HEALTH HAS

MANY FACES

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Edited by
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FOREWORD

"Health," said Pascal de Pury, wise Swiss student of men, "is almost the same as happiness." This book is written for three groups of people who are all anxious to add as much as they possibly can to the world total of such happiness.

These groups are: 1, the doctors, nurses, therapists and other health staff working in "mission" or "church-related" hospitals and clinics and so sharing in the witness of Christ's Church throughout the world; 2, Church leaders and other thoughtful Christian men and women in the Churches of Africa, Asia and Latin America; and 3, all the supporters of Christian medical work living in the "developed" world of Britain, the rest of Europe, North America and Australasia.

We who are members of the Medical Committee of the Conference of British Missionary Societies in London wish to emphasize the many non-medical ways in which health can be improved. Such ways are of particular importance today in developing countries.

We hope to show that a small Christian hospital or clinic has a great opportunity of adding to its curative and preventive programme, by starting small projects to raise the standard of living in the community around it.

Most of the chapters of this book, apart from the first and last, describe actual projects which have been carried out to give health care at village level, grow more food, provide simple water supplies, give training in crafts and skills, teach reading, encourage men and women to work and save money together, and build low-cost houses. Lastly we show how many of these activities have been linked together in rural areas. Each chapter ends with a short list of books for further reading.

The book ends with an assessment of the importance of such work as a demonstration of the Gospel of Christ.

But can an over-worked doctor or nurse in a Christian hospital, who reads all this, really find time to be interested in craft training or housing schemes, when patients crowd around him or her by the dozen?

Of course he or she must put the patient first. If a man comes into hospital with a strangulated hernia, he must be treated immediately, and other less urgent matters must wait. But where there are enough staff, at least one member could almost always be free for the wider interests with which the book deals.

In any case the doctor himself does not have to be involved in all these basic community activities. He can call on a farmer or engineer or educational expert for advice and help, if they are generously willing to give it.

At the same time the influence of a doctor or nurse or medical assistant is often very great, and if he or she is keen to see a clean

water supply provided, others will follow such a lead and offer to help.

And the projects which we describe are not meant to be left to experts. The local church can indeed take a full share in them, especially in rural areas. When this happens, members of the church will soon find themselves working together with Government, each supplying what the other lacks, and so giving the best service to those in need.

A church like this which shows by its actions that "health has many faces", would be most caring, compassionate and Christ-like.

We owe a big debt of gratitude to the many people who have made it possible to produce this book.

In the first place we warmly thank all our contributors, and our artist, Jane Hartley, for all the illustrations not acknowledged in the text. Then, also, our thanks to our Editorial Committee, who under the Chairmanship of Dr. Roy Billington, included the Rev. Cecil Hargreaves, Dr. Keith Sanders, Miss Margaret Woodland and Dr. Kathleen Wright. Dr. Stanley Browne and Commissioner Harry Williams have also given much valuable advice.

We give most sincere thanks to Miss Daphne Terry for devoting so much of her time to reviewing the presentation of the material. We are also most grateful to Dr. Nita Barrow and the staff of the Christian Medical Commission, Geneva, for much helpful advice, to the authorities of OXFAM and J.A.M.A.L. for permission to describe aspects of their work, to Mrs. Sally Moyle and Miss Gillian Smith for excellent secretarial help, to Mrs. Commissioner Williams for compiling the index, to Voluntary and Christian Services and the Medical Missionary Association, London, for generous grants, and to our printers, Campfield Press, for their ready co-operation.

Howard Souster
Chairman, Medical Committee
Conference of Missionary Societies in Great Britain and Ireland.

Note: The currency equivalent, £1 = U.S. $2.00, is used throughout the book except where otherwise stated.

CHAPTER 1

INTRODUCTION

"One thing leads to another"

by Roy Billington

"Cycle rickshaw work is killing in the heat of the day," writes a young missionary newly arrived in an Eastern country. "One young man who waits beside our college has tuberculosis and was ordered by the doctor to give up the work that will kill him. But he still carries on. 'What can I do for rice?' he says. Tuberculosis remains the biggest killer here. It hits almost exclusively the poor. They get tuberculosis because of malnutrition and inadequate preventive measures. They cannot take treatment because they cannot stop working."

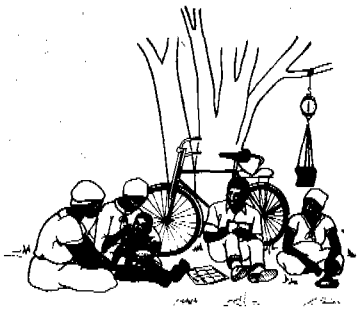
"Tuberculosis remains the biggest killer here", though this same tuberculosis is almost a vanishing disease in countries like Britain or Canada. And the poor rickshaw-puller is caught in a net of difficulties—no money, not enough food, no time to take treatment.

Christians have longed, for the last hundred years and more, to try to meet such needs in developing countries, and so show the love of the Lord Jesus in action. So they have been active in starting dispensaries and clinics, usually of the simplest kind.

Hospitals and community health

These dispensaries often grew into hospitals which could give better care, and the hospitals built training schools for nurses and midwives—in some cases even a full medical school. The record of service of hundreds of such institutions is a great one indeed.

And hospitals are still essential today for any health scheme. They provide special resources for medicine and surgery, X-ray and laboratory services for skilled diagnosis, and training programmes for staff.



But in this rapidly changing world Christians may come to rely more and more on government hospitals for help of this kind, and themselves reach out into the community, working—again in close co-operation with government—to bring better health close to where families live.

Success in such schemes depends on gaining full support from the community which is being served—particularly the support of its leaders. And the great influence of the village health worker—the simply trained helper of all in the village—is being recognized more and more.

Patterns of such outreach work are described in Chapter 2.

Underdeveloped Britain

Now, as doctors and nurses become more interested in community health, they realize more clearly the big underlying factors that make people healthy or unhealthy. The lessons from recent British history are striking.

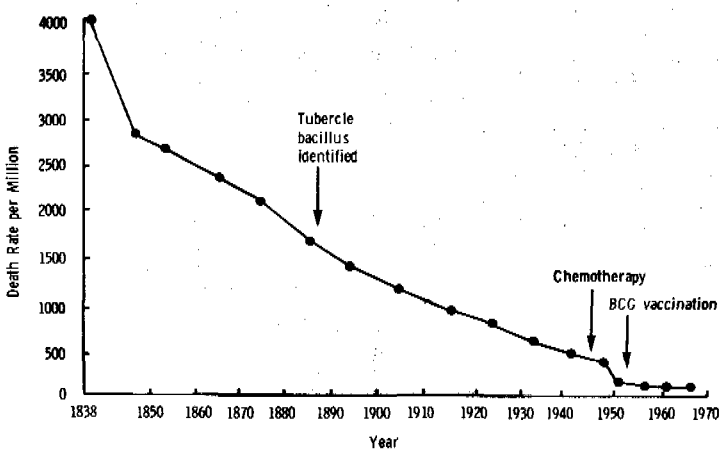


Fig. 1. Tuberculosis of the lungs: annual death-rate for each million people in England and Wales. *(Ref.* Thomas McKeown, *The Role of Medicine.)*

What changed the health of Britain from the year 1700 on was first of all *more food.* Infectious diseases were the great killers then, but as families became better fed, they could resist infection successfully.

Then, from 1870 onward, pure water supply and proper drainage put an end to cholera and cut down diarrhoeal disease. After 1900 cleaner food—especially cleaner milk—reduced the risks of diarrhoea in children still further. Families became smaller, and so each child could be looked after better.

As a result the number of deaths from tuberculosis dropped steadily during the nineteenth century (Fig. 1), and so did the death rate among babies (Fig. 2). This went on even though little could be done at that time to prevent infectious diseases, and antibiotics had not been discovered.

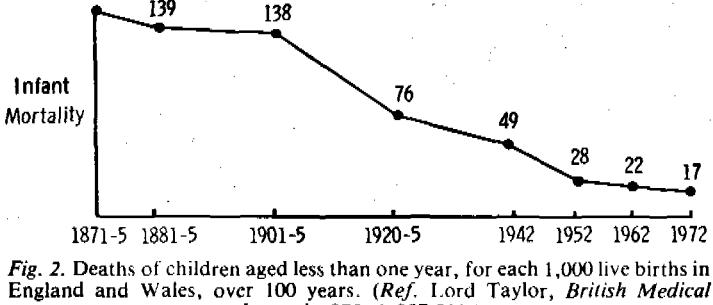


Fig. 2. Deaths of children aged less than one year, for each 1,000 live births in England and Wales, over 100 years. (*Ref.* Lord Taylor, *British Medical Journal,* 1975, 4, 207-211.)

When widespread immunization against childhood infections started in about 1956, this only made the death rate fall a little faster.

Food

Developing countries now face the same problems as Britain did eighty years ago, and Dr. Browne emphasizes in Chapter 2 the great importance of food.

Children are the ones who suffer most from lack of it. Half the children in the world are badly fed today, and as a result many die from infectious disease, because they have not the strength to resist it. More than half the children

who died from infectious disease in a South American country suffered from malnutrition—poor feeding. The World Health Organization is right in saying that "Food is the best vaccine".

So better feeding is really the first step toward better health, and ways of growing more food and the importance of not wasting it are dealt with in other chapters, especially Chapter 3.

Water

Then providing a good supply of clean water does a great deal to improve the health and standard of living of rural people. When the Japanese Government provided such a supply to thirty rural areas, the death rate of babies there was reduced by nearly half.

And such a supply sets off a whole chain of improvements. Experts found this when they piped water for three kilometres (two miles) from a spring to Belhassenat in Algeria, a small town which was poor and cut off from others. Soon the town had built baths and a school, put in electricity, and made a paved road.

Chapter 4 describes how a small community can obtain its own water supply. In most country districts everyone could share in the work of providing it, and all should be responsible for maintaining it through local craftsmen who would add this to their other work.

In cities and rocky rural areas, however, the cost of water supply rises steeply and has to become the responsibility of the government. Then the task of a Christian group is to encourage the community around it to press for such a supply.

Fighting poverty

Next on the list of blocks to health comes poverty. "The word itself," says Robert McNamara, President of the World Bank, "has become almost incapable of communicating the harshness of the reality. Poverty is life at the very margin of physical existence."

Two out of five of India's rural population have a daily income of less than 0.5 rupees a day (say 5 U.S. cents or 3p). And Caroline Jayatilaka, a widow in Colombo with eight children, has just this income. She cannot afford bus fares to send her children to school, nor can she buy school clothes or books or pay the small fee of 4

U.S. cents (2p) charged at the clinic. Each member of the family lives on ½ lb. of rice each *week* instead of over ½ lb. a day.

Poverty and unemployment are closely linked. Unemployment is indeed a world-wide problem, but in developing countries it becomes a crushing burden.

Mr. Ladla of Calcutta has had no job for five years. "Sometimes I get near to despair," he says, "when my children go to bed hungry. I cry with them when they do this. I would do any job, anything at all."

Under these conditions, how can families be healthy? Such hardship can only be overcome by setting free the skills and energies of the poor themselves.

In Mathare valley, squatter area on the edge of Nairobi, where children needed better food, the National Christian Council taught women—single parents—to make wall pictures of Mathare life. These sold well to tourists at U.S. $1.50 (75p) and upward for each, and soon mothers were buying daily milk, clubbing together in a self-help group to buy maize at wholesale prices, and giving their children a good mixed diet.

Dr. Zafrullah Chowdhury at his health centre near Dacca taught girls jute handicrafts so that they could make a living. And Dr. Gladys Jeffree, realizing that her hospital in Maharastra was built on agate rock, set young unemployed men to cutting, grinding and polishing the rock into beads and simple jewellery. Another similar story from village polytechnics in Kenya is told in Chapter 5.

And why not make farming by women more profitable? Very few farm tools have been designed specially for women to use, though there is a simple seed planter in Africa costing less than U.S. $1 (50p), which makes the seed hole and then puts in the seeds.

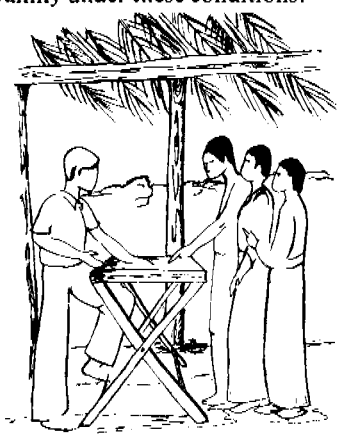
Small schemes like these are essential, but we need wide international vision too. We should want to put right the unequal way in which the world's industry—its steel mills and factories—is shared out. The Third World, with 70 per cent of the world's population, has only a 7 per cent share of the world's industry—and the whole of Africa no more than 0.6 per cent. The developing nations want 25 per cent of world industry by A.D. 2000, and it is hard to see how poverty can be ended until skills and opportunities are shared more justly in this way.

Learning to read

Dr. Zafrullah Chowdhury wanted to find out how many people in Savar, a rural area near Dacca in Bangladesh, could read a Bengali

newspaper. The answer was—one out of twelve of the men, but only one out of seventy-five of the women. Such a situation is particularly sad for the women, who need to be able to earn an independent wage if they are to change their present life of hard continuous labour.

Anyone who is unable to read or write suffers from a great handicap in today's world. A mother is as likely to cause harm as to do good if she cannot read the instructions on a medicine bottle or the label on goods from the store. It is hard to bring up a healthy family under these conditions.



World-wide the situation is not quite so bad as in Savar, but it is bad enough. Two or three countries do not give any figures. In all the rest, one person out of three cannot read, and among those who *can,* there are many more men than women.

The problem has been tackled energetically in Tanzania. The Government has started a campaign called Mtu ni Afya—Man is Health. Group leaders who are literate —able to read—learn how to teach this skill to groups of students. Simple textbooks are prepared about preventing disease, and a radio course is given twice weekly which backs up the lessons in the books.

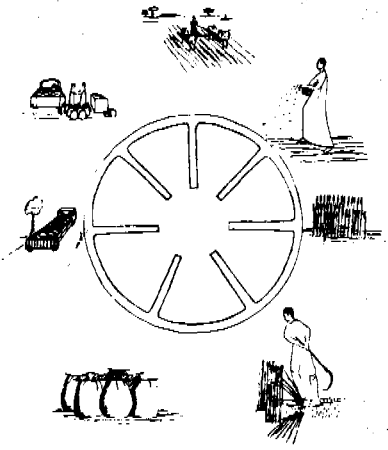
In 1973 60,000 to 70,000 group leaders were trained, each able to teach a group of fifteen people. At the end of the first classes, 750,000 latrines were built on self-help lines. Then followed a carefully prepared course on better feeding for everyone. Altogether two million people, nearly a sixth of the population, took part.

But Tanzania has shown that simply learning to read is not enough. Life must be changing to meet the new longings of the students; change in land ownership, setting up co-operatives, starting rural industries—without these the new skill will be wasted.

Tanzania's scheme is big indeed, but could not small groups work in the same way? A detailed description of another "learning to read" programme is given in Chapter 6.

Working together

"He that hath no brother hath no strength in his legs"
Persian proverb.



Working together can help to reduce poverty. In 1972 and 1973 forty-two young families near Aurangabad, in Maharastra, India, formed a co-operative society, after a brief training in brick-making and care of farm animals. By 1975 they had built fifty brick houses, and plan to make enough from brick-making, dairying and grinding seeds for oil, to live a satisfactory life.

At Boyolayar, a village in Indonesia, where 100 to 150 babies out of every 1,000 born in the district died in the first year of life, Dr. Nugroho describes how a goat co-operative was started. Bamboo goat-pens were made and grass for feed cut from the forest. Breeding went well, the average family income rose by 30 per cent, the infant death rate went down after two years to forty-three out of every 1,000, and sewing classes and fish ponds were started.

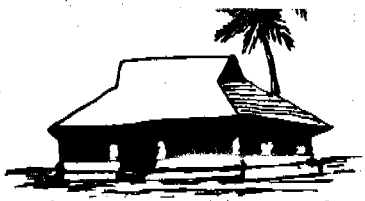
Co-operatives are complicated affairs however, as Peter Sartorius, with wide experience in F.A.O. (Food and Agricultural Organization of United Nations) makes clear in his book *Churches in Rural Development.* They should only be set up if farmers feel the need for them. Their members require specialist advice when they start their scheme, and the accounts must be carefully kept.

But still the principle of doing things together, so that all those who do the work can take part in decision-making, is surely a good one. Joining together for action may then lead on to a co-operative or to sharing in a company or farm. Examples of this are given in Chapter 7.

Learning to be self-reliant

President Nyerere has said, "To plan is to choose", a community must choose what it wants to do and then make its own plans. Housing schemes give great opportunities for members of a community to plan and act together in this way.

A London architect studied two low-income communities in Kingston, Jamaica. The residents built their homes where the

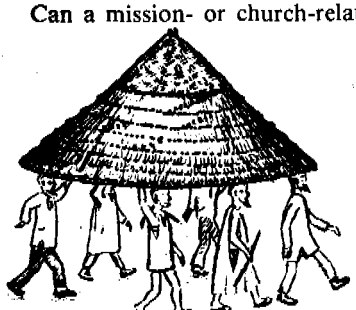


government had provided sites and basic services such as roads and piped water. The homes were well constructed and a source of pride, though the owners only had very small incomes. The lessons the government learnt were that people could indeed be trusted to build good homes, given land, security and time—plenty of time.

Such houses make for better health and better living, and Laurie Baker describes in Chapter 8 the way in which brick and tiles, wood and stone can be used to make simple and beautiful homes.

New vigour in the community

Can a mission- or church-related hospital really take a lead in trying to meet some of these big needs? Yes, surely it can—and even small efforts may bring good results, and produce wide-spread changes in society.



Demonstrating better ways of storing food, protecting a spring, encouraging young people to learn a craft, starting a reading class for young girls—all help toward better health. And these are schemes in which all Christians, whatever their work, can take a share, and show the love of Jesus in new and simple ways.

For further reading:

The Home of Man by Barbara Ward, Penguin, London 1976.

The Role of Medicine by Thomas McKeown, Nuffield Provincial Hospitals Trust, London 1976.

Contact No. 32 (James McDowell on Food) from Christian Medical Commission, 150 Route de Ferney, 1211 Geneva 20.

Health by the People, W.H.O., Geneva 1975.

Churches in Rural Development, Peter Sartorius, World Council of Churches, Geneva 1975.

Christianity and Social Order, William Temple, pub. Shepheard-Walwyn & S.P.C.K., London 1976.

Health a Surprising Joy, Roy Billington, pub. Church Missionary Society, 157 Waterloo Road, London SE1 1976.

