.

For the rest I wish to deal more specifically with the African situation where the need for remedial action is most urgent. What is obviously required is the correction of the socio-economic factors which are at the root of their sufferings. This calls for a series of wide-ranging measures including more land, better use of existing land, higher salaries, the creation of more opportunities for employment, more and better housing and related amenities, and better education. We must emphasize the principle of the comprehensive and integrated approach. Dispensing milk powder should be regarded as a short-term, temporary measure, not as a solution to the problem of malnutrition. Nutrition programmes must be completely integrated with all aspects of health and social development. Birth control programmes must be linked to socio-economic uplift. You can't expect Africans to practise contraception when as many as half their children will be corpses by the age of 5. Also you cannot encourage Mrs van

der Merwe of Bloemfontein to make babies in profusion and tell Mrs Tshabalala of Soweto to call a halt. Infants saved by immunization from one plague should not die from other pestilences or famine.

All this sounds like pie in the sky but we can and must do more than we are doing. To the question "Can we afford it?," we must answer "Can we afford not to?," medically, morally and politically. We continually claim to be the proud bearers of civilization in a dark continent, and we are always boasting about our economic strength – indeed we are said to produce more than one quarter of the total output of the continent. How do we square all this with the existence of so much destitution and misery among our Black brethren? On July 5 of this year I read in *The Star* that the China of Mao Tse Tung – one of Richard Nixon's last friends – has developed a farm system capable of adequately feeding a population of 750 million, this after a series of destructive wars occupying most of the present century and despite a continuing drain of resources into earth satellites, hydrogen bombs and defence generally. The African population of our rich and large land is 15-16 million. The moral does not have to be spelt out further.

As part of any social programme urgent attention should be given to ways in which our migrant labour system should be modified or preferably abolished. Certainly it should not be allowed to grow. It is already massive enough as Francis Wilson indicated in his recent report to the South African Council of Churches. Of two and a half million Africans working legally in White areas no less than every second person is a migrant or oscillating labourer. The Cape Synod of the Dutch Reformed Church stated the following in regard to the migrant labour system: "A cancer which rages thus in the life of the African population must necessarily affect the whole social and religious life of all the races in our fatherland. By virtue of God's laws the Whites will not remain untouched by the sickness which is ravaging the moral life of the African."

To turn now to the more specific question of medical services

for the African population. The present situation is deplorable and shameful. The man from Mars who is due here shortly would find it quite incomprehensible. In particular he would find our system of priorities wholly illogical and immoral. He would discover that the bulk of sickness and suffering is in the African majority, yet the major part of the medical profession concentrates its attention on the White minority, that suffering is particularly intense in the rural areas yet most of the doctors are practising in the towns, and that what little relief is given to the rural sick is largely provided by mission doctors who are citizens of other countries, while doctors trained in the Republic migrate in large numbers to these selfsame over-doctored other lands. Indeed, our medical graduates are not even obliged to do their intern service in the land which has nourished and nurtured them at great cost and which cries out for their help. He will learn that the major part of medical budgets is spent on expensive curative services directed at the end stages of disease and that the curative doctors are also accorded the greatest prestige and status; by contrast, the practitioners of social and preventive medicine are small in number, struggling with inadequate resources, frustrated and dispirited, their efforts barely recognized and their protestations commonly ignored.

Finally, he will hear of a policy called separate but equal development and will surely be overwhelmed at discovering the results of this policy as far as the number of doctors in the different ethnic groups is concerned. While there is 1 White doctor for every 400 Whites, there is 1 African doctor for every 44 400 Africans. In 1969 the Republic produced 98 doctors per million Whites in the population compared with 0,5 per million Africans. Last year 440 Whites gained medical degrees compared with 24 Africans. There must be very few if any African specialists practising in the Republic. The few that I have known have left the country because of discrimination in salaries and in conditions of service in our provincial or State hospitals. On the dental side the picture is even worse, there being not a single African dentist in the Republic.