CHAPTER 2

HEALTH AND DISEASE IN THE VILLAGES

"Where the burden is heaviest"

i. A general survey

by Stanley Browne

Many people know by now that three-quarters of the population of the countries of the Third World live in villages, and that this proportion will get less as more and more people leave the countryside and go to live in the growing towns. And, in a vague sort of way, most people nowadays have some idea that the average villager does not enjoy the standards of health that many townsfolk take for granted; nor can he get the medical services that such people consider essential. In this chapter we shall look at the whole subject rather more closely and fill in the more important details, so as to gain an accurate general picture of the level of health and sickness of the majority of our fellow-citizens. With this background of what needs to be done, you will see how Christians are in many instances—some of them illustrated in subsequent chapters—facing the need and doing something about it.

The village and the health of the villager

The quick-moving traveller from the West, or the better-off townsman in a developing country—whether holiday-maker, politician, or journalist—who sees only a small number of people in the big cities or holiday places, may think that the average villager is like the reasonably well-off and healthy-looking people he meets.

If he himself falls ill, he may get first-class medical attention in an excellent hospital. Or, he may not; it all depends. But these impressions of his must be added to and corrected by seeing what happens to people in the villages and homesteads far from the beaten track, and in the slums of the big cities, and the crowded outpatient departments of the general hospitals.

He should visit village schools and spend time in the smaller villages talking to ordinary people. It is a pity that this often has to be done through an interpreter—but an honest interpreter is better than a false guide in these matters. Let our visitor keep his eyes and ears (and nose) open as he wanders round, carefully gathering facts and figures that can be woven into a true tapestry of village health and disease.

Village doctors are scarce

The first thing that will strike him hard, is that the definition of health published by the World Health Organization in 1947:

> Health is a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity

is as far removed from the reality of the situation as a heart transplant unit is from a village clinic. In fact this ideal seems, if anything, to be becoming less and less possible in many countries.

Of recent years, very good physicians have been trained in centres of excellence in many big cities—but standards of living in the average village have not improved at all. Fortunately there are other people beside doctors who are concerned with health, otherwise the shortage of doctors in a country and—just as important—their bad distribution among the population, would be more serious than it actually is. The capital city may have one doctor for 600 people, but there may be one doctor for 100,000 or even 200,000 people in the "bush".

The importance of food

The next thing that will strike him is the importance of food—and that goes for the townsfolk as well as the villagers, of course. But it is in the villages, where most of the people are peasant farmers, close to the soil, that he will realize that the whole of village life revolves around food—its production and harvesting and storage. Food does not come from shops, but from the soil—a fact that the townsman sometimes forgets. And the peasant farmer and his family are bound to the good earth, and think in terms of seed time and harvest, digging and planting and rain. Man does not live by bread alone, we are fond of quoting, but if he cannot get "bread" (in the larger sense) he cannot live at all.

Good health is impossible without an adequate and nutritious diet. On these grounds, and if international standards of people's

needs of proteins, fats, carbohydrates and vitamins are accepted, most of the villagers in the Third World are not really healthy. They lack something or other, seasonally or throughout the year. Their ordinary diet seems to be very monotonous—rice or millet, manioc or sweet potatoes. They may be able to add vegetables and sauces, with meat or fish as rare luxuries. The average man's digestion has to be very efficient, using every scrap of protein, iron and calcium, and getting the last bit of energy from the carbohydrates eaten.

New ideas about food

Of course, where there is something lacking in food, this should be recognized and put right. This is one place where Christians concerned about health should come in—and have come in, supplementing and co-operating with government bodies and voluntary agencies. It is here, too, that village conservatism and resistance to change are seen at their worst.

But sometimes it happens that a crisis, like drought or flood or crop disease, will produce a new open-mindedness and a welcoming of new ideas. Shipments of food for the starving give temporary help, and also an opportunity to impart new ideas and show people how to get the best out of the soil, which will do far more lasting good.

Baby feeding

If possible every baby should be breast fed in the first months of life, as breast milk gives him all that he needs at that early stage, is sterile and protects him against infection. Bottle feeding on the other hand can have very bad effects. The high cost of powdered milk, and the risks of overdiluting the mixture, or of infection from a dirty bottle are real dangers.

Mothers often need advice on feeding the infant at and after the time of weaning. Any advice on diet should be really practical, based on the strength of local food taboos in a community, and only including changes that are within the resources of the household.

Waste of food supplies

It is important indeed to realize the terrific—and preventable—losses of food between the field and the table: losses from pests (insects and fungi thrive especially where there is only one crop grown); losses because of improper or inadequate storage (allowing living germs, insects, rats and mice to destroy the food); and losses due to faulty cooking methods. Here is a challenge on many fronts. Christians ought to be doing something here.

The importance of good farming

Now that the Green Revolution has given us an all-too-brief breathing space, we must see to it that farmers are encouraged to use the new strains of rice, wheat and maize now available. By working together with nature, by good irrigation and the right amounts of fertilizer, and by real efforts at pest control, they will gain for their families and the whole community the greatest possible benefit from these strains. But the recent increase in the cost of imported fuel has hit many farmers very hard; everything now costs more—transport, irrigation, fertilizer, farm equipment, everything.

Land hunger is increasing in many tropical countries because the population is growing fast and the available land is diminishing; the productivity, moreover, of the soil is decreasing in many countries because of bad farming. The earth is the Lord's, and so the Christian farmer and the Christian community must respect the topsoil which cannot be replaced, for on this topsoil most life ultimately depends. All farmers must avoid overcropping and overgrazing. Greed and pride and jealousy play a larger part in these situations than many people would admit. Christians have something to say here, too. "What does the Lord require?"

If food is the most important factor in healthy living, and since undernutrition and poor nutrition are so widespread, then Christian communities face a real challenge to do something about food; a later chapter will spell out some suggestions derived from what is being done in certain places.

Health hazards in villages

Another important factor is the presence in rural communities of health hazards—dangers to health—of many kinds. And a serious feature of this situation is that it is quietly accepted; it is normal, and most folk have never known anything else, and believe that nothing can be done about it. Perhaps much of the lowered resistance to infection, the lack of energy, and the fact that most people accept the present situation, is due to chronic undernutrition. But chronic anaemia and recurrent malaria must account for much poor health too, with all its personal, economic and social consequences. The anaemia may be in part due to hookworm as well as to malaria and protein lack. Indeed all these causes of ill health are closely linked one to another.

Diseases associated with water

The main health hazards in the tropics are germs and parasites, and many of these are associated in some way with water. It is not so long ago that several of these diseases were common in countries of the Western world, but the marvellous work—largely unseen and

not appreciated by most people—of water- and sanitary-engineers has removed these risks from industrialized societies. Bringing clean water to villages and to village households, and taking soiled water from these households, would confer the greatest benefits on their inhabitants. If, in addition, the watery breeding-places of the carriers of many tropical parasites could be controlled, then the whole health situation would be improved immensely.

Take, first, water-borne infections. Cholera used regularly to visit Great Britain and other countries of the West; it is still a threat, and could strike on a world-wide scale at any time. It might enter the lands of the Western world, but it would not establish itself in them because of good sewage systems. The same thing is true of the dysenteries and typhoid and paratyphoid fevers. These were once a real hazard in the West, but now are rarely seen, because piped water is protected against infection. But where the water supply is infected, these diseases and others like infantile paralysis and infections of the liver are commonly found.

Other parasites are transmitted in water in certain tropical countries, for instance, schistosomiasis, a disease caused by a tiny worm. This infection is now more widespread than ever because of the new breeding-places provided by massive irrigation schemes and hydro-electric dams. When schistosome eggs in human stools and urine are passed into water, they first infect certain snails—their temporary hosts—and then go from the snails back into the water, ready to infect other human beings. Guinea-worm infection is another disease dependent on water—it afflicts about 50 million people in West Africa and India.

If water for drinking purposes is allowed to stand for forty-eight hours, the living forms of the tiny parasites that cause these two diseases will die. But when small streams and pools are infected with schistosomiasis, the problem is much more difficult to deal with because it is hard to get rid of the snails.

Diseases spread by insects

There are other serious and widespread diseases caused by parasites which are carried to man by insects. Malaria is far from being controlled in the world, despite many efforts in many countries. And now the problem is more difficult to solve because mosquitoes have appeared that are resistant to the poisons used in spraying, and in some countries the parasites themselves are becoming resistant to the drugs normally used to cure malaria.

"River blindness", or onchocerciasis, afflicts about 50 million people in Africa, Central and South America and Saudi Arabia. The tiny worms are carried by adult female blackfly from man to man and the blackfly eggs develop in swiftly-running water.

The living parasites that cause sleeping sickness are carried by the tse-tse fly, which lays its eggs in the sandy banks of rivers.

In addition to onchocerciasis, various other worms that live in the blood or lymph need a special mosquito or fly in which infective forms develop before they are injected by the insect into man. Several kinds of elephantiasis—swollen limbs—result from the presence of this worm in the body.

Many people in countries of the Third World have worms in their bowels, and when a man passes a stool on to open ground where there is water, the eggs from the worm stay in the water or ground, ready to infect other men.

Tuberculosis and leprosy

Infectious diseases are present in great numbers in the tropics. Smallpox will probably completely disappear very soon, thanks to the plan for its prevention organized by the World Health Organization. But if smallpox will have lost its terrors, other infections continue to spread in countries of the Third World. I refer particularly to *tuberculosis* and *leprosy*. Many countries have not yet succeeded in controlling tuberculosis. And it is a killing disease. Unfortunately, some of the tuberculosis germs are becoming resistant to the drugs used. This is usually due to irregular treatment with one drug only. Leprosy is still very widespread, and is still spreading. In leprosy, too, many countries are reporting that the standard drug, dapsone, is no longer effective: leprosy germs are becoming resistant to it. We know now that some leprosy germs can remain alive in a man's body for years, although he is regularly taking his treatment.

Other infections deserve mention here. One which attacks large numbers of children is *measles*. Together with whooping cough, measles carries off many children in most countries every year, largely through bronchopneumonia and diarrhoea. In addition there are diseases due to a virus, such as *yellow fever*, that may cause epidemics from time to time. The viral infections more recently recognized, like *Lassa fever* and *Marburg virus disease* ("Green Monkey" disease) certainly seem to be on the increase nowadays.

There is not space enough to tell the story of infections and parasites transmitted by other insects such as fleas, ticks and mites. Poor hygiene in and around the house is responsible in large measure for the persistence of these germ-carriers. When houses are clean and kept clean, the diseases will become less or even disappear.

Non-biting flies are also responsible for much human disease. They breed in dirty surroundings and carry the viruses of trachoma and poliomyelitis (infantile paralysis) from one person to another.

Expectation of life

It is no wonder that the expectation of life for an infant at birth in many countries of the Third World is far lower than that of his

brother in the Western world. But that is not all. The lack of healthiness resulting from infections that do not kill, and worms in the bowels, accounts for a tremendous amount of human suffering. The waste of human life has to be reckoned in terms of family tragedies and loss of earning power. Frequent child-bearing greatly weakens the young mother; she has to produce many children to ensure survival of some, including a male to support the parents in their old age. Another hardship for the wage-earner in the towns and ports is that wages do not rise with the size of the family; so there is less food for each when another mouth has to be filled. This is indeed a "vicious circle" where one problem leads to another. What should be done to make families healthier?

What should be done? What can be done? What has been done?

There are many kinds of vicious circle, as we have seen. They are different in importance and in size in different rural communities. Most are due to many or several causes. These vicious circles must be broken, somehow, and the breaking may be done at different points. Since each situation is complicated and since we are dealing with people—with their hopes and fears, their prejudices and customs, their conservatism and their wish to be like others—we cannot, as Christians, think of just giving orders from above or from outside. Far better for members of the local community to become aware of the situation (perhaps with help and explanations from those outside, whether nationals or expatriates), and then for the community to suggest what should be done and take a full share in carrying out the proposed plan.

The attack on any problem must be adapted to the local needs. Of course, somebody must decide what are the most important of these needs, and the order in which they should be tackled. Then the details of the programme—and the consequences of the proposals—should be studied carefully. Doing something without enough thought often brings serious and unexpected problems. Attempts to kill insects in rivers and swamps with D.D.T. and similar poisons, or to give drugs to large populations with the object of preventing diseases like meningitis, have had serious and unlooked-for results.

Because missions and local Christian groups are often more flexible and can move more rapidly than official bodies, they can see and seize opportunities to help at a time and place where such help may achieve the best results. But these Christian groups should then link up fully with local health authorities, to make sure of lasting and economical progress.

Why should Christians concern themselves with health and disease in the community? This question has been answered in a general way in a previous chapter, but now that we have considered the main problems presented in the villages of the Third World, we may perhaps try to answer the question more carefully.

The hospital and curative medicine

As a matter of recent history—that is, the history of the modern Christian missionary movement—Christians have all-too-gradually and reluctantly come to realize that a gospel that does not care for human need misses the mark. It fails to convince; it may seem to be "other-worldly", "pie in the sky". Our Lord Himself dealt very sharply with those whose worship was confined to an empty "Lord, Lord", and with people who simply did not notice the sick and suffering, the hungry, naked and despised. And James, the apostle of applied faith, calls for faith to be seen and recognized for what it is.

It is this kind of faith, of course, that sent the early medical missionaries out to do what they could to help and to heal. They did what they could, and it was a rather wonderful thing they did—despite the criticism that it is now fashionable in some quarters to level against them. But their main object was to help, and try to cure individuals who were sick. They had to. Faced with such a colossal amount of human need, they had to help in the only way they knew how, the best way possible at that time. And that was the way of major surgery, and treating illnesses with medicine, and a brave tackling of neglected diseases. Confronted with a huge tumour weighing over a hundredweight (about fifty kilograms), the medical missionary—surgeon or not—had to do more than pray. He had to operate. And faced with a woman whose bones were too small to allow the head of the unborn baby to pass, or a man who had walked for four days with a strangulated hernia, he had to use the knife—and he used it time and again to good effect.

This led to the palaces of healing, the shrines of Christian compassion and care. Monuments to medical skills dedicated to Christ the Healer and His suffering people, these pioneering institutions showed how need could be met and should be met. But notwithstanding wonderful curative successes, these mission hospitals—with a few notable exceptions—made little impact on community health. Overwhelmed as they were with people who were very ill, the medical staff had little time for the widespread serious diseases and nutritional deficiencies that killed off whole populations and impaired the health and happiness of those who survived. We, today, have no right to blame them for doing what they did in the way they did.

Now that governments are generally taking up the burden of caring for the sick—at least in theory—the old-type mission hospital, increasingly expensive to run and increasingly difficult to staff, is becoming out of date. The changing situation coincides with a changing emphasis that is becoming generally acknowledged. Health is not just the absence of particular diseases, and health cannot be obtained just by removing some diseased part of the body or getting rid of worms in the bowel. Real health for the many is very difficult to achieve, because everything in the surroundings of

the average village, and in the poorer areas of the big cities, works against healthy living. Have the Christian Church and the mission hospital anything to offer beyond a prayer and a hope?

The apostle James had quite a lot to say on this theme also. "Suppose a brother or a sister is in rags without enough food for the day, and one of you says, 'Good luck to you, keep yourself warm, and have plenty to eat', but does nothing to supply their bodily needs, what is the good of that? So with faith; if it does not lead to action, it is in itself a lifeless thing."

The hospital reaching out into the community

Many health programmes based on a central hospital and reaching out to the villages are now engaged in actively preventing several diseases. We have already referred to the success of the worldwide vaccination campaign against smallpox. This kind of protection—immunization, we call it—is being used against other illnesses. For instance, there is a very good vaccine available for protecting children (and adults, too) against infantile paralysis; and another—B.C.G.—against tuberculosis, and perhaps also partly against leprosy. Then there are vaccines against yellow fever, measles, whooping cough, diphtheria and lockjaw. Some other vaccines are not so good, for instance those against cholera or typhoid.

Prevention is better than cure—and it is usually far cheaper too. For some diseases, the best method of prevention is to treat everybody who is actually suffering from the disease in question, so that he can no longer pass on the disease to others. This is the case with sleeping sickness, and also with leprosy. Prevention is then better *by* cure.

Sometimes—as part of a general cleaning-up campaign—it is possible to wipe out entirely the insects that carry disease. This is the case when some kinds of mosquito breed in little collections of water near houses. Get rid of the old tins and the puddles and little breeding-grounds in the forks of trees or banana plants—and you get rid of these mosquitoes and the diseases they carry. Or fill up the cracks in the mud walls of houses, and so prevent the development of the biting insects that carry relapsing fever or (in South America) Chagas' disease.

The hospital adds prevention to cure

That is why many mission hospitals today are coming to see their responsibilities toward the community, burdened as it is by problems of all kinds and needing the burning zeal and dedicated resources of those who call themselves Christians. It is not a question of giving up curative medicine, but of adding prevention of

disease to the curative jobs being done. In the well-worn picture, it is building stronger and better fences at the top of the cliff while not neglecting to provide some sort of ambulance service at its foot.

For some institutions, and some medical people who are practising the old-style curative medicine, the change to prevention is difficult. It means starting a new and unfamiliar kind of medical work. And it is usually less difficult to continue to tread in the well-worn and well-known paths. The choice is between two kinds of good, and the choice is not easy.

However, by retaining the best of the old, and grafting on to it the most urgent and the most practicable of the new, it is possible to make the change and to do it in a Christian way, to the lasting benefit and blessing of many.

An example of community health care

Such was the situation in a mission service with which I was associated in the former Belgian Congo, where we were able to develop a comprehensive church-related community health service. Finding the population in the middle of an epidemic of sleeping sickness in the early 1920s (with 25 per cent of the population of some riverside villages seriously ill), Dr. (now Sir) Clement Chesterman tackled this desperately urgent problem. To do this, he had to train auxiliary health workers, and create a simple district health service.

Then yaws—a skin disease—presented a challenge which was accepted: from 9,000 cases a year the number of patients fell to a few score. The public relations result of these two success stories was beyond all expectation, and the foundations were laid for the complete medical coverage of the district of 10,000 square miles (about 25,000 square kilometres), and for schools for medical auxiliaries and assistant midwives.

Eventually, spreading out from the 100-bed central hospital, there were eighteen health centres and thirty-six treatment centres for a population of 105,000. Links with the government health services in the province were strong and friendly: medical services were organized for companies concerned with growing palm-oil, rubber and coffee. The dispensaries which were built were opened (by agreement) to everybody. All the health centres were manned by fully trained Christian medical auxiliaries, many of whom were church leaders too. The wives of some were midwives trained in the school attached to the central hospital.

With sleeping sickness wiped out, yaws almost so (in the days before penicillin), and tuberculosis controlled, every patient with leprosy was brought under treatment when the new drugs became available. Every patient with some skin rash that did not get better quickly and did not irritate was seen within six weeks by the doctor

on his journeys, to make sure it was not leprosy. Control of the flies carrying the worms that caused river blindness and filariasis was also attempted on a wide scale.

Baby clinics (for children under two years of age or weighing less than ten kilograms), toddlers' clinics (long before the days of special care for the "under-fives"), and ante-natal clinics were established in eighteen centres, and these were the main part of a full health education campaign directed chiefly at the mothers. A weekly dose of an anti-malarial drug was given to every infant attending a baby clinic. This reduced deaths due to cerebral malaria from 200 cases a year to none. An outbreak of poliomyelitis was controlled, every victim being notified to the health authorities and splinted within forty-eight hours of the onset of paralysis.

Schools and farms

The medical auxiliaries in charge of the district dispensaries visited the mission schools in their area, giving lessons in healthy living and also examining the stools for hookworm eggs and the blood for anaemia. School teachers complained that after taking worm medicine and iron, their pupils became more lively and mischievous—a small price to pay for improving the quality of the blood.

Agriculture was in the hands of government advisers, but this did not stop the medical auxiliaries introducing new vegetables, grafted citrus trees, mulberries and the like, and giving out large eggs from selected hens.

It seemed natural for the Christian auxiliaries to continue the evangelistic outreach in which they had shared as students. They (and their wives) became friends and confidants of their colleagues who were in full-time church activities, and supported their work. Everybody could see that the Church was concerned with all sides of life in the villages.

Training in different ways

The opportunity came for training and sending out hygiene (health) teams, whose job was to raise standards of village health by providing deep pit latrines, rubbish pits for refuse disposal, and better houses. This was accepted as a necessary addition to the curative and preventive medical work that by then covered the whole district.

The primary health care worker (to use the title now made popular by the World Health Organization) was represented in this community service by the village lads in charge of the treatment centres. These young men were chosen, trained, equipped and

supplied with drugs, and then supervised and given refresher courses by the local medical auxiliary in charge of the health centre.

[Editor's note: These workers correspond to the village health worker described in Part II of this chapter.]

With our local needs for trained medical auxiliaries fully satisfied, we trained candidates sent from Protestant missions further afield, from all the south and east of Congo, and even from what was then Ruanda-Urundi, returning the trainees to mission employ or transferring them to government or company service.

The principles of this pioneering programme of community health care, based on a church-related medical service and enlisting the co-operation at all levels of medically qualified and subordinate staff, are valid in other situations.

The importance of health education

People engaged in all kinds of ways in trying to help village-dwellers to live healthier lives are finding that one of their main obstacles is . . . ignorance and prejudice. They therefore must concern themselves in health education. And everybody must do it—doctors and ward maids, community health visitors, agricultural advisers, teachers and pastors.

Here are a few hints: Actions speak louder—far louder—than words. Health education means showing the way to better health. Health education is done anywhere where people meet—where doctor meets patient, disinfectant sprayer meets householder, nurse meets pregnant woman. It begins with the very young and it never ends.

To be really convincing you must be already convinced yourself. If cleanliness is really next to godliness, then Christians should be in the forefront of health education.

You cannot force people to follow your advice, but you can show them that life can be healthier and better if they try to follow the simple basic rules that are really a matter of applied commonsense.

Carry the people with you, and do not go too far or too fast. Remember that a "man convinced against his will is of the same opinion still". If that is true of a man (in a village), it is even more true of his wife.

Use great care when you introduce posters and drawings. A chief would not believe me when I showed him under the microscope lots of wriggling "snakes" in his blood—he knew he had no snakes in *his* blood. A big poster with a picture of a malarial mosquito failed at first because everybody said, "We have never seen flies as big as that in our village".

With the coming of the transistor radio to every village and the possibility of health programmes being broadcast from local

stations, the chances of getting the message across to local leaders and opinion-formers have been multiplied tenfold.

Smaller families

No reference to health and disease in tropical communities is complete nowadays without reference to having smaller families. We are responsible for the results of our medical successes, and we have not done a community much good if we save young children from dying of measles and its complications, only to let them starve slowly to death in after years. If mothers (and fathers too for that matter) are convinced that, thanks to an efficient and readily available health service, all their children stand a very good chance of survival, then it is possible to talk to them about family planning. In this connection, we must remember that venereal disease is an important cause of barrenness. If, therefore, some women who have failed to conceive can be helped to do so as the result of medical treatment, opening the tubes to the womb, and so on, the family planning programme has a better chance of a good hearing and a good application.

Conclusion

We began this part of the chapter by reviewing the health needs and dangers of the average villager. We end on a note of hope. Notwithstanding the many serious obstacles to the achievement of health and happiness, the first hopeful step is taken when we are convinced that something can be done, and that something ought to be done.

Get the vision; take the initiative; enthuse others. And who better than local concerned Christians to do this?

Circumstances may change, and not all governments may welcome Christians and Christian missions to share in community health programmes, but when the opportunity does come, it should be seized with both hands; disease can be tackled and prevented, and the whole community rendered healthier and happier. The unnatural (and unscriptural) division between wholeness of body and wholeness of spirit has no place in a programme that presents the whole gospel to the whole man.

For further reading:

Community Health Care by Stanley Browne: 25p plus postage. Ludhiana British Fellowship, 157 Waterloo Road, London SE1 8UU, U.K.

A Model Health Centre. A Report of a Working Party appointed in 1972 by the Medical Committee of the Conference of Missionary Societies in Great Britain and Ireland, 2 Eaton Gate, London SW1W 9BL. 1975. £3 plus 60p postage.

Community Health and the Church. J. Hakan Hellberg. 50p, U.S. $1: Publications Office, World Council of Churches, 150 route de Ferney, 1211 Geneva 20, Switzerland.

Paediatric Priorities in the Developing World. David Morley. £1.25, Butterworths, London, 1973.

ii. The work of Dr. and Mrs. Arole in Maharashtra

by Kenneth Slack

It will be a long time before developing countries have enough doctors in the places where they need them most.

In rural Maharashtra in Western India—an area that hit some of the headlines a few years ago because of terrible drought—there are two doctors married to one another who are pioneers in giving a different sort of answer to India's health needs. They are Dr. Rajanikant Arole and Dr. Mabelle Arole. The husband is Maharashtran, the wife comes from Kerala. Both trained as doctors in India and worked in a rural voluntary hospital for four years. This experience convinced them that 70 per cent of the diseases that brought people to hospital were preventable, and cures were often only temporary because patients returned to the same unhealthy surroundings. A hospital which concentrated on curing disease without any outreach in preventive medicine and health care was not meeting the real needs of the community.

They used a further period of training together at John Hopkins School of Public Health in the United States to plan a health project for a rural area in India which would be truly comprehensive. The area they chose was Jamkhed in south-east Maharashtra, some 250 miles (400 kilometres) from Bombay. They began work there in 1970 and what they have already achieved has delighted experts in health projects across the world.

The guiding principles

Certain firm principles underlie the whole scheme. First, the local community must trust the new plans and take a full share in what is done. Not even the simple base hospital at Jamkhed was put up until the community there had been convinced of the need and persuaded to help. Even when it came to be built it was so constructed that it could be taken down and removed if local people no longer wanted to support it. Again, the scheme is based on the local resources which are available—in people, buildings and land. Yet again, the village communities are drawn into the planning of all that happens, and must accept responsibility for their part. And the scheme must

be truly comprehensive, giving health education and preventing disease as well as curing it.

Just as an aircraft needs a long runway before it can become airborne, so the scheme needed help from other countries in order to get started. The Christian Medical Commission of the World Council of Churches asked for such help. Christian Aid in Britain has had the privilege of being a major supporter. Surplus foods from Church World Service in the United States have also played a part, as will be explained later. But the whole plan is that this scheme will steadily move toward self-support, and release any continuing aid for similar developments elsewhere. A second scheme is now well under way in the adjoining district of Karjat, and Dr. and Mrs. Arole themselves are moving to that area.

Village health workers

It is difficult in a brief account to describe all the many sides of the doctors' work. Only a few broad brushstrokes can indicate the picture. At the heart of the scene are the village health workers. These women are the very foundation of the scheme. They are chosen from the women of the village, probably unable to read but intelligent people who have some time available because their families are growing up. They are seen not as a stop-gap until better health care becomes available but as permanent helpers in such care. They belong to the community which has chosen them. Their neighbours trust them and, as they receive a thorough training for certain basic tasks and also a twenty-four hour refresher course *every week*, they are well equipped to be front-line soldiers in the fight for real health.

Each health worker organizes a feeding programme for under-fives in the village (surplus foods from overseas are used here at present). The mothers who bring their children are taught about health matters by the village health workers, who walk round with vivid pictures on "flash cards" ("flash" because shown quickly, one after another). New cards are constantly made, using ideas and pictures thought up by the village health workers and asked for at their weekly training. An artist in Jamkhed hospital puts their ideas on paper. The village health worker is helped in all this by the farmers' club. That club will see that unused land is planted with food to replace the overseas food gifts, and so make the nutrition scheme self-supporting before long. The village must supply someone to do the clearing up after the food is given out: the Aroles insist on the need for the village health worker to be treated with dignity in her work.

The brown box

Then with her invaluable large brown box in her hand, containing carefully planned necessities, she will move out into the village.

Where children have been found underweight she will try to help the mothers to feed them better. Simple illnesses among the children like sore eyes, diarrhoea and fevers are treated. Pregnant mothers are visited and advised, and when it comes to the delivery the brown box holds sterile thread, bandage and razor blade for the umbilical cord. Family planning necessaries are an important part of her equipment, for the Aroles are committed to the fight for population control.

Mobile health teams support the village health workers—as, of course, does the base hospital. These teams consist of doctor, nurse, social worker, auxiliary nurse-midwife and paramedical worker. But the village health worker is the key figure. Without her the remarkable raising of health levels in the villages would not have proved possible. The glory of the whole plan is that there is really no reason why the many, many villages of rural India should not enjoy such service.

Water, work and food

Clean water plays a central part, too, in the battle for health. Tube wells have been driven down in the villages. The water drawn from them is pure, coming from far below any level of infection. One of the most dramatic features in the scheme is the way in which water-borne diseases are now becoming much less common.

The Aroles stress that work and sufficient food are even more important than preventive medicine. They are as eager to see percolation dams built as to see clinics established. These mud dams are made by the work of many local people, and hold back water that would otherwise rush uselessly over the baked earth. Now the water slowly percolates or seeps down to the earth beyond, creating a wholly new fertility. The workers are paid from surplus foods on a "food for work" basis. On Saturdays up to 4,000 people gather at Jamkhed hospital to collect the food. When each dam is working the newly fertile land should replace that food from overseas. This big crowd does not just wait in a long tiring queue. A puppet show and loud-speaker make them laugh as they learn some important health truth. Large groups of women are talked to by village health workers and doctors. Flash cards give their simple and compelling message.

Nutrition, immunization, clean water, family planning, village-based health care—these are changing what had been a badly hit area. Life there remains hard and very simple, but two very committed Christians with a great vision are bringing a living hope.

For further reading:

A further account of Dr. and Mrs. Arole's work is given in ***Health by the People,*** pp. 70-90, W.H.O., Geneva, 1975.

CHAPTER 3
FARMING

"The answer lies in the soil"

by George Hart

[The author describes his work as manager of the farm attached to Hombolo Leprosy Centre, near Dodoma, Tanzania.]

There is much interest these days among Christian organizations in doing something to help the underdeveloped or poorer nations to improve agriculture and provide more food for the hungry. This desire to help relieve poverty is commendable, but the aid has to be directed wisely.

An expatriate may find it easy to arrive in a strange land and take a quick look around and settle upon a certain project as being a good means of relieving the need of the suffering and hungry. Good as a scheme may appear to him it could be doomed to failure. There have been many false starts in this part of Africa, and it is the graveyard of a number of such well-intended projects. There are no easy ways or answers to the urgent and ever-increasing problem of better use of the land in East Africa today.

[Editor's note: This makes it all the more important to consult existing local experience and previous records where they exist. Government archives in the pre-Independence period are probably full of useful information never so far analysed. A detailed survey of the present situation may be essential before a new scheme is launched.]

Facing the difficulties

What are the problems? Tanzania is, on the whole, a poor country with comparatively small pockets of good land and reliable rainfall. Most of the soil is low in fertility, sandy and covered in thorn bush. Some areas have rain twice a year but the larger number have rain for only a short period of a few months. These rains can be and often are very light, and are followed by months of drought. In the Central Province a cool period from May to August is followed by hot, dry winds with an increase in temperature reaching 33°C (91°F) and a humidity of about 22 per cent only, until the rains start in November or December.

In past generations when the population was low small areas of reasonable land were cleared, the bush burnt, and then the soil cultivated for a few years, producing such crops as millet, maize and peanuts. Afterwards the area would be left to return to bush. The trees would bring out of the subsoil valuable minerals which would return to the top soil through the shedding of the leaves. After a period of twenty years or so the soil would be ready for clearing again, and burning the bush would also return potash to the land.

Soil erosion

As the population has increased (and it continues to do so at a rate of about 3 per cent each year), much of this land cannot be left fallow, and has to be cultivated yearly with ever-decreasing yields. Along with this intense cultivation and increase in population the stocking of cattle and goats has also increased. This increase has been helped by the building of dips, and farmers have been encouraged to dip all stock to control tick-borne diseases.

This overstocking and over-cultivation have had a disastrous effect upon the land. Areas that were once covered with bush and grass have become eroded. All the top soil which had taken generations to form can be washed away with the first heavy downpour at the onset of the rains. Gullies start to form along the tracks the cattle have made, cutting up the soil into a fine dust. It will be a matter of only a few years before what was usable land will become a barren, gravel-eroded area where not even grass will grow.

Drought, pests and ticks

The Central Province of Tanzania is subjected to droughts every few years, and in the 1970s there were such droughts for four years in succession. There can be hunger even when the rainfall is above normal. The rains must be evenly distributed throughout the growing period in order to obtain a harvest. To add to the problems, numerous insects and pests attack the crop during the growing period, and also when it is in the store. Birds are a real problem too.

Millet is able to survive a drought, but seed-eating birds can destroy most of the crop. Pigs, warthogs and monkeys also take their share of the harvest.

The keeping of livestock has many problems. All cattle and goats need to be sprayed or dipped once or twice weekly to control the ticks which feed upon their host and spread many diseases. Most of the tick-borne diseases have no cure and the control of the tick is the only answer. Improved grade cattle and imported breeds need to be vaccinated against foot and mouth and other local diseases.

A great number of these problems is due to the climate, but it is also true to say that others are man-made. Customs which are firmly established and hard to change may be harmful in today's changed conditions. Some farmers may see what is happening to their land but are helpless to do much about it except to add to the destruction. If self-destruction is to be avoided there must be a reduction in the numbers of stock immediately.

Starting with what we know does work

The above gives a background against which we have tried to establish a farm and introduce new methods of agriculture and animal husbandry. We can only say "tried" because there are many problems being uncovered for which we do not yet have an answer. A farm must pay its way, at least cover the running costs, but it is difficult if not impossible to recover the original costs including fencing, stock, buildings and machinery. We must not paint a picture of gloom as we have had a measure of success, but rather give warning that there is no quick and easy way to success; farming in such an area and under such harsh conditions can be most discouraging.

We could set up a training school and take in a few farmers and give them the theory of farming and then send them back home to put into practice what they have learnt, but the problem of how best to use the land is not so easily solved. Men have worked for generations under these difficult conditions; they have learnt through the hard way the secrets of what will succeed and they hold fast to what they know, having proved that it provides them with a little food.

Our aim on the farm has been to start with what we know does work, and then to move out into the unknown with small pilot projects which do not cost too much. If we are successful then we can expand in following years. By using this method we learn by mistakes as well as by successes. There are many customs followed and methods used by the local farmers which are good, and it is on these points of contact that we can build. Most people doing similar work—if they are honest—want to see quick results, and to have breakthroughs upon which they can report to those who support them at home. But it is wise to make sure by slow progress.

Not all farmers like farming

When one approaches the numerous problems of development one must remember that not all men who farm are interested in farming. The great majority are farming because the only alternative is starvation. They know little about the soil or stock and are not interested in finding out more. So long as they are able to get sufficient food for their needs they have little incentive to build up the fertility of the soil and preserve it for future generations. Often when men are asked what their work is, they reply that they do not have any work, they only work on the land.

Farming in thorn-bush country

In 1960 the Hombolo Leprosy Centre was given by the Government 640 acres (256 ha.) of thick thorn-bush country near the Hombolo dam, some 26 miles (42 kilometres) from Dodoma (now the new capital). This land was considered by the local people to be unsuitable for farming but good enough for leprosy patients. A ring fence was erected to keep out roving herds of cattle. All land not fenced is considered to be communal grazing land. Fencing is essential in the control of the spread of tick-borne diseases. The bush was cleared over part of the area and planted with maize and millet. After a few years permanent pastures were planted and we now cut from this area about 2,500 bales of hay each year.

Upgrading cattle

Local Zebu cattle were kept first and later upgraded with improved Mpwapwa bulls. Over the years many breeding bulls and cows have been sold to local farmers, and we see an improvement in the quality of the herds near the Centre. These Zebu-Mpwapwa crossed cattle are now being crossed with Ayrshire and some of the calves have great promise. These grade cattle are sold to nearby farmers who have a keen interest in improved stock, and who are able to make a little hay for the dry season. The increase in milk production over that of the local Zebu has created much interest, and the demand for these cows is greater than we can supply.

In 1968 eight Ayrshire calves and one bull calf were purchased from a farm in Arusha, a town near Mount Meru in the north of Tanzania. Imported breeds had been tried in this area in the past but without success. We found that the Ayrshire did adapt well and is a hardy breed. At first the cattle were dipped once a week but this was soon found to be insufficient and now dipping is carried out twice weekly. When this programme was strictly followed no trouble was encountered, but as soon as the routine was broken a number of the young stock died from tick-borne diseases. It was also found that as the Ayrshire is a high milk producer greater demands were made upon the body minerals than with the local breed, which get most of

their minerals from the trees and shrubs upon which they browse. Some of the original cows would go down, after having their sixth calf, with lack of calcium and become unconscious in a few hours. If these cows were not given an injection of 350 cc of calcium immediately they would die. All stock are vaccinated twice a year for foot and mouth disease.

Bulls and artificial insemination

At the beginning a bull purchased with the original calves was used for breeding but later A.I. (artificial insemination—introducing seed sent from a bull elsewhere) was started. A.I. had many problems because of the lack of an efficient veterinary service. A number of good heifers was obtained but some cows were difficult to get in calf. Good bulls from some of the best cows were later used. In 1975 we were given a bull calf from a proved herd in New Zealand. This bull is now being used and it is hoped that he will make a great improvement in the herd.