What do we do about this sorry situation? Even if there. were radical socio-economic changes today the provision of satisfactory medical services for Africans would be a very long-term affair, especially in regard to the training of adequate numbers of doctors. And we have to act now. The suggestion I wish to make is nothing new and has in fact been implemented successfully in developing countries throughout the world. This involves the creation of a comprehensive system of health centres or clinics reaching to all sections of the urban and rural populations, and in which curative and preventive services are integrated. The centres operate under medical supervision in relation to regional hospitals, but the bulk of the work is done by teams of para-medical personnel including medical assistants or auxiliaries, nurses, midwives, health educators and technicians. Such schemes are entirely practicable because the personnel can be rapidly trained in large numbers and because a small number of diseases is responsible for most of the morbidity and mortality in the population.

A key person in the scheme is the medical or clinical assistant who does a great deal of the work normally undertaken by doctors. While the value of these assistants has been amply demonstrated all over the world, in South Africa objections have been raised to the training of this category of medical worker. Calling them second-class doctors the medical profession has protested that their creation would lower standards. The nursing profession has reacted even more violently. In fact, some nurses have become quite hysterical, largely it seems at the thought that they might have to take orders from these second-class medical citizens. Without going into details I believe that the case for training clinical assistants is unanswerable in a situation where so many are dying or ailing for want of even the bare elements of health care.

The health centre system still of course requires some doctors and I want to suggest two ways in which they might be obtained. Neither is original and both are controversial. The first involves bonding our medical graduates to a rural hospital or health

centre for a defined period after qualifying, for example, for a period equal to half the length of their training. This of course immediately raises the objection of infringement of individual liberty, but consider the circumstances. The individual accepted for the study of medicine is very highly privileged, selected as he is out of a very large number of applicants for a training which is long and expensive and to which he contributes only a fraction of the cost. More important he is entering a very special kind of profession, a profession, which like the Church, has as its principal objective the prevention and relief of human suffering, and it is only right that aspirants to such a career should be obliged to provide their services, at least for a period, where they are most needed. Then again we live in an era where awareness of social responsibility has become a great rallying cry, not least among students. In particular the students cry out for relevance, that the goals of our universities be relevant to the needs of society. What is more relevant than that our graduates should be prepared to meet the urgent medical needs of the destitute and underprivileged?

I therefore make no apologies for calling for a system of temporary bonding. Of course, the fact that one has to make this kind of call at all, is an indictment of our entire medical establishment and this must include those who are responsible for our present system of medical education. This we know is almost wholly orientated towards curative, urban, Western-type medicine. The medical heroes to whom our students are exposed and on whom they inevitably model themselves are the crack diagnosticians and therapists operating in a highly sophisticated, technologically advanced environment utterly remote from, and largely irrelevant to, the problems of disease in our rural, indigent communities. Of the practice and philosophy of social and preventive medicine among such peoples they catch only the tiniest glimpse.

Surely a medical school in South Africa should be aiming, at least in part, at producing a new kind of doctor – one who is community- and prevention-minded, an organizer of health pro-

grammes, a supervisor of health teams, someone in whom the qualities of flexibility, adaptability and resourcefulness are just as important as the amassing of facts. We need a new scale of values in which the rural hospital or health centre occupies the summit of the professional tree. The best graduates should be assigned to the most remote and difficult areas where the challenges are greatest, and the status and rewards should be commensurate. I know that Departments of Family and Community Medicine are to be established at our Medical School. They have been long in coming. We earnestly hope they will be equal to the tasks awaiting them.

The second suggestion for providing our rural areas with doctors is alternative or complementary to the first. It also involves the principle of what may be called honourable assignment. I refer to doctors called up for army service. We could insist that all future doctors do their army training *after* completing their internships, and that their medical duties include a period of service in the rural areas in addition to, or preferably instead of, treating the ingrown toe-nails of the brigadier or the dandruff of his wife. Our top military brass have repeatedly stressed how important to the security of the Republic is the winning of the minds and hearts of its Black peoples. What better way and what better exercise in race relations than "Operation Health Care" undertaken by doctors in uniform?

MEDICAL RESEARCH IN THE REPUBLIC

Lastly a few thoughts on medical research in the Republic. I believe that we should be doing two kinds of research. The first kind must be directed towards determining the best ways of applying existing knowledge and implementing health programmes in African communities, especially those living under tribal or semi-tribal conditions. It will not be enough to create health centres or clinics armed with people, facilities and science. If these are to be acceptable and to obtain the desired results we need to learn a great deal more about the psychology,

sociology, culture and environment generally of the population we are trying to help. For example, the tribal belief is that infantile malnutrition is caused by the displeasure of the ancestors who have burned the child, or by the parents having had sexual intercourse during lactation resulting in poisoning of the mother's milk by the sperm. Clearly, as Eric Galli has repeatedly stressed, no nutrition education programme can succeed unless it is fully informed about factors such as these and has devised ways of dealing with them. Equally clearly this must be a multidisciplinary effort. In the city we have similar problems, for example, how to stop African women from imitating White ladies who have abandoned the breast as an organ of nutrition and made it an organ of titillation.