We now have forty females of different ages. About eighteen are milked all the year round giving a constant supply of milk for the patients, and for sale in Dodoma. Feed has been a major problem especially with the long months of dry feed from May to December. Folder beet is grown along with plenty of good hay. All stock are given corn supplements daily.

The standard of husbandry and hygiene has to be higher than with the local breeds. It is hoped to increase the numbers to about fifty cows being milked daily which should produce about 100 gallons (450 litres) of milk daily.

Goats

The local breed has been upgraded with an improved meat breed, and about 200 are kept. Some of the males are slaughtered to supply meat for the patients, and there is also a keen demand from Government projects and local farmers. Goats are hardy animals but need to be housed in well ventilated buildings, preferably on slatted floors a few feet above the ground to keep them away from their droppings which contain worms.

Some milk goats are also kept but on a small scale. These are able to produce 5 pints (2½ litres) of milk daily which is above the production of the local cows. These imported breeds are difficult to buy, but it is hoped to introduce more as soon as they become available. All stock has to be housed or yarded in wire-netting enclosures as protection against wild animals at night.

Crops and chickens

Crops grown include maize, millet, groundnuts and beans which are all used by leprosy patients in the hospital. In most good years there is sufficient to provide for the needs of 170 patients. The grain

to be stored is placed in a fumigation store where it can be kept in perfect condition for years if need be.

Some 800 hybrid laying chickens and a few broilers are kept. The birds are housed in small ark buildings with a part covered with netting; each house holds seventy-five birds. This is a good method of controlling the spread of disease, and is also a check on egg production. All birds have to be vaccinated for a number of diseases. Isolation is the best method of disease prevention. Strict cleanliness is essential along with plenty of good food including green vegetables. Most of the eggs are sold in Dodoma, and are the main source of income.

Orchard and gardens

A citrus orchard was established by growing our own trees and then budding oranges, grapefruit, lemons and mandarins on to rough lemon stock. These did well for about ten years and then they started to die. The high salt content in both the soil and the irrigation water was the main reason for this.

The vegetable garden yielded well for several years until salt became a major problem there also. Most vegetables were grown including cauliflowers. The succession of drought years has meant that there is insufficient rain to leach (wash) out the salt in the soil, and fill the dam with fresh water. (All our water is pumped from the dam.) Most of the vegetables are eaten by patients or sold in Dodoma.

Extension work has taken place in some of the parishes where pastors and church members are showing more interest. A man has been trained to care for and train working-oxen. Ox-carts are being supplied to these parishes.

Making ends meet

The farm has received much aid from overseas churches in the United Kingdom and New Zealand, and especially from Christian Aid of Britain, in the form of cash to buy fencing, a tractor, plough, discs, mower, hay-baler, Land-Rover and windmill. Without these gifts the work would not have progressed in the way that it has. Income from the farm is now enough to pay all costs of labour, repairs and maintenance, but not enough to meet the cost of replacing machinery and the like. The Leprosy Mission has been very generous in supplying money for stock and spare parts for the mower.

There are ten permanent workers including an assistant farm manager who will soon become manager. All daily planning of work on the farm is done through group discussion, with the needs of the people in mind.

What of the future?

We have been able to make some improvements and are producing more each year, but there are problems ahead such as how to maintain the fertility of the soil. Grasses and herbs have been tried but are not able to survive the long dry periods between the rains. Farmyard manure is limited as only 6 acres (2½ ha) of land can be manured each year. Imported artificial manures are far too costly. Land cannot be left to revert to bush as in the past, so something will have to be worked out. We are all aware that we are not alone with these great problems, and we have Someone to whom we turn for help. We soon discover there is One greater than ourselves who enables us and who is interested in the needs of the people, both spiritual and physical.

We cannot expect too much from such harsh and trying conditions, but at the same time we are always surprised to find how much can be produced by being co-workers with our Creator and Lord and Master whom we seek to serve daily.

To Him be all the glory and the praise!

For further reading:

(*All* the following books may be obtained from Intermediate Technology Publications Ltd., 9 King Street, London WC2E 8HN, U.K. Postage for surface mail, add 15 per cent to price of book.)

Rural Africa Development Project: Identifying the Problems of Small Farmers. R. D. Mann, revised John Boyd. Intermediate Technology Publications, London, 1974. £3.50.

A Buyer's Guide to Low Cost Agricultural Implements. John Boyd. Intermediate Technology Publications, London, 1976. £4.

Liklik Buk Rural Development Handbook. A catalogue for Papua New Guinea. Wantok Publications, P.N.G., 1977. Crops, livestock. Full of interest (see reading list for Chapter 5). £3.50.

Vegetables in S.E. Asia. G. A. C. Herklots. George Allen and Unwin Ltd. 1972. £3.75. "A comprehensive book on tropical vegetables."

CHAPTER 4

WATER SUPPLY AND SANITATION

"Water spells life"

by William Cutting and Alexander Cairncross

i. Water supply

Introduction

> For I will give you abundant water for your thirst and for your parched fields. And I will pour out my Spirit and my blessings on your children.
> Isaiah 44: 3 *(The Living Bible).*

Water is an absolute necessity and without it no man, woman or child could live for more than a few hours. We all need water for life, fertility, growth and many good things. A community without a sufficient water supply cannot prosper. Every well-to-do society uses plenty of water and often wastes much of it. Both the quality and the quantity of water are important, but recent research shows that the health of people is linked with the amount of water that they use more than with its purity.

In this chapter we are concerned about the needs of a small community of a few hundred people, or a number of families grouped together. The ***amount*** of water required will depend on the type of service provided. For example if the families collect water from a public place they will only use about 20 litres (4½ gallons)

for each person each day. If every house has a single tap in it, the amount used for each person may rise to 80 litres (18 gallons) a day or more. Much more still is needed for large houses with showers and toilets, and for institutions like schools and dispensaries. Our concern is for small communities with little money, and so our emphasis is on practical systems which can be largely maintained by village people who have had little or no technical training.

First examine the types of water supply which already exist in the area. Consult whoever built these supplies, and any local agency which is interested in or responsible for water.

Finding sources of water

The three main sources are rain water, surface water and ground water. The use of **rain water** as the main supply is only possible where the climate is suitable and rains are regular and frequent. The right kinds of roofs, collection gutters and storage tanks are also needed. Storage tanks are expensive to build, and they must be large enough to store water for the longest dry period that is expected.

Surface water means water which collects in lakes, or which flows in streams or rivers. This kind of water is often unclean because it is not protected from people and animals who wash and pass bodily waste into the water as well as using it for drinking and cooking.

Ground water means water which is *under* the ground, often flowing along in the soil over layers of impermeable rock or mud. (An "impermeable" material is one through which water cannot pass.) At certain places it comes to the surface as springs. Usually a layer of soil under the surface is saturated (soaked through) with the water, and this is called the *water table*. Ground water is usually pure because it has been filtered down through layers of soil, but you must make sure that the source which you choose is not just an *over ground* stream which is flowing beneath the surface for a short time. It is also important to be certain that any pit latrines are at least 30 metres (100 feet) from any point where you are drawing water.

A **spring** is ground water which flows out when the impermeable layer underneath comes very close to the surface of the ground. It is important to protect and use such a spring carefully, and this will be considered further below.

Reaching the water; wells to draw out ground water

Where the water table is deep below the surface, the water is reached by some sort of well. The most suitable type of well depends upon the kind of soil, and how far the water table lies below the surface. The main types of well are shown in Figure 3. A **driven tube well** is one in which a metal pipe with a special tip, called a "well point", is driven into the ground with a big hammer. The well point contains a filter through which water can enter the pipe. This is only

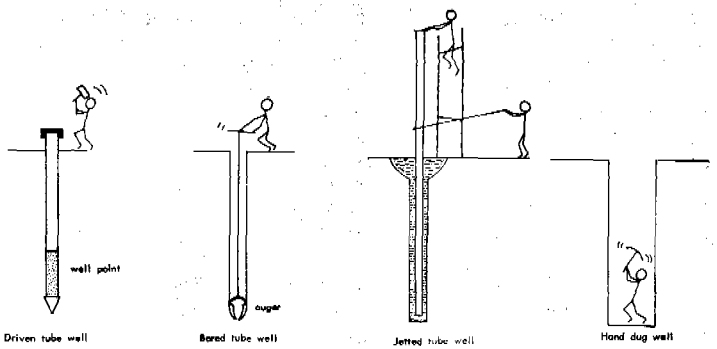


Figure 3. Schematic illustration of four basic methods of groundwater extraction

suitable for shallow wells of less than 15 metres (50 feet) depth. Special care must be taken not to damage the tip of the pipe when it is being driven into the soil.

A **hand-bored tube well** can often be dug using a metal auger (big drill) made from local materials, which can at first be turned by hand. With this tool a small group of men can often dig to a depth of 25 metres (80 feet) in two days. Details of making and using such equipment are available from V.I.T.A. (Volunteers in Technical Assistance) (*Reference 1*) and Intermediate Technology Publications (*Reference 2*).

A **jetted tube well** is one in which water is pumped down alongside or inside a pipe which then goes through the earth more easily. It may be suitable in some types of soft soil, but the technique requires plenty of water, a pump and a steel pipe.

Hand-dug wells require much hard work, and a hand-dug well should only be considered if water would not enter a tube well fast enough. They do have the advantage of providing a large store of water once they have been completed. But the digging operation can be dangerous, and needs proper supervision and advice. Guidance can be obtained from *Reference 3*.

Mechanically bored tube wells require expensive drilling equipment. They can penetrate to 100 metres (330 feet) below the surface, but if the water table is deeper than 60 metres (200 feet), a hand pump is not strong enough to bring water to the surface. Before planning to use this expensive method, it is worth checking that none of the other methods is possible.

Moving the water; pumps and pipes

There are many ways of raising water from wells. These vary from a bucket in the hand, to complicated diesel and electric pumps.

There are simple ways of making it easy to lift water by hand. These include a pulley above the well, or a balanced beam where the bucket is attached to a pole which is pulled down into the well, and the counter balanced beam raises the bucket up again (the shaduf or pikota).

There are many kinds of hand pump, which work by actually lifting the water or by creating a vacuum. A continuous chain of buckets or of pistons working up a pipe can also be used by hand to raise water. Wind pumps are good in some places, but are expensive to install and require large storage tanks because of the times when the wind force is not enough to work the pump. They can sometimes be combined with a hand pumping system. Water-rams and solar pumps are also good but need skill to place or use them properly.

Pumps which are powered by a diesel engine or an electric motor are often powerful and can lift large amounts of water from great depths, and are therefore valuable for deep wells. Unfortunately they are expensive, and the electric motors, which are more reliable, are entirely dependent upon an electrical supply. When choosing a mechanical pump, one must consider how clean the water is, whether spare parts are available, and whether the pump is strong enough for the job.

Pipes are needed to bring water into a house. Open channels are not good because of the danger of the water becoming dirty. Steel pipes are expensive and quite difficult to work with, but are strong, long-lasting and useful in situations where high water pressures are necessary. Plastic (pvc) piping is light and easy to work with, but cannot stand such high pressures. Bamboo pipes have been used in some places where there is a steady flow of water with little pressure. They are prepared by boring out the walls between the hollow sections, and then joining them together in a variety of ways. They can last for up to five years. Planning the layout of a pipeline is a skilled job and depends on the amount of water required at different points, and the gradient (slope of the pipe) necessary to maintain the flow to a storage tank.

Storing water

Water can be stored in open reservoirs or covered tanks. A special type of reservoir is that which is formed by damming up a stream. This can be a valuable source as well as a store for water, but needs careful planning and advice. Reservoirs which are uncovered may allow the water to become dirty.

Covered tanks are better for supplies of drinking water either for a family or a community. They should hold enough water for a twenty-four-hours supply. If the supply depends on wind power for pumping, the tank should be large enough to hold one week's supply of water. Tanks can be made of brick, masonry or concrete, and are sometimes buried in the ground in order to support the side walls.

The walls should always be high enough to prevent the risk of dirt entering from surface water during the rainy season and should have a proper cover. All large tanks should be round in construction, and one to hold 1,000 litres (225 gallons) should have a diameter of 1.1 metres (3½ feet) and a depth of 1 metre (3.3 feet). Well constructed tanks require little maintenance, but the top cover should allow a man to enter for cleaning, but not allow rats or mosquitoes to get in.

Making water pure

It is always better to try and find a pure water source, than to spend much time and expense on making it pure. In fact, there is no way of making water pure that is simple and reliable enough for small community supplies.

Simple **storage** which allows anything floating in the water to settle can be of great benefit. If the inlet and outlet pipes of a closed tank are in the correct places so that water entering must spend at least two days in the tank, the parasites of Bilharzia will die, and some other germs will also die. Such closed sedimentation (settling) tanks need little maintenance, but should be cleaned occasionally. Filtration (cleaning the water by passing it through sand) and disinfection (adding chlorine to kill germs) are important, but difficult for a small community to do. See *Reference 4* (Cairncross & Feachem) for details.

A well can be made dirty if surface water flows into it, or if water from the well which is spilt on the ground runs back again into the well; or if water seeps (oozes) through the top lining of the well; or if dirty vessels are used for drawing water; or if the ground water is made unclean from a nearby latrine; or if rubbish is thrown down the well by children.

Covering an existing well, putting in a hand pump and providing correct drainage around it are fairly simple ways of keeping the water supply properly clean (Figure 4). An open well head can also

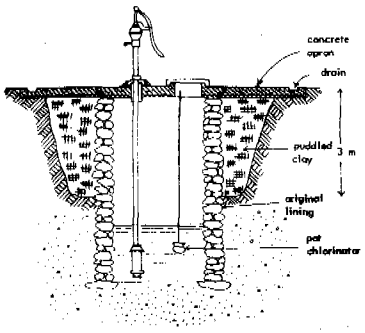


Figure 4. Improving an existing well.

be made better by building a good wall around it, and building up the surrounding area so that spilt water runs away from the well and not into it. The lining around the top of the well shaft can be improved by digging away soil from outside the existing lining and filling in with puddled clay. (See below for a description of this.)

All open wells should be cleaned once a year during the dry season; removing rubbish from the bottom may help to stop it running dry. Deepening a hand-dug well by sinking one or more tube wells in the bottom will sometimes increase the amount of water from a well which is not providing enough.

Improving the water supplies you have

The public water collecting points have to be built very strong and hard-wearing. In particular the taps should be of the strongest possible kind. There must also be proper means for spilt water to drain (run) away from the area, particularly if the water point is near to the water source.

Spring water and protected springs

One of the sources of water described above will now be considered further *(Reference 4)*. Local people know much about the best sources of water in any area, including the local springs. A careful examination may be necessary to be sure that such a source is not merely a surface water stream (usually unclean) which has come to the surface again after flowing underground for a short distance.

A spring of water is an ideal source because it flows out at ground level and is pure. It, therefore, does not need pumps or water treatment. However, it is easily made unclean by animals and man, and so should be protected.

To protect a spring, one must dig back into the hillside to the water-bearing layer, where the water is flowing from the "eye" (opening) of the spring, and build a collecting tank or "spring box" around the eye, as shown in Figure 5. Be careful not to dig too far into the impermeable layer, as that may let the water leak slowly downward so that the spring disappears or moves down the hill.

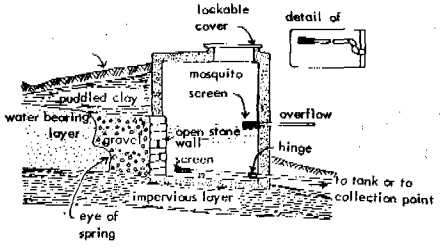


Figure 5. A "Spring Box", Protected Spring Collecting Tank.

Before building the spring box, loose stones and gravel are piled against the eye of the spring to prevent water from washing soil away from the eye.

The box has an outlet pipe, screened at the inner end, an overflow pipe, and a concrete cover with an opening to allow cleaning.

When the box is complete, the space behind is filled with soil, and the soil covered with puddled clay to keep out surface water. Puddled clay is clay mixed with a little water and spread layer by layer, each layer being well trodden down.

A ditch is then dug above and around each side of the spring box to take surface water away.

For fuller details of the making of a protected spring see *Reference 4.*

ii. Sanitation (disposal of human waste)

Introduction

> The toilet area shall be outside the camp. Each man must have a spade as part of his equipment; after every bowel movement he must dig a hole with the spade and cover the excrement.
>
> Deuteronomy 23: 12-13 (*The Living Bible*).

Concern about cleanliness and removal of human waste is not new. The Jewish people were very practical and aware of the importance of cleanliness. Those who study early civilizations by digging up the remains of old cities like those in the Indus Valley (2000-1500 B.C.) find signs of very efficient drainage systems. But today many communities may have forgotten such knowledge from the past, or have not got the money to provide the expensive methods of drainage used in Western cities. However, effective disposal of human waste does not need to be very expensive in time or money, and a simple sanitation system can make life sweeter and more healthy.

Importance of excreta (bodily waste) disposal

The proper disposal of human waste is important for the health and well-being of any community. Many diseases are spread through human and animal excreta. The parasites and micro-organisms which cause the diseases can be passed on directly or in food or drink. Such diseases include cholera, typhoid, dysentery and other diarrhoeal diseases, jaundice (hepatitis) and worm infestations (for example, round worms). Other worms pass from the excreta into

water or on to the soil and from there go through the skin (hookworm and schistosomiasis are examples of this means of infection). In places where fluid sewage collects and does not drain away, flies and mosquitoes may breed and are a source of other infections.

Obviously many of the major infectious diseases in the world are due to lack of cleanliness and could be controlled if everyone had a proper latrine or toilet and used it. Disposing of excreta safely is a better way to encourage health than spending much money on curative medical services or even on a purified water supply. With safe sanitation there will be less spoiling of water supplies by faeces.

Human and animal faeces (solid waste) are also an important resource which should not be neglected. The use of excreta as fertilizer on the land has been known to man for centuries. In some countries, the dung from cattle is dried and used as a fuel for cooking. This is especially common in places where there is grassland without any trees. But it is wiser to use the dung as fertilizer for growing food.

Human wastes in specially prepared ponds are a food for small organisms (plankton) which are eaten by fish and some forms of ducks, which in turn are good food for man. Fish or ducks from ponds supplied with human wastes and used as food should be *very* well cooked.

It is also possible to use human or animal waste to make a type of gas (methane or bio-gas) which when burnt gives heat for cooking *(Reference 5)*. The dung from four cattle can provide enough energy for lighting and cooking for a family of five.

Consulting the community

Every community has its own customs for disposing of human waste, and these must be studied before any changes are suggested. The feelings of individuals and the community must be respected, and the support of the people and their leaders is essential before building a single latrine. Sanitation is usually placed in the hands of an engineering or technical department, although it is important that social workers and the leaders of cultural trends in the community should be consulted and involved when new ideas about disposal of human waste are put forward. Health, education, community support, good technical knowledge and careful follow-up are all needed if a scheme for better sanitation is to succeed.

Removing and treating human waste

There are many ways of dealing with human waste—collecting it, transporting it, treating it to make it harmless, and perhaps using it. These are dealt with in *References 6 and 7*, and in this chapter only one method of removing human waste—the pit latrine—will be briefly described.

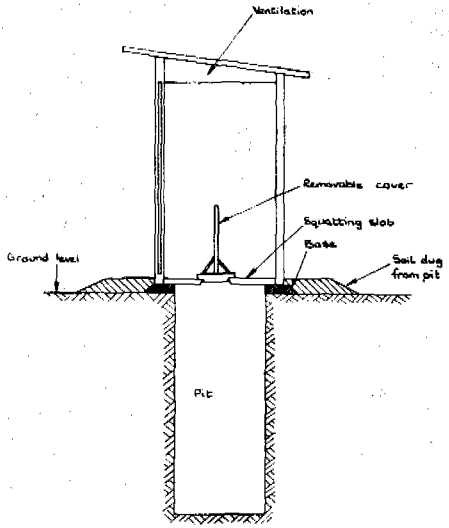


Figure 6. Pit latrine

Pit latrines

A pit latrine is probably the simplest way of getting rid of human waste. It is, of course, little more than a shelter over a hole in the ground into which the waste is put directly (Figure 6). It is fairly cheap to make and a community can join together to build their own latrines. One is usually enough for a family, and they can be built in most country places. It is difficult to dig latrines in some kinds of soil. If this is very rocky mechanical diggers will be needed or else people will be tempted to dig too small a hole. If the soil is sandy there is a danger that the walls may collapse and in such a case the pit should be lined. Where the water table is very high the latrine may fill up with water, particularly in the wet season. It is sometimes possible to build up such a latrine so that it is dug from above ground level, but it is wise to construct an impermeable (waterproof) lining to below ground level.

The spoiling of ground water supplies is another danger and the pit should be dug not less than 30 metres (100 feet) from any well or spring. It should be dug at least 6 metres (20 feet) from any house. Pit latrines are not usually suitable in towns, because space is required to move to a new place each time the pit fills up.

Although a pit latrine is simple, it must be properly made. The main parts are the pit, a base which covers the area at the top of the pit, a squatting slab over the hole, and a shelter. The shed or shelter is built on top of the squatting slab. There are also a number of features which can be added to improve comfort and efficiency.

Details about the making of pit latrines can be obtained from *Reference books 6 and 7.*

Other kinds of pit latrine

Some latrines are built especially for composting, so that household rubbish and ash can be added to the human waste. Such latrines are built with two pits, lined with concrete, so that one can be used while the material in the other is maturing. After a few months it is quite safe to use the compost.

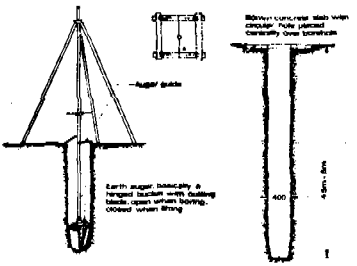


Figure 7. Bore-hole latrine

A bore-hole latrine is a narrow but deeper pit latrine. They are often about 400 mm (16 inches) wide and at least 6 m (20 feet) deep. They are relatively easy to dig with a hand-auger but because of their small volume have a shorter life (Figure 7). Problems with bore-hole latrines include the difficulty of lining them, the possibility of blockage through collapse of a wall, spoiling ground water supplies, and fouling the walls which leads to fly breeding. For these reasons they are less satisfactory than ordinary pit latrines.

Sanitation and the community

In all towns and big villages there is a need for public toilets. In every country there is the danger that these will not be looked after properly unless provision is made for people to keep them clean and a water supply is provided to help them to do this. Institutions like schools, hospitals and factories, for example, need public latrines

and usually provision is made for adequate cleansing, though the standard may fall unless there is regular supervision. A family latrine is the easiest to look after. People need to be trained and encouraged to use latrines, and if adults use the family one carefully and keep it clean, children are more likely to grow up to appreciate its value.

References and for further reading:

1. V.I.T.A. (Volunteers in Technical Assistance), 3706 Rhode Island Avenue, Mt. Rainier, Maryland 20822, U.S.A.
2. *Intermediate Technology Publications*, 9 King Street, London WC2E 8HN, U.K.
3. *Hand Dug Wells and their Construction,* S. B. Watt and W. E. Wood, I.T.D.G. (Intermediate Technology Development Group), London, 1977. £3.50, obtainable from address in Reference 2.
4. *Small Water Supplies,* A. M. Cairncross and R. G. A. Feachem, Ross Institute Bulletin No. 10. London, 1977. Obtainable from Ross Institute of Tropical Hygiene, London School of Hygiene and Tropical Medicine, Keppel Street (Gower Street), London WC1E 7HT, U.K.
5. *Methane Generation by Anaerobic Fermentation: An annotated bibliography,* C. F. Freeman and L. Pyle, I.T.D.G. (Intermediate Technology Development Group), London, 1977. Address in Reference 2.
6. *Excreta Disposal for Rural Areas and Small Communities,* E. G. Wagner and J. P. Lanoix, W.H.O. (World Health Organization), Geneva, 1958.
7. *Small Excreta Disposal System,* R. G. A. Feachem and A. M. Cairncross, Ross Institute Bulletin No. 8, London, 1977. Address in reference 4.

(Excreta = human waste.)

Acknowledgements:

Fig. 6 is reproduced from *Water supply for rural areas and small communities,* E. G. Wagner and J. N. Lanoix, World Health Organization, Geneva, 1959, by permission.

Fig. 7 is reproduced from *Manual of Army Health,* British Crown Copyright, reproduced by permission of the Controller of Her Britannic Majesty's Stationery Office.

CHAPTER 5

CRAFT TRAINING

"Fortune in a man's hands"

i. Village polytechnics

by Richard and Pat Spurin

[Editor's note: This chapter describes ways in which young men and women can learn new crafts and skills, and so overcome poverty and provide for their families better.

There are many links between this chapter and Chapter 7, which explains how groups of people can save money for their important needs, and how they can help one another by planning and working together.]

When we started the first Village Polytechnic at Nambale in Western Kenya in 1965, we had few resources, but a great desire to do something for the primary school leavers who had no prospect of obtaining further education or employment. There was plenty of land in the area, but living conditions were poor and the infant mortality rate high, so we felt that anything we could do for the young men would have an effect on the local community.

Beginning the hard way

We gathered a group of about a dozen young men together. They began the hard way by clearing the land, building their own small

houses and making bunk beds, tables and chairs. They carried out these tasks willingly because they were convinced they would soon have a "school". Their ambitions were all academic. Their parents, too, were anxious for their sons to have a secondary education. We obviously had the ability to give them such an education and the parents found it hard to understand our desire to give their sons technical rather than academic skills. The idea behind a village polytechnic is that it is a simple, cheap training institution for rural primary school leavers, where they can learn skills which will enable them to get a living in a rural area rather than going job-hunting in the towns or sitting at home, frustrated and bored.

We spent a lot of time at chiefs' centres, market places, church councils and school committees explaining what we hoped to achieve. We needed the support and interest of the local church and community if the polytechnic was to survive and become an integral part of the local community. As well as speaking to the leaders, it was necessary to listen: to find out what skills they thought were needed in their locality: what hopes and plans for development they had.

Planning for years ahead

The first skills we chose to teach were carpentry, masonry, tailoring and agriculture. In the area where we were working, people were just beginning to be interested in building permanent and semi-permanent houses. Once they had these, they wanted furniture to put inside them, so we saw that masonry and carpentry would be skills that would be much in demand for several years. Because it was clear that people had given little thought to developing their land, we decided that all the students should study agriculture. Tailoring seemed a useful skill, because more children were going to school and more uniforms were needed.

With a small grant, we were able to employ local craftsmen as instructors. The advantage of this was that the men gained a certain prestige and were a valuable link with the community. The disadvantages were that others were sometimes jealous of their status and that not all good craftsmen are good teachers!

The mason and carpenter built as they taught. The mason and his students made concrete blocks and built the classroom and workshop. The carpenter and his students made rafters, tables and benches and tool-boxes. Having completed this work, they were able to undertake contracts for the local primary school and church.

The tailors first made the students' uniforms and then uniforms for nearby schools.

Working on the land

All the students studied agriculture. They worked on the village polytechnic land and then began demonstration plots on their own land. Many students were reluctant to study agriculture: digging was

women's work: they had seen their parents suffer and grow old on the land: educated people did not dirty their hands. Visits to successful agricultural projects, small successes of their own and our own attitude to gardening were all a help in overcoming their resistance.

Academic work was only taught as it was relevant to the technical training the boys were receiving. Thus maths was important for teaching the boys to estimate building costs, lay out foundations (Pythagoras came into his own!) and analyse costs and profits. Agricultural theory was useful to supplement the field work.

The students generally came in for a two year period, which gave them time to take trade tests if they wished. On completion of the course, they were equipped with basic tools to set themselves up in their chosen trade.

The need for new courses

After a few years, it was necessary to reassess the value of the courses offered. It was no use flooding the neighbourhood with tailors. Perhaps the tailoring course should be abandoned and another course introduced. How easy it is to go on with a course just because the equipment is there! Each locality has its own needs and opportunities for development. Other possibilities for courses are tanning and leather work, bicycle repairing, animal husbandry or a rural bakery. Any of these skills may be useful to the community and a source of income to the students. The rural economy is always in need of being diversified, so that people can survive a bad harvest. Also the whole level of life in the community can be raised if more money is circulating within the community rather than being spent only in the towns.

In some areas there is an obvious need for the polytechnics to cater for girls as well as boys. Courses in domestic science and secretarial skills fit into the pattern of such a polytechnic.

What young women learnt

Where girls' education has lagged behind and few girls are literate, work among girls and young women can often use the same premises, but finances have to be kept separate, as the village polytechnic is specifically for school leavers. In one such scheme for young women, the work had several main aspects: literacy, child care, needlework, cookery, agriculture and nutrition. Those who were illiterate were taught to read and write in their own language and do simple arithmetic. All the other skills were taught with the basic aim of helping a young woman to look after her family more adequately, even without her surroundings and home situation being materially changed.

We knew that if a scheme for improvement depends on the husband giving his wife more money, the woman cannot listen to

any of the teaching, because she knows that getting the money is so unlikely. If the nutrition expert demonstrates the way to use expensive ingredients and a gas-stove, the woman gives up! When we taught sewing, we used the cheapest materials, and sewed by hand: when we cooked we used ingredients available locally and the kind of equipment the women had.

Finding out what could be done

We made the women more aware of the resources available to them. We had a demonstration plot where the correct methods of planting vegetables were shown, and where new vegetables of high nutritional value were introduced (e.g. soya beans). In the cookery lessons these vegetables were prepared and tasted. Next the women were encouraged to grow them themselves: we visited their homes to see their plots, talked to their husbands and fathers about the vegetables and persuaded them not to let the cattle trample on them.

The cookery lessons included advice on the preparation of food for babies and toddlers. This led on to wider aspects of child care and nutrition, and a clinic which was as much educational as curative. As mothers sat round in one large room with their babies, the old-stagers told the newcomers what they had learnt and encouraged one another.

This kind of communication is the basis of all rural development work; it will only happen if the polytechnics are completely relevant to the local situation. Vast injections of capital might have the opposite effect! Money is necessary for any project, but let the money be used wisely, not just for window-dressing.

Hints on how to start a village polytechnic

(*a*) Start by starting.

(*b*) You have got to have some idea where the money is coming from. It is a mistake to think it can be done for nothing—although it must be cheap.

(*c*) It can only be done after quite a bit of local social and business analysis. Say two or three years.

(*d*) Good plan always (?) to start with carpentry. Because a minimum of store rooms, tool boxes, furniture needs to be to hand at the beginning and trainees can make these.

(*e*) Choose local craftsmen as teachers.

Difficulties

(*f*) The trainees themselves want to be more academic than you want them to be so there is a tension-growth point here.

(*g*) The local population may want more secondary schools rather than this sort of training. They can only be won over after a few success stories, and after seeing many secondary school leavers looking for jobs. This takes a few years to achieve.

(*h*) Training your local craftsmen to teach apprentices presents some problems.

(*i*) Agriculture should be an ingredient in all craft courses. There is some resistance to this.

(*j*) These last four points are descriptions of what our society felt, and the strength of feeling on each point may vary from place to place and from time to time, depending on other factors.

(*k*) There are more obvious openings for craftsmen around the edges of towns.

ii. Training programmes of the Social Welfare Department, Uzuakoli Leprosarium, Eastern Nigeria (now the East Central State, Nigeria)

by Fred Hasted

[Editor's note: This excellent account describes the way in which leprosy patients were trained to earn their own living after discharge from the institution. This was, therefore, a training scheme for a special group of people. But the practical lessons of it can be applied widely to any simple training programme.

The author stresses the importance of studying the market for the learner's products or technical skills. A big medical institution can be a market in itself—buying up the food grown or clothing made. But as Mr. Hasted says, the trainee must be equipped to earn his living *at home*, in a competitive world.

There are links between this section and Chapter 3.]

Farming

In the planning of any re-training programme, it is essential to provide skills that will be useful in the patient's own home surroundings. Most people in developing countries come from the land—they are sons and daughters of the soil.

In our area, one of the main crops was palm oil. This was produced from a large plantation of oil palms, which was extended each year. The large heads of orange berries produce a valuable and nourishing oil, full of vitamin C, which was used for cooking and commercial purposes. The kernels obtained after cracking the hard nut inside the berry are also a valuable cash crop. Hand presses were used to extract the oil. Handling this oily mass was good treatment for the stiff and horny hands of the patients.

Raffia palms were also cultivated; the cloudy liquid obtained by tapping was rich in vitamin B. It was pleasant to taste, but very powerful when fermented. These palms also provided quantities of raffia for weaving.

We cultivated several varieties of yam, a staple food, the potato of Africa, but our land was not fertile enough for good yam growing, neither did modern fertilizers help much. Large areas were planted with cassava (manioc), used for making *foofoo* and *garri*, the poor man's food in much of Africa. This is amongst the staple crops grown in West Africa, rich in carbohydrate.

Plant pepper plays its part in flavouring many foods, and is very popular. It is a good cash crop to grow and harvest. When dried in the sun it fetches a good price out of season. The planting of fruit trees was encouraged, and citrus orchards were planted with orange, lemon and grapefruit. Banana and plantain also grew quite well, as did jackfruit, soursop, guava and custard apples and, of course, limes.

We co-operated with the government Agricultural Department at all levels, getting valuable help and advice from the well-trained local agricultural officer.

Chickens

In the 1960s new poultry stock was being flown in from Britain. We received the chicks a few days old; the Agricultural Department's veterinary officer came and gave all necessary inoculations against fowl pest, and so on. Hitherto, due to diseases, poultry keeping had proved a risky business. Now the birds and their eggs showed a dramatic increase in size when compared with the local ones. We used the "deep litter" system, but we also permitted the birds to range freely, within fenced limits, for several hours daily.

Food supplies for poultry must be studied carefully. Imported foodstuffs can prove expensive and therefore unsuitable—deliveries can also be unreliable. Much better if the farm can grow the grains required and grind them. Most years we were able to grow good crops of corn (maize); however, we still needed to use some imported chicken food.

Rabbits

Rearing rabbits in Nigeria proved too difficult at first. We found that both the does and bucks took some time to settle to life in their new covered-in cages which, for easy hygiene, were made with wire netting bottoms. The cages were large—necessary where the temperature is an average 90° F (32° C) all the year round—and set up on racks 30 inches (75 cm) from the ground, all within a large open-sided barn. For security reasons, the barn sides were wired with a heavy-gauge reinforcing-wire to deter thieves, both human and animal.

After several months of experimenting with feeds—we were fortunate in being in the wet part of Nigeria which grew local "hogweed", much loved by the rabbits—plus bran available from a store in commercial quantities, and with the introduction of a new breed of buck, litters began to arrive apace and we never looked back. Here is a source of protein which should not be lightly set aside.

Fishing

The leprosy control programme included work with clinics and dispensaries in the coastal and river belts. Some patients were experienced fishermen who could make and mend nets and also various types of fishing traps from local reeds.

It was a short step to encourage them to train others in the art of net-making. As they worked, they talked fish and fishing, shared ideas, compared methods. Who can tell what this may lead to when a cured fisherman returns to his home ground or, rather, home river?

There was an artificially created lake near the hospital; a deep valley set in a forest had been bridged and dammed when the railway system was built. We stocked this lake with fish—tilapia and other species. Advice was freely provided by the government Fisheries Department, which was interested in setting up inland fish-raising ponds.

When the fish were established, patients were permitted to fish the lake, or more often did so without permission. However, more protein for the diet. Those concerned to feed the sick should investigate the possibility of "growing" fish.

Weaving, sewing by machine, hand needlework and knitting

We found that Nigerians, both male and female, were adept in these crafts. The older women patients delighted in learning to knit, making warm jumpers and blankets from knitted squares, all much coveted when the cold rains came and the harmattan winds blew. With simple "local style" looms, the men and women produced useful and economical loin cloths, using locally made cottons dyed by themselves.

Where cotton is grown, as in Northern Nigeria, it is economic to spin thread from the picked cotton. Many types of bags and baskets can be made from woven cloth: they are popular all over Africa, and are used for various purposes, from schoolchildren's books to heavy farm produce. There is always a market for a well-produced, strong basket. Great artistry and ingenuity can often be shown in the making.

Sewing and embroidery

A competent sewing machinist can make a living almost anywhere. We assisted large numbers of patients, and indeed staff,

to buy their own sewing machines. Both hand and foot (treadle) models were used. The patients repaid the purchase loans, weekly or monthly, from their wages; we were seldom let down. When discharged, these trained tailors were equipped to earn a living, and they could make a good one if they applied themselves.

A popular product with visitors to our industrial centre was table place mat sets. These could be woven from raffia, or made of heavy cotton thread, or linen. Embroidered with simple African motifs in well chosen colours, they were most attractive.

Technical training

Our younger male patients were very keen to attain skills as technicians. The rudiments of motor-car engine maintenance and simple repair can be taught by setting up an old engine on a block. We were fortunate in having as an instructor a patient who had had full training as a motor mechanic. Chassis and wheel maintenance training is also necessary. The boys loved to master the changing of a wheel and make a good job of repairing a puncture, and it was sheer "heaven" when the engine turned over.