The second type of research aims at increasing our understanding of the causes and mechanisms of disease. As we have seen, the field for this kind of work in the Republic is rich indeed. The country is in fact one huge natural laboratory, and it is no exaggeration to say that in many ways we are in a unique position to contribute substantially to the solution of the majority of the medical problems of both the developing and developed populations of this planet. If we look at the record of achievement of our research workers we find many distinguished contributions but, and this is the point I wish to make, the major prizes have eluded us. For example, important disorders in Africans such as liver and gullet cancer and heart muscle disease which puzzled us 10-20 or more years ago still do so today. Similarly regarding the new diseases which are being born in our midst our efforts have been largely confirmatory rather than newly revealing.

Among the reasons for our failure I wish to mention two. Firstly, there is a severe shortage of scientific manpower. Again for social, economic or political reasons only a fraction of our potential is being realized, and a good chunk of that is lost to other countries. Money for facilities is also not plentiful. Secondly, and more important, our scientific priorities, like our medical service priorities, require revision. Quite simply we are

not taking sufficient advantage of our unique interracial and intraracial disease situation. In particular, we are not properly exploiting what in my view is potentially the most rewarding field of endeavour and that is the urban-rural situation. The answers to hypertension, heart muscle disease or cancer are, I believe, much more likely to come from an integrated, multi-disciplinary approach involving sociologic, psychologic, physio-logic and biochemical comparisons of urban and rural dwellers than the conventional more limited approach which consists largely of clinical observations on patients in hospital and which places such a heavy emphasis on animal experiments. After all, armies of conventional researchers in many different lands have been studying these diseases for decades; millions of rats, mice, cats and dogs have been sacrificed and thousands of scientific papers and doctoral dissertations adorn our libraries but the net result has been little light and much heat.

I am of course not alone in calling for the emphasis in medical research to be placed on what may be described as the compre-hensive ecological or environmental approach. In recent years it has been universally stressed that it is pointless to attempt to study the biology of man without taking into account the many social, cultural and physical variables in the environment which in one way or another determine or condition his responses. In our own country we have seen important initiatives in this direction in the last few years. Among these have been the multi-disciplinary project undertaken as South Africa's contribution to the International Biological Programme, the creation of the Transkei and Ciskei Research Society, a most praiseworthy venture of the mission doctors in this area, and the recently established Hans Snyckers Institute at the University of Pretoria. At the individual level there have been very creditable efforts in the field by many members of this University and the South African Institute for Medical Research. And of course the total ecological approach is fully in keeping with the spirit and philo-sophy which inspires the work of the Institute for the Study of Man in Africa.

Obviously we should not underestimate the dimensions of the tasks involved and the organization required for the kind of urban-rural studies we are proposing. In fact, I believe that in this country we should unify our efforts and aim at the creation of a single institution of ecological medicine, as it might be called, in which our resources could be concentrated and co-ordinated. It would be my hope that this University which saw fit to create a Professor of African Diseases would give its blessing to such a venture.

Ladies and gentlemen, we have spoken of many things tonight – age and youth, life and death, wealth and poverty, city and country, lemonade and beer. But this of course is medicine, inextricably linked with every facet of human existence. I have also indulged in much speculation, I have taken many swipes around the field and made a number of suggestions which will be regarded by many as outrageous. But when all the dust has settled the lessons are clear. Human suffering is seen to be less and less an act of God and more and more the acts of men, in particular the acts of some men against other men. But in this there is hope because the evil done by men can be undone, and it has been one of my aims tonight to contribute, however little, to the realization of this hope. Let me say once again what an immense privilege it has been to deliver this address under the joint auspices of the University and the Institute for the Study of Man in Africa. Both institutions have been in the vanguard of the campaign against that most serious of all pollutants in this land – the mental smog which obscures and distorts our social priorities.