A less ambitious but even more needed project was the repair and maintenance of bicycles. The cycle, a special heavy model, was the "taxi" both for people and their market produce, and still is so in wide areas of Africa. To be an efficient cycle repairer was the beginning of business success for many. No one mends his own bicycle—not even a puncture; that is the work of the repairer in Africa.

Again, houses and markets may be lit at night by kerosene (paraffin) pressure lamps, rather than by electricity. Why not study these lamps and all that "makes them go", and combine the repair of these with your cycle repairs? Later on you sell new bicycles and new pressure lamps, and spares for them as well.

General plumbing is another valuable skill to encourage. Some young men will return to city areas where taps need new washers, ball valves have to be adjusted, pipes need welding, and so on. There is a living here for a willing lad.

One man proved not only to be a talented actor, wind instrument player (and very light fingered to boot), but also a gifted watch and clock repairer. A friend in England, upon hearing of this, sent a gift of—"One complete set of watchmaker's tools—for the use of. . . ." It was a thousand pities that this wayward young genius found the trumpets, tools, and clocks and watches all too tempting. They disappeared with him into the night. But this is one of the hazards of training schemes.

Self support

I have held the firm principle that any trade or skill taught should have a good chance of giving the worker a sufficient income. This

applies during the training period as well as afterwards. It is reasonable for the teacher or instructor to be supported by grants from outside, but apart from that, each scheme of training should pay its own way.

Government advice

The extension of our farms from 1950 onward was a planned and gradual project. We had no capital funds. We were fortunate in having a government Agricultural Department not far away, whose representatives were most helpful. They supplied all the citrus saplings and a large number of "improved" palm-oil tree seedlings over several years, free of charge. They also gave expert advice on areas suitable for development and the type of crop to plant.

We also learned much from the local agricultural officer about such procedures as mulching (putting straw round the roots of) young trees. An attempt at growing cocoa trees unfortunately proved a failure, though not many miles away large areas were producing good quality cocoa crops.

The market for our small coffee project proved a failure too. Perhaps we should have tried harder with these two schemes. These crops are very suitable for farmers in African countries who have land available.

I trust that these notes will encourage those faced with need for "extended health programmes". Let me end by saying—begin your project in the least expensive and simplest manner. In this way you can show from the start that it is something that a man can do, and can afford to do.

And I cannot stress too much how important it is to have the sympathetic and willing co-operation of all concerned, including those in government ministries. When the right spirit is present, most things grow healthily.

For further reading:

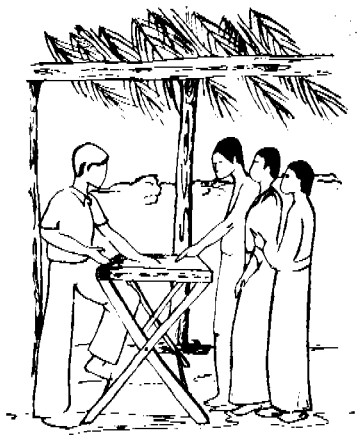
(Books marked * can be ordered from Intermediate Technology Publications Ltd., 9 King Street, London WC2E 8HN, U.K. For postage by surface mail, add 15 per cent to the price of publication.)

Homesteader's Handbook for Raising Small Livestock. J. Belanger, 1974. Good on rabbits. U.S. $3.95 from WETS—full address at the end of Chapter 8.

Towards Village Industry, by Berg Nimpuno and Van Zwanenberg. Contact Liv Berg, Industrial Designer SID, Chalmers University, Technology Section A, Fack S-402 20 Gothenburg, Sweden. It studies pre-colonial Tanzania's local trading patterns, and urges the re-creation of technology suitable to village people. "Highly recommended" Applied Technology Sourcebook (see Chapter 8 reading list).

**Liklik Buk: A Rural Development Handbook Catalogue for Papua New Guinea.* Ed. P. R. Hale and B. D. Williams. Wantok Publications 1977, £3.50. Gives sewing lessons and simple patterns, and describes how to make a bread oven from a 200 litre oil drum, how to make furniture, and twenty-one uses for old inner tubes.

**First Steps in Village Mechanization* by George A. Macpherson, Tanzania Publishing House 1975, £3.50. How to train youths to make tools, e.g. a hammer, and to make chairs, a harrow and a wheelbarrow.



CHAPTER 6

LEARNING TO READ

"Setting hidden talents free"

by Roy Billington

What is the most important difference between a family where the children are well-fed, and a family where they are malnourished? Is it a matter of how much the father earns or how well educated he is?

Experts who went to a Mexican village to find the answer came back saying that it was the mother's level of education that made all the difference. An educated mother was most likely to have a well-fed family.

And as modern education begins with reading and writing, it is important indeed that mothers—and fathers too, of course—should have these skills if the family is to be healthy. So this is why the story of J.A.M.A.L. is of such interest.

The story of J.A.M.A.L.

"Land of wood and water" was the name given to Jamaica by its first settlers, the Arawaks. And a beautiful island it is, green and tropical, with mountains, woods, rivers and streams—the home of some two million people of many races.

For 150 years after Columbus discovered the island in 1494 it was part of the Spanish Empire, and then for the next 300 years it remained in British hands.

During those latter years it was famous for its sugar plantations. But the growing of sugar called for slave labour, and during the cruel and shameful days of the slave trade in the eighteenth century, over 600,000 people were taken to Jamaica from West Africa.

No mass education was allowed in those times. When slavery ended in 1834 schools were built, but progress was slow. A hundred years later only one out of every five children of school-age was being regularly taught.

So when the Government (independent since 1962) determined in 1970 to find out how many adults were unable to read or write, the answer was—between 400,000 and 500,000, or 40 to 45 per cent of the population aged fifteen or over.

A grave problem

Deeply concerned, the Ministry of Social Welfare described illiteracy—not being able to read or write—as a "grave problem in Jamaican life", restricting freedom and preventing the full use of valuable human resources.

To change this serious situation, the Government decided in 1972 to set up a National Literacy Programme, with the aim of helping every Jamaican to read within the next four years.

In 1974 this programme was taken over by the J.A.M.A.L. (Jamaican Movement for the Advancement of Literacy) Foundation, which spelt out its aims as—giving half a million people the skills of reading and writing in the shortest possible time; making sure that these skills were not lost again; guiding graduates in using their new skills for their personal development; and generally developing the hidden resources of men and women.

Many would-be students objected to the word "illiterate" as giving an impression that those who cannot read are inferior to others. Even "literacy" was disliked, because the two words were so similar. So although "literacy" is part of J.A.M.A.L's full title, it is not used in publicity. The reading programme is always described as being carried out by J.A.M.A.L.

It all depended on volunteers

To carry out this huge task J.A.M.A.L. had to rely on the goodwill of the community. Its teachers were all volunteers and unpaid, the buildings were lent by churches and business firms, and a thousand people or more served on local committees to support the classes.

Students attended mostly in the evening, but also came to adult education centres where classes were held in three shifts throughout the day, and so progress could be quicker. Each teacher had a class

of ten to fifteen people who went through four grades one after another. They used a different reading book in each grade, and at the end reached the stage of "functional literacy"—being able to read a simple book and write clearly.

Before taking their first class, the volunteer teacher had a course of instruction from teacher-trainers who had gained a special understanding of adult education.

Plenty of difficulties

Such a brave imaginative scheme as this of J.A.M.A.L. is bound to face many difficulties. Parts of the country are rough and mountainous, and in times of very heavy rainfall the roads are flooded. So travel can be difficult, and sometimes teachers and students cannot get to the classes, and books and cassettes are not delivered in time. And near the mountains radio and television reception is poor.

As the teachers are volunteers, they can choose whether they attend the training sessions or not. Those who fail to turn up may never learn really good ways of teaching. Even the keen teachers may have had so little education themselves that it is hard for them to teach others. Sometimes they may not have time to make the flash cards and posters which they are expected to use.

Students are not obliged to attend classes either, and may have to move off to work elsewhere at harvest time, with the risk of forgetting all that they have carefully learnt.

The voluntary committees in each area help to overcome some of these problems. Working closely with the field officers (area supervisors) of J.A.M.A.L., they encourage men and women to join the classes and take the full reading course. They see that teachers are found and trained, and then provide a place for the class to meet in, with tables and chairs and whatever else is needed.

Such a committee may be a special literacy committee in a village, or a branch of the agricultural society. But it might also be a subcommittee of the village branch of the citizen's association or the women's federation.

Checking the results

J.A.M.A.L. has all along determined that it would keep looking at its work to see how to do it better. In 1974 the directors of J.A.M.A.L. reviewed the programme. They decided to make the reading courses shorter, write better books, train volunteer teachers more thoroughly and use more tape-recording and pictures in the classes.

They then found that both teachers and students wanted help over phonetics—the understanding of how words are pronounced. So special illustrated books are being written to make this subject easier.

A literacy survey has been started to watch the way the programme is going, and to find out what are the weak places in the planning.

Where does the money come from?

The Jamaican Government makes annual grants to J.A.M.A.L., and gave over $3 million in 1974—just under 3 per cent of the Government's total expenditure. The United Nations Development Programme and World Literacy of Canada also give generous help, and many local business firms give money and equipment. Volunteer teachers give their services freely and this keeps down the cost of the whole scheme.

Is the scheme succeeding?

By 1977 160,000 Jamaicans had achieved functional literacy—had learnt to read and write simply. So 30 per cent of the half million who needed these skills have gained them.

This, as J.A.M.A.L. says, is a "huge dent" in the problem. J.A.M.A.L. is pressing on confidently with the double task of teaching everyone in Jamaica to read, and helping new readers to move on to master ordinary books and keep up the reading habit.

But it all seems so big

The J.A.M.A.L. scheme is a very big one, and may not seem to have much to say to small Christian groups in other countries because its size and cost are so great.

It is, however, described here for three reasons. First, it had very small beginnings, and a group of Christians might start a small literacy campaign elsewhere which could later grow into a national scheme.

Then it teaches very important lessons about the use of volunteer teachers, the way to be sure that books are readable, the value of illustrations and flash cards, the need to study phonetics, and many other points.

And it shows that Christians who are concerned about helping others to read and write can contribute to a national literacy programme very effectively indeed.

And now a set of questions about the actual carrying-out of the programme.

Who wanted to read?

Classes were open to everyone above the age of fifteen years. This big age range brought its problems, because older and younger students had different interests and family responsibilities. Most had never been able to read, but some had learnt to read once and then forgotten it all.

J.A.M.A.L. concentrated on certain special groups, such as shift workers, crop workers and the unemployed. For others—street cleaners and sidewalk-vendors—classes were held in old buses parked at the roadside.

Making sure that the student finished the course was not easy. Jobs like crop work might only last for a short time and a man—whether student or teacher—might have to move from job to job. As nobody was obliged to keep coming to the classes, great efforts were made to encourage students not to drop out.

The television programme "Into the Light" urged everyone to join up and complete the course. The village committee or local branch of the agricultural society encouraged neighbours to take part. And every year there was a National Literacy Quiz, with teams of students showing their skill on radio and television. The final of the quiz was held on September 8, World Literacy Day, with prominent Jamaicans attending.

At the end of the fourth grade every student was given a simple test and then a graduation certificate.

Who gave the teaching?

Frank Laubach, whose methods were used in the island's first reading classes in the 1940s, had a famous saying "Each one teach one". J.A.M.A.L. looked on every Jamaican who could read or write as a possible teacher. There were certain groups who volunteered—young people doing their National Service, and professional teachers or social workers who gave help in the evenings. But most teachers were housewives, civil servants or indeed anyone of goodwill who had the necessary skills.

Every volunteer was asked to attend a training course for twelve to twenty hours. Some of the professional teachers or better educated volunteers could not see the need for this. They thought they knew enough already.

But 8,000 out of the first 10,000 volunteers to offer did take the training course before starting to teach. It was especially important for the teachers to form a friendly, easy relationship with the students, and great care was taken to see that this was done.

Volunteer teachers were expected to make their own "flash-cards" and other visual aids. Later they were taught to use audio- and video-cassettes. Further training sessions were held from time to time, when they talked about the progress they were making, and told each other what had gone on in their classes.

Who trained the teachers?

Eventually there will be 20,000 volunteer teachers who should all be trained to the same standard. To achieve this is not easy, as some volunteers have only had a very limited education themselves.

So a band of teacher-trainers was formed. They were professional teachers who were given further training in how to teach adults. They had to study the motives which make adults want to learn, such as the wish to do better at work, or a longing to be as good at reading as friends and neighbours are. Those taking the course learnt also how an adult sets about picking up a new skill, and found out how to help the slow reader.

They then trained the volunteers and kept a careful watch on the reading and writing classes, making sure that good teaching standards were kept up.

Some teacher-trainers could not understand why, with all their experience of teaching children, they had to study new ways of approaching adult learners, or be told how the minds of adults worked. But, on the whole the trainers were willing to learn these new methods which help older students. Volunteers learnt in their turn that Jamaican adults can think and reason well, and that though education may begin with reading and writing it is really life-long.

How was the teaching done?

The story of the way in which the reading and writing programme was built up is a fascinating one indeed.

Back in 1951 the Jamaica Social Welfare Commission tried out the books which were used in the United States to help people to read. These were good in some ways, but the stories did not describe what happened in everyday life in Jamaica, and some of the words were hard to understand.

So a book was written, *The Browns at Work*—all about a Jamaican family in a sugar plantation.

Something simpler still was needed, however, so a pre-primer, a very first book, was written on *Our Class*. Then came a fresh series of reading books about another family, the Gordons—*Willie Gordon's problems, A Day with the Gordons* and so on. There were to be four reading books of this kind, one for each student grade, each with a work-book in which the student could practise putting new words into sentences.

Making reading easier

As work went on, it was found that printing the books in large type made reading easier. Illustrations were important too, so an artist from Haiti drew the first sketches. The words and phrases were those that adults would use. They had to be repeated in different ways in the books, and had to be full of interest.

Different reading books were tried out for those living in rural areas and in towns. In the end it was decided in 1973 to have a new

set of books which told the story of a town family, the Sharpes, as more and more Jamaicans were moving to the towns.

The pre-primer had been changed to *Our Class and Our Family,* so the basic reading books then became:

First grade	*Our Class and Our Family*
Second grade	*A Day with the Sharpes*
Third grade	*Henry Sharpe*
Fourth grade	*Henry Learns to Drive*

Students follow the story of the Sharpe family with its difficulties and successes. Henry Sharpe, the hero of the story, is at first unhappy and without a job.

His wife helps him to look for work and he finds a job in a supermarket. Being polite and hard-working he gets on well with other members of staff and in the end is promoted.

Each student was given a free copy of each reading book and work-book for practice, and each teacher had a guide to the lessons.

How were the books written?

In writing the books, J.A.M.A.L. staff worked in the following way.

The main reading books were written in story form about the sort of person whom the reader would know well. The characters in the story had to be real and interesting, doing the kind of things which readers understood thoroughly.

Every story had to describe a well-known practical problem and then give the answer to it—an answer which the student could try out himself at home in the same way.

Supplementary books

There were other simple books, called supplementary ones, with titles such as *Jamaicans—who are we? Food our Bodies Need, A Trade for Son-Son* and *Learn a Skill.* They were written to be used with the main reading books so as to give extra reading practice and introduce new words.

The J.A.M.A.L. writers had drawn up a list of thirteen subjects which would be of help to students throughout their course. These included identity and self image, citizenship, health, work, and home and family. The supplementary books deal with these themes in a practical way, and were written at different levels of difficulty, corresponding to the four reading grades.

A monthly paper, *Let's Read,* carried interesting articles, games and puzzles and again was written at the various reading levels.

In the classroom free discussion was encouraged, to develop each student's critical thinking and reasoning. Students played word dominoes, and made "My First Dictionary"—a list of the new words learnt.

Exercises in the work-books tested their understanding of sentences and their grasp of phonetics (how to pronounce words). Arithmetic was taught at a practical level for everyday use.

What was the style of writing like?

In the first lessons students were taught by the "Look and Say" method, learning to recognize a word just by looking at it. Then they learnt the sounds of different words—phonetics again—until they could read quickly by understanding the sound of the syllables and words which they saw.

In the books all ideas were clearly expressed and sentences were short. New words were carefully explained and then repeated several times in a natural way. Such new words were introduced slowly and very few technical words were used in the main study-books.

The illustrations were planned to make the written text clearer and to help the student to remember the main point on each page.

Reading books gradually became more difficult as the course went on, with each new book beginning a little below the reading level at which the previous book had ended.

An example of the style

Here are extracts from *A New Dawn for Women,* a supplementary reading book prepared for International Women's Year—1975:

> Our women have had the right to vote since 1944. However, few hold policy-making positions in the government. In the cabinet there are sixteen men and one woman.
>
> Many of our women are qualified to hold positions of leadership in the government of the country. Those who want to run for election should be encouraged and given the support they need.
>
> Women want their men to be more willing to help them in the home. They want them to play a greater part in the upbringing of their children.
>
> If men help more in the home, the women will not be so tired. If the men helped more in caring for their children they would get to know and enjoy them better.
>
> The home is happier where men and women are partners and help each other in every way.

But are all the books really easy to read?

To find this out, each book is checked by the Dale formula. Dr. Ernest Dale of Ohio State University has made a list of the 769 words that people use most often, and each part of the book is studied to see how many of the words used are "new" words which are not on his list. The number of words in a sentence and the number of sentences in a paragraph are both counted. From these numbers the writers can work out how easy or difficult the book is.

There are other similar tests, but what is really wanted is a *Jamaican* way of testing how readable a book is, instead of having to use a method worked out in quite another country.

Can radio and television help?

In 1965 a pilot scheme was started to see if the mass media, radio and television, could help to teach students to read.

Four questions were asked. Can these mass media become teaching aids, if they are used together with face to face teaching? Will they make students keener to learn and teachers keener to teach? Will they help the voluntary teacher to keep learning better methods? And can they help students to learn more quickly?

The answer to all these questions was Yes. So radio and television programmes won their place in J.A.M.A.L's teaching plans.

The main broadcast programmes follow the same steps as does the class teaching, and so face to face teaching and radio or television all put over the same lessons.

The television programme, *Into the Light,* encourages new students to join the J.A.M.A.L. classes: another, *Teaching Box,* gives lessons for students on reading, phonetics and arithmetic at all four levels: and *TOTAL* is a television training programme for volunteer teachers.

The radio scripts use imaginative word-pictures and little plays, and television lessons bring in filmstrips, pictures and diagrams. Each programme provides a printed guide for volunteer teachers.

The various lessons are taped on audio-cassettes and video-cassettes—taped records from radio or television—so that the instruction can be repeated in classrooms or teacher-training centres.

The mass media must surely be used in this way when half a million students are to be taught, and results have been very satisfactory.

Bridging the gap

When a student has finished the fourth grade he can read, write and do sums, but he is not yet able to read ordinary books easily.

So special books have to be written to take him from the reading-lesson books to an ordinary library book. There are not enough of these "bridging" books, however—in fact there is a world-wide shortage of them. Many more are needed to prevent new readers from slipping back and forgetting what they have learnt.

Fortunately, Jamaica has libraries in all parts of the island. The librarians encourage students who are now able to read and write to join the nearest library and keep on reading.

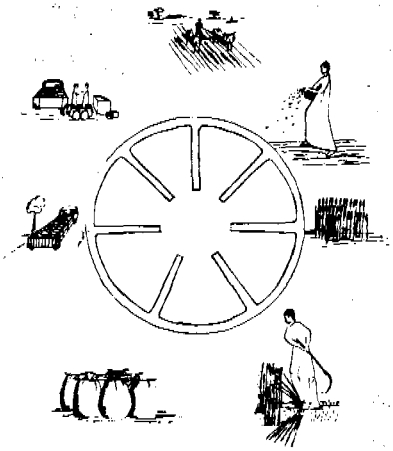
A list is being drawn up of all those who have learnt to read, so that they can be offered more help. Some are given scholarships to community colleges to improve their education. Others are taught

new practical skills to give them a better chance of getting a job. J.A.M.A.L's vigorous programme goes forward steadily.

For further reading:

The National Literacy Programme, Kingston, Jamaica, 1974.
Non-formal Learning—Jamaica's Experience in Mass Literacy, 1975.
Perspective on J.A.M.A.L.
A New Dawn for Women, 1975.
Your Child (supplementary reading book).

All obtainable from: The J.A.M.A.L. Foundation, 47b South Camp Road, Kingston 4, Jamaica, from whom further details of their teaching programme can be obtained.



CHAPTER 7

SAVINGS SCHEMES AND CO-OPERATIVES

"My brother and I"

by Roy Billington

i. Savings schemes

Francisco is in torment because his family is so hungry, and they haven't got a roof over their heads. The landowner gives him land, but in return insists on taking half the crop. The rest of the future harvest of rice has to be sold in advance, far below the fair price, as Francisco needs money desperately to improve his land. . . .

Paul Gallet in *Freedom to Starve.*

Francisco needs money desperately

How is a peasant farmer in the developing world to find the money he needs to buy seeds, fertilizer and insecticide so as to improve his crops? Or how can a carpenter borrow enough to buy

his tools? Or a farming community pay for a better water supply for their land?

As a booklet by OXFAM (*Saveway Clubs*; see "Further reading") explains, the banks do not like lending small amounts of money. Each loan means much book-keeping for them and it may be difficult for the bank to get the money back.

Of course a man could put his savings into a bank or a post office. But often these are a long distance from the farm, so that the journey to the town and back takes too much time and money. Complicated-looking forms have to be filled up, and officials do not want to bother with very small amounts.

When the Government makes a loan to a farmer, it has the same difficulty as the banks in getting the money back.

There are at least two other ways in which a small farmer can be helped to get the money that he needs.

Credit unions

The first is through credit unions. In the middle of the nineteenth century an encouraging self-help savings scheme was started in Germany and Italy. By 1900 it had spread to North America, and now there are about 15 million members of what is called the Credit Union Movement.

It relies for success on the principle of the "common bond". Members of a savings group must have a common interest, such as membership of the same church or neighbourhood. They must be known to each other personally, and the group should be kept small.

At each regular meeting each member puts in the amount that he can afford to save. After a time he can ask for a loan for a special purpose. If the other members agree, he may borrow more than he has saved, but he must pay it back month by month within a short time, and another member must promise to pay the debt if he himself fails. The interest that he has to pay on his loan is kept low.

The method often works well, but the book-keeping may be too complicated for village people, and members are disappointed if their turn for a loan does not come quickly.

The saveway clubs

OXFAM now describes a new way of saving which follows some of the patterns of the credit union but is simpler to carry out and has worked well in practice.

Credit unions have proved that even poor communities can save a little, say at least $12 (£6) a year by each member. So small amounts of money for saving can indeed be found.

And the "common bond" is very important. Where there is a women's club, or a church group of any kind in which the members already know and trust each other, a savings scheme can be added to the programme.

How the club works

Each member of the club has a *stamp card* and a *pass book*. Each week he buys stamps and they are stuck on his card. When he has twenty stamps the card is full, and is exchanged for a *certificate* which is stuck in his pass book. He then starts a new card.

The club has a committee which shares out the work of taking the money, sticking in the stamps and giving out certificates. After each meeting the money is put in a bank or post office account. One member of the committee sends a report each month to the central office.

From this office the promoter of the clubs, who may have twenty or more clubs to look after, issues the stamps and certificates and receives the report forms. The reports tell him how many stamps were sold, and how much money has been paid into the bank or paid out for purchases.

Learning to save

Before setting up a club the promoter will want to find out what groups might wish to start a savings scheme. A small group which meets weekly, and where everyone knows each other, is much the best. In rural areas each member should have some land to cultivate.

The objects of the saveway club must then be fully explained to the group and discussed. After they have chosen a committee, the members decide what they will do with their savings.

A package programme

Each saver can take out his money when he wishes. But members are encouraged to join together to buy, say, seed or fertilizer in large amounts at low prices, then share the cost of transport, and plan just how they will grow better crops—choosing a "package deal" for the whole project.

The members might decide together to start well-planned chicken farming or to improve their maize crop.

The poultry scheme will mean buying chicks, feed and drugs, and building hen-houses. For the maize project, better seed, fertilizer and insecticide will be needed.

Getting the best advice

Local agricultural or veterinary experts are asked for their advice on what should be bought, so that nothing is missing from the "package". Some members visit the local bank to talk over their plans.

The club works out what each member can save in a year, and makes sure that the "package programme" will not cost more than their total savings.

Then saving begins. When the seed or fertilizer is bought, members give up their certificates and money is withdrawn from the bank.

When the harvest is sold, members are urged to save part of the proceeds for a bigger project next year.

Finding the money to start

OXFAM will supply a complete set of cards, stamps and certificate books free of charge, so that anyone can start and run a club for one year.

When further clubs are ready to start it is best to print the books, cards and so on locally, asking banks or fertilizer companies to pay the cost of printing in exchange for being given advertising space in the books.

The advantages of the saveway club are that no money is borrowed, and so there are no debts to be repaid: a man or woman does not have to be able to read in order to understand all about his savings: and if certificates are stolen no one else can use them or cash them, as they are only of value to the holder.

Further information on saveway clubs can be obtained from: OXFAM, Overseas Department, 274 Banbury Road, Oxford OX2 7DZ, England.

ii. Starting a co-operative

On October 24, 1844, the Rochdale Pioneers, a group of flannel weavers living in Lancashire, opened their first co-operative shop in Toad Lane, Rochdale. The Pioneers are looked upon as the founders of the modern co-operative movement, although men have worked together to help one another for thousands of years.

Indeed in developing countries, the extended family was and is a small co-operative society, where each member does his or her share of the work and then shares in the food grown or the fish caught.

However, the Rochdale Pioneers began the modern co-operative movement which now has 326 million members all over the world.

The five principles

The guiding principles of the movement are still the same as at its beginning. Each group is *open to all*—anyone who can get help from it may join: it is *controlled by its members,* and the poorest man has a vote just the same as the richest: when the co-operative makes *a profit, it is shared among the members* according to how much trade each member has done within the group; *when members lend money* to the co-operative, the *rate of interest* they receive is *limited:* and *education* is part of the co-operative's work—for instance, learning to grow better crops, and how best to sell the produce in the market.

The smallest group of members is the primary co-operative society—perhaps made up of all the farmers in a village. Then comes the secondary society, a bigger group which can buy and sell for members in a whole region. And lastly the national co-operative union, which is big enough to export crops to other countries.

Why have co-operatives often failed?

Co-operation is all about sharing power equally so that everyone is helped. In a co-operative, all the members can take part in making decisions, and so everyone shares in planning how fishermen should sell their catch, for instance.

So co-operatives have great advantages. But in developing countries they have often been disappointing and failures have been common. Why is this?

There are several reasons. First of all a co-operative is a business, which should make a profit. So it must be managed by someone who is efficient, and knows about trade—a good businessman. He must find a market in which to sell what is grown or made, and this may not be easy. If the manager is not capable, the co-operative may easily fail.

Then the early groups grew gradually as working men tried to better themselves. But in recent years in developing countries, co-operatives have been brought in "from the top" by government and so the members have not felt that the societies were really theirs.

Again, starting a co-operative too soon leads to failure. It should only be set up when people really want it and understand it. Much patient explanation is needed before a group is started. Success depends on the support which the members give, in bad times as well as good, and so all members must wholeheartedly want the co-operative to do well, right from the beginning.

Dishonesty has spoilt many co-operatives: and shortage of money has hindered others—where can the money come from to buy the lorry, build the store, or pay the manager for the first two or three years?

But are they not worth while?

So the difficulties are great indeed. But working together can make life so much better and happier that it is well worth trying to make co-operation succeed.

Here are two encouraging stories of such success. But two things should be said. First, OXFAM has been very generous in giving money to start these schemes: without such help, perhaps nothing would have been done. And secondly, both schemes are rather large, with hundreds of people at work.

However most co-operatives begin in a small way, as indeed happened to the Fotrama co-operative described below. And there

are many small co-operatives in developing countries, some supported by OXFAM.

So a group of Christians could apply the lessons from Upper Volta and Bolivia and start their own small scheme with every hope of success.

Dry season gardening in Upper Volta

Upper Volta is one of the poorest countries in West Africa. In the very dry years of the late 1960s and early 1970s it suffered badly. Because there was so little rain, crops were very poor and cattle died in large numbers. But nine out of ten of the population of 5½ million still have to live and work in the country's dry, tired villages and farms.

Ouahigouya is a small town in the north of the country. The food crops are millet, maize and sorghum which can only be grown in the rainy season from May to September.

After several years without rain, new kinds of food were badly needed. A few farmers had already been used to growing vegetables in the dry season, in low-lying land where pools of water collect. Rural development workers decided to encourage the farmers to do more.

The men were told about new seeds, fertilizers and manures, other types of water supply and ways of fencing to keep out cattle. OXFAM helped the more experienced gardeners among them to visit from place to place and tell groups of farmers what they did.

The gardens have been a great success. Potatoes, cabbage, carrots, onions, beans and green peppers sell well in the markets and families are eating much better meals, just as had been hoped.

But after selling all the vegetables that the local markets could take, there was plenty over. Could the vegetables be sold in other parts of the country also?—or even in France? This would bring in cash and improve the standard of living.

One difficulty was—how to carry the produce quickly to other places? The grower might often have to sit for hours at the roadside in the hot sun, waiting for transport which never came, and seeing his vegetables slowly spoiling. Also he had no proper place to store his crops nor any arrangement with buyers in other towns.

So gardeners' co-operatives have been built up. There was already a co-operative union in the district but the gardeners had not used it enough.

With the help of OXFAM a Peugeot pick-up van has been bought and M. Ido Gilbert, an Upper Voltan with co-operative experience, is the new manager of the co-operative union. He will tell groups of farmers what to plant and when, will have their vegetables collected and taken to markets in the capital and elsewhere and will see that they are paid promptly.

Another member of staff is needed to watch for plant diseases, find better means of water supply, and decide on the best ways to store the crops.

At first there will be ten gardeners' groups, with a total of 350 to 400 members. Each gardener looks after a plot of about ½ hectare (1 ¼ acres).

Cochabamba's knitting and weaving co-operative in Bolivia

The Quechua Indians are the descendants of the original inhabitants in South America, and there are 14 million of them living in Ecuador, Peru, Northern Chile and Bolivia. Ever since the Spanish Conquest in the sixteenth century they have been pushed back on to poorer land, and pushed out of the mainstream of society.

Today about 60 per cent of the Bolivian population is of Indian stock, either Quechua or Aymara, and most of them live up on the high windswept plateau of the Andes called the altiplano. Since the land reform of 1954 the Indians have become independent peasant farmers for the most part, but they only cultivate small plots of 3-5 acres (1-2 hectares) of poor, stony ground, growing wheat, potatoes, maize and vegetables. "It's a sort of symbol of the Indians' poverty to see them breaking the ground with a rough stick, harvesting their crops with a hand sickle, threshing the wheat by stamping on it and grinding the maize with a huge stone—while less than an hour's drive away the other Bolivia, the Bolivia of mestizos (people of mixed race), foreigners, and American businessmen, the rich, have all the latest gimmicks of the twentieth century", writes a visiting journalist.

The project

In 1962 an American priest, Father Gerald Ziegengeist, who is the son of a New Zealand weaver, started a small knitting and weaving co-operative in Cochabamba in Central Bolivia, in an effort to help some of the Quechua women and girls to earn some money to lessen the poverty of the area. At that time the only money-earning occupations open to them were clothes washing, or chewing maize and making little sundried pellets of the resulting maize paste, which they sold to makers of chicha (the local beer). Father Ziegengeist chose weaving and knitting because the Andean Indian people are famed for their traditional clothes, and many of the beautiful patterns have been handed down for generations.

The co-operative started with fourteen people who were given alpaca wool to spin and then knit into scarves, sweaters, ponchos (blanket-like cloaks) and ruanas (shawls). One of them was Epifania, a young woman recently widowed, who taught the girls how to knit if they did not know, and how to follow patterns. Another was Primo Ovando, the orphaned son of a miner whom

Father Ziegengeist took on as his administrator. By 1964 over 200 women and girls were knitting, and 300 spinning by hand, and the problems of co-ordinating spinning and then knitting and weaving were considerable. So Father Ziegengeist went home to the States and bought up some old spinning machinery from the textile mills, including a French loom dated 1897. He used some of his own money and borrowed some more to pay for the running of the co-operative. The New York store, Lord and Taylor, took a half-page advertisement in the *New York Times*, but the co-operative could not cope with the resulting orders and lost money that year. Now they have their sales outlets more organized, selling about 60 per cent in Bolivia itself and 40 per cent in the U.S.A., Canada, Sweden and Germany.

The growth of the scheme

Over the years the co-operative has grown and by 1976 they had 780 knitters scattered in the villages around Cochabamba. There are fourteen people spinning the wool centrally and fourteen weavers and carpet makers. They are registered under the name Fotrama, short for Fomento Trabajos Manuales (Promotion of Manual Crafts).

The yarn is produced at the main centre at Cala Cala. Only pure alpaca wool is used, from the native alpaca, an animal like the llama (one of the camel family), but slightly smaller and woollier. The wool ranges from creamy white through all shades of brown to almost black. Each week Primo Ovando goes round to the fifteen outlying centres that have been established, taking wool and money to pay the women. Each centre, a village house, is run by two girls who live there and supervise the women members in their neighbourhood. They get paid about £11 ($22) a month and add to this by knitting themselves.

Visiting the village centres

A visitor, Rosita Sweetman, describes a Saturday visit in May 1976 to some of the centres. "We bounced along in the truck. We were going to visit some of the Fotrama centres, pick up finished articles, pay the knitters, collect savings for the co-operative's savings' fund, and collect all the leaders from the various centres and bring them to a meeting in Arani, the largest centre. With me were Primo Ovando and Robert Carvajal, who runs Fotrama's education programme.

"When we arrive at each centre there is a group of girls and women sitting knitting and waiting for us. The leaders have already made out the slips showing what each women is owed. Primo gives out the money and Roberto takes the contributions the women make each week to their savings fund. This fund helps create a pool of capital for the co-operative's use. The interest on it is paid every

year to each member and the profits are divided out between the members and paid into their individual savings accounts. I saw one woman's book who last year saved 150 pesos—about £3.50 ($7). At the turn of the year the co-operative deposited 450 pesos in her account, made up of the interest on her savings and her share of the profits. She now has 600 pesos. Primo calculates that a good knitter can earn 300 pesos a week in Fotrama—just over £6.50 ($13), a lot of money in this part of the world. Few of the women earn this regularly. Crops need to be harvested or someone falls sick, and the knitting is dropped. It makes it difficult to calculate production and fulfil orders on time. But in the end, as Primo points out to the women, it's up to them to produce enough to keep the co-operative going, if they want to.

"We end up at Arani, the first centre Fotrama opened, and now the biggest with over 400 knitters. Unlike the others it is housed in a beautiful old hacienda (estate) home with a stony courtyard. Epifania is there, making a suggestion here and a correction there, and she shows me round. I can't follow the meeting in detail as it is conducted in Quechua, but I get the main idea. The women say they can't do this. When can they start that? And so on. It ends with one of the girls standing up on a chair 'modelling' all the finished garments, and everyone giving their comments."

The education programme

As the co-operative developed and grew, everyone in Fotrama became convinced that just raising the incomes of the Quechua Indian women was not enough. Unless there was some human development, they would merely be creating a situation where some peasant women were richer than others.

In 1971, a Quechua Indian named Robert Carvajal joined Fotrama to build up an education programme. He is a student of languages and human societies, who has been offered university appointments throughout Latin America. He set out to ask the Quechua people, the despised Indians, what sort of education they would like and what they thought would be appropriate. Most of them have had two to four years' education in a government school. But the teaching is in Spanish and the majority just about learn to read and write before they leave.

He then drew up the "fourteen basic needs of man" and split them into three groups. One group was bodily needs—work, home, food, clothing and health; then what men need when they live together—family, society, leisure and government; lastly the needs of the mind and spirit—language, learning, friendship, love and religion.

Dialogue and discussion

From this list he has decided what should be taught—health and body care, marriage preparation, history of the Quechuas, customs

and culture, nutrition, farm work, and so on; and a practical method of teaching. Rosita describes it: "There are few books used, as the educational level of the girls is so low that book learning tires and bores them. The basis of the method is dialogue—discussion. Roberto says the girls are adults and do not need to be taught at, but talked with. The basic idea of the school in Roberto's own words is 'to try and explain and make known to the girls that it is not a shameful thing to be an Indian or live in the country or be a peasant. We try and make them proud of being Indian, proud of their dress and customs. And I have seen over the years that they are happier now. They are becoming more sure of themselves. Now you can see a girl from the centre and she will hold up her head and talk out. They are not ashamed any more'."

The chiefesses of the next generation

Three hundred and twenty girls have now taken the three month course at the centre. They come for a month, return home for a month, come back again and so on. They use this month on month off system so that the country girls are not separated from home. They go home to absorb what they have learnt, and to test their new knowledge against reality.

There are no diplomas here, nor are the seeds sown of longing for an urban life. Only one girl since 1971 has left her village to work in a hospital in town. The leaders of the Fotrama centres have all had three months' leadership training at the education centre in addition to the basic course. They cook their own meals under the supervision of Primo's wife, using traditional foods available in the village, but learning how to improve the nutritional standards. They learn about simple book-keeping and, of course, knitting.

There are ten teachers in the school. Rosita again: "There is an atmosphere of relaxation and learning and fun. The girls sing while they cook, chat while they knit and talk while they learn. As Roberto puts it, they are working with the chiefesses of the next generation."

For future reading:

Freedom to Starve, Paul Gallet, Penguin, London 1972.
Saveway Clubs, OXFAM, Oxford.
Fotrama Knitting and Weaving Co-operative, OXFAM Project, Bolivia 22, Oxford.
Dry Season Gardening, Ouahigouya, OXFAM Project, Upper Volta 31, Oxford.
New Internationalist No. 48, February 1977 (whole issue on Co-operatives and Communes).
Churches in Rural Development, Peter Sartorius, World Council of Churches, Geneva 1975.

Co-operative Organization. An Introductory Manual. Co-operative College, Stanford Hall, Loughborough, Leicester, obtainable from Secretary, Co-operative Panel, I.T.D.G., 9 King Street, London WC2E 8HN.

Advice and information on local co-operative associations in developing countries can be obtained from:

International Co-operative Association (I.C.A.), 11 Upper Grosvenor Street, London W1.

I.C.A. also has Regional Offices in:

South-East Asia: Bonow House, 43 Friends Colony, P.O. Box 3312, New Delhi 110-014, India, and

East and Central Africa: P.O. Box 946, Moshi, Tanzania.

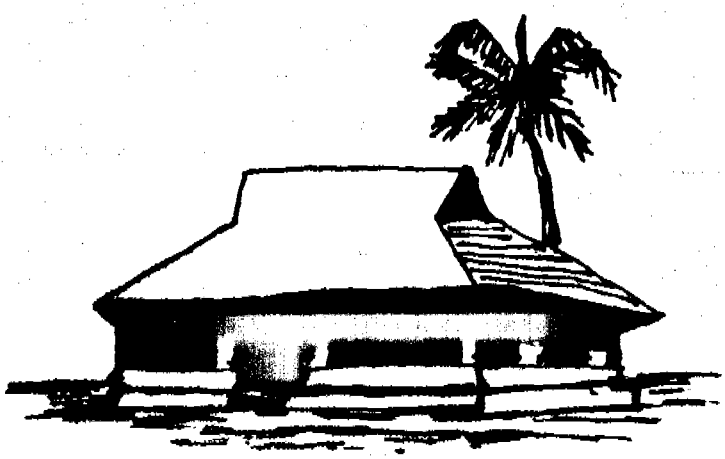
Another most successful co-operative is the Kaira Milk Producers' Co-operative Union, Anand, North Gujerat, India. It has been running for more than twenty years and has remained true to its co-operative principles. Further particulars can be obtained from: Jeff Alderson, OXFAM, 274 Banbury Road, Oxford OX2 7DZ, U.K., or from Stanley Barnes, Asia Plateau, Panchgani, Maharashtra, India.

(This chapter has been largely prepared with material from OXFAM, whose generous help is greatly appreciated.)

[Editor's note: The first part of this chapter describes how a *group* of people can save money together but says nothing about the important and difficult matter of learning how to save *on one's own*.

A helpful book about personal saving is *Called to Give an Account*, by Stephen Sims, published by Uzima Press Ltd., P.O.Box 48127 Nairobi, Kenya, 1976.

Chapter 5 on Craft Training and the section here on co-operatives are closely related.]



CHAPTER 8
SIMPLE HOUSING

Laurie Baker

About the author

Laurie Baker is a British architect who has been living in India since 1947. For most of this time he has been concerned with the problems of the rural poor. For many years his work lay in building and running independent hospitals in remote rural areas, with his doctor wife. But his name has become increasingly well-known in recent years for his new ideas in low-cost building. This work has centred on Trivandrum in the State of Kerala where the Bakers now live.

By learning from the ways in which the traditional builders in Kerala solved the problems presented by the region's hot, humid climate, he has worked out a unique yet entirely Indian style of architecture. And his simple yet attractive buildings have shown that adequate housing standards are within the reach of millions.

[Editor's note: This fascinating introduction to the art of building beautiful houses at low cost is part of an unpublished manuscript by the author, and is printed here by permission.

Some of the sketches are taken from excellent photographs by Jack Skeel.

Health and good housing go together, and so this chapter deals with another of the many faces of health. To help those whose interest in building is aroused by Laurie Baker's stimulating descriptions and the delightful sketches, a list of practical handbooks will be found under the heading *For further reading* at the chapter's end.]

What this chapter is about

My technique has been to try to provide good workable plans and comfortable livable-in buildings and, above all, to find ways of reducing present high building costs, so that house building may come within the reach of more and more people who had never thought it would be possible for them.

To achieve this cost reduction, all sorts of uses of the building trade's simplest, oldest and most reliable materials have been tried out—brick and stone, tile and timber—with attempts wherever possible to cut down the use of expensive modern materials that are in comparatively short supply, such as steel, cement and glass.

Learning before building

I quickly learned that I could not practise on my own as an architect. My interest and understanding had to go along with my wife's medical work for the people in those remote Himalayan villages, and it was useless building anything for them without first learning about their simple ways of living. I had to try to cope with the hard unyielding physical conditions as they had done.

Although there were visits to the larger cities of North India to design all sorts of buildings, my planning work was mainly aimed at interesting those people who were tackling the problems of the sick and the poor. Rarely was there much money to build with and I always had to try to make it go as far as I could.

I know well that 65 per cent of India's population live on less than one rupee (5p: 10 U.S. cents) a day; 70 per cent are either unemployed or only partly employed. Eighty-five per cent live in rural conditions where many of their villages are without the basic necessities of water, drainage or waste disposal; where few paths are usable in all weathers, and lighting virtually non-existent. I have learned far more from these have-nots than ever I learned from the haves.

Every district has its own skills

As a young architect, travelling from district to district across the length and breadth of India, I quickly found that districts had differing problems and conditions. Problems of planning and construction changed every few hundred miles and my text books and notes did very little to help me solve them. It was from the simplest poorest people that I learned how to cope with mud and thatch, how to battle against termites (white ants) and bandicoots (pig-rats); how to make my own lime from sea shells, and *pozzolana* (a type of cement) from paddy (rice) husks or red clay.

I had begun to feel desperate and useless until the simple truth dawned upon me that every district could show me in its local architecture the answers to all the problems which had been facing me since my arrival in India.

Planning simply

I now rate the success of a building in direct proportion to the builder's and designer's understanding of the people who will live in it, rather than his own technical abilities and skill and knowledge. I am now convinced that no material must be wasted or used extravagantly. Our building materials resources are vast but the needs of our increasing population are also great.

Low-cost techniques and materials should not be considered only for the "poor". Our aim should be to design only the simplest of buildings for all, avoiding display and show. I am sure now that Gandhi was right when he said that a building in India should be built with materials which have all been found within a distance of 5 miles (8 kilometres) from the building site.

Kerala—domestic style

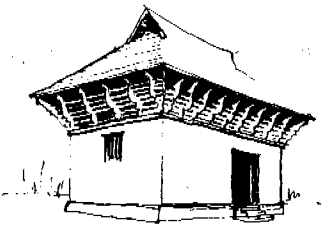
I am now living in Kerala where there is one of the world's most beautiful local domestic architectural styles, which no visitor fails to enjoy and photograph. Only those of the modern generation fail to appreciate it because it is old-fashioned.

In Kerala all the unpleasant dangers of the climate have been effectively dealt with and special little regional ideas are cleverly added so that tell-tale details and styles vary every few miles. The less desirable characteristics of materials have also been controlled. Many timbers, for instance, when they dry out, twist and warp.

Very simple counter cuts or grooving, which in turn give a distinctive decorative effect to the timber-built store rooms forming the core of every old Kerala house, prevent this warping of large wooden planks. Contrary to modern trends, windows are invariably small and low down in the wall—often only a foot above the floor level. People who live in the tropics know just how tiring and wearing glare from the sun can be; so only enough light is given where it is wanted.

Mistakes of modern architecture

But what about "modern" architecture in such regions? It seems to ignore all the lessons of a thousand years. Costly materials are exported over long distances. Many modern materials like concrete are wonderful heat absorbers which slowly give out during the night hours the heat they have stored up during the daytime. The flat terraced roofs are exposed throughout the day to the heat of the sun, while the old steeply pitched roofs exposed only part of their surfaces for only part of the day to the direct rays of the sun. Very heavy rains have much more opportunity to soak in when they form puddles on the flat roofs; from pitched roofs the drain away is quick. Modern roofs give little or no protection to the walls, which are also exposed to the full heat of the sun throughout the day, instead of being protected by the old-fashioned over-hanging roofs.



We must urge our scientists and research workers to help us use simple natural although old-fashioned materials more effectively and more cheaply, so that we can have a truly modern architecture suitable for each country.

[Editor's note: Laurie Baker is of course writing about the shortcomings of the flat roof in southern India. In hot dry regions flat roof-tops are used for sleeping at night, and are not a modern development.]

The challenge of brick

Many countries have developed the use of brick. India is one of these and, apart from building in the Himalaya where only stone was available, I have frequently chosen brick for my buildings because it has been available in quantity and its cost has been comparatively low. It has become my favourite building material. I would even rank the brick with the wheel as one of man's greatest inventions.

How did this extremely simple ready-made unit come into being? Who invented it? How can we best use it? Do we make enough use of it? Are there variations yet to be discovered?

Man had to protect himself from attack from other men, from animals and from the weather. He often found himself in situations where he had neither rocks nor trees from which to construct his shelters; he had to learn how to build his artificial caves from the mud in which he also was learning to grow some of his food.

He discovered that some soils were gritty, dry and loose; they were what we now call sandy soils. These proved to be poor for building purposes because they would not stick or bind or press together; the sand would fall into shifting heaps or piles.

There were, however, parts of the earth where clays were present in varying proportions. Clay is a natural earthy material that is sticky and can be moulded and shaped when wet, but which becomes hard and almost unbreakable when dried out.

Why are most bricks the same size?

One of the most interesting features about bricks throughout the world is that wherever this essential clay soil has been found and used for wall making, the final usable size and shape is almost always the same. We still have it in our usual modern brick size of approximately 9 inches × 4½ inches × 3 inches (22.5 cm. × 11 cm. × 7.5 cm.). Why?

It probably began as the amount of wet clay a man could conveniently hold in his two hands when he started to toss and shape it and put it into a cube; an extremely handy size, in other words. You can hold it easily, handle it, toss it in the air and catch it in one hand, which leaves the other hand free to use a trowel and spread on mortar.

Man now passed from the hand patting process to the system of making wooden containers or moulds into which he pressed the clay lumps. The result was any number of bricks all the same shape and size. The mould could also be removed almost immediately without waiting for the clay to dry out. Mass production methods were being added to standardization.

Burnt brick

Up to this time clay had been moulded in its sticky wet form and then left to dry in the sun. Bricks could only be made therefore when the weather was sunny, and man does not like having to wait like this before he can do what he wants. Perhaps not only roast pork resulted from an accident! It is not difficult to imagine some early Chinese builder stacking his wet bricks to dry in the summer sun and, nearby, some boys accidentally start a grass fire which swept uncontrollably over the fields of bricks. The next day he had become the inventor of the first burnt brick. It could have happened something like that!

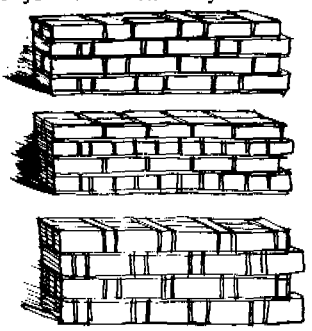
The burnt brick soon proved to be infinitely more satisfactory than the old sun dried brick. The burnt brick was harder. It even had a slightly glass-like surface and could be left exposed to driving rain and wind without any ill-effect. Fewer bricks broke when being handled or transported and the colour was also improved.

Today, with fuels for burning being costly and in short supply, even the common burnt brick seems to come in the "luxury" class

of building materials. Much work therefore needs to be done on the hardening of soils, on the use of the sun's energy for baking bricks, and on ways in which the age-old, well-proved, simple common brick can be retained as one of the best materials from which the ordinary person can build his home.

Bonding bricks

The bonding of brickwork I find quite fascinating. Bonding is the art of avoiding continuous vertical joints which may lead to cracking of a wall, together with the art of joining one wall to another so that the strength of the walls is increased and not lessened. Textbooks on brickwork cover these problems of bonding and this is not meant to be a textbook. A few illustrations however will, I think, please many readers and indicate that brick bonding can be as exciting and as fascinating as doing cross-word puzzles or playing chess.



Why use plaster?

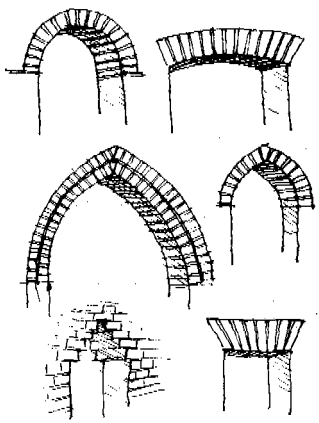
I often want to avoid the use of plaster over brickwork for a number of reasons. One is that plaster in an ordinary house may account for 10 per cent of the total cost of the building. Leaving it out can therefore considerably reduce the cost. Another reason is that usually plaster is coloured or decorated, which means a recurring expense for maintenance which many can ill afford.

Plaster moreover shows dirt marks, and dirty finger prints around light switches and door handles, and foot prints on the lower few inches of the wall are all too familiar sights; they look even worse when the plaster has been painted or colour-washed. On the other hand, an exposed bare brick surface rarely shows such ugly dirty marks.

Arches

To get in and out of his buildings and to see in and out of them, man has had to leave holes in his walls. Sometimes these holes are filled in again with such devices as doors and windows, but almost invariably there is the problem of carrying the weight of more wall above the openings; for the window or door is often not strong enough to carry a heavy load of solid wall, which in turn may be carrying the even heavier load of roof or floor. In brick walls these days a lintel is commonly used; but these pictures show ways in

which the brick itself can be used, without any need for extra steel or concrete. The arch is now too often considered and condemned as old-fashioned. A great pity! It is almost always more attractive to look at than a concrete lintel.



Very rarely does one ever see the use of the corbel system where, without framework or support, each succeeding course of bricks protrudes 2 or 3 inches (5 to 8 cm.) beyond the row of bricks below it until the whole opening is bridged. Such a corbelled arch also clearly demonstrates how very little our invariably over-designed lintels actually carry! The arches commonly found in so many of the world's earlier architectural styles have a grace and beauty which to me far exceeds anything to be found in our modern architecture. That, of course, is merely a matter of personal preference, but it is a simple fact that contemporary steel and concrete lintels and beams are far more costly than brick arches.

More about bricks

We must turn to the virtues of bricks as a material for roofing. I have just built in Delhi two small houses constructed entirely of brick, except for a small quantity of wood for the door and window shutters. The foundations, floors, walls, seats and roofs were nothing but brick and mortar. Although by current standards the houses are cheap, the cost is still far more than we can afford if we are to put our millions of homeless families into houses of their own. Are we too proud to go back to mud? I will be really pleased when I hear people say: "Baker's name is mud".

Timber is beautiful

I have always had a strong love for timber. I like the way every bit of wood has a character and markings of its own. There is no sameness where wood is concerned. There is almost nothing in the building line that cannot be constructed with timber. Its uses are many and varied, and the results of using it are almost always enjoyable.

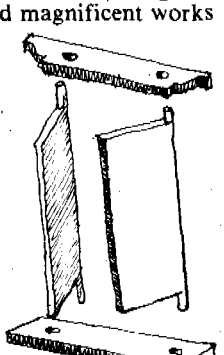
Unfortunately, today timber is not readily and cheaply available and, like everything else, its cost rises all the time. There are only

certain places in the world where it can now be used economically; but the world over there are certain items in most buildings, such as doors and windows, where it is considered almost essential to use wood.

Along with the amount and the cost of timber itself, the cost of labour and craftsmanship also has to be taken into account and carefully considered. Not many craftsmen these days seem to work with any feel or love for their materials. It is difficult to get them to study each piece of wood to see how they can get the best out of it; to see how they can use the knots decoratively, or how they can best make use of an irregularly shaped log. Sometimes I find carpenters who may, for example, be making small panels in a door. They will happily cut up long, wide, beautifully grained planks instead of making use of smaller left-over pieces which would serve their purpose just as well.

Doors

In very few places in the world are doors made of anything but wood. These doors range from complicated and magnificent works of craftsmanship, with elaborate joints and fine carvings, to simple single-width planks with a small projection at two corners to act as a hinge or swivel, set in a hole in the floor below and a hole in a beam or lintel above.



It is very economical to use this old simple style. Furthermore, by using it we can do away with the use of frames or surrounds altogether.

When single big wide planks are not available the old-fashioned plank and batten system can be used with great economy, simplicity and effectiveness.

Windows

Too often windows are elaborate complicated things for the simple reason that they serve several functions. They act as holes to let in light. They function as ventilators. We use them to look out of; and they must also be able to keep out undesirable effects of climate such as driving rains, strong winds, the sun's glare and so on.

We need therefore to work out the various functions of each window we design.

In India, our driving rains or dust-laden winds invariably blow from the same direction and we have to take special precautions to

deal with such hazards; yet rarely is it necessary to take those precautions all round the building. We need to simplify window construction so that we cope only with the problems that are actually there. In this way both material and labour could be saved.

Timber roofs

The timber roof is so "old-fashioned" that it is seldom seen in new buildings in a city. It is a great pity from the point of view of economy and beauty that comparatively cheap tile and timber roofs have been replaced with flat concrete slabs which are particularly unsuited to the hot wet Indian climate.

When it comes to the problem of making trusses to span big halls and churches, there is absolutely no doubt that a proper scientifically designed timber truss, built up from many small parts, is considerably less expensive than a steel or concrete one. Furthermore in coastal areas like Kerala the problem of rusting metal is avoided and maintenance is considerably less.

All the halls I have designed, including some of over 100 foot (30 metres) span, have used only timber-engineered trusses, never using any piece of timber bigger in section than 7 inches × 2 inches (17.5 cm. × 5 cm.), and as a rule using only small sections such as 4 inches × 3 inches × 1¼ inches (10 cm. × 7.5 cm × 3 cm.). Again I am firmly of the opinion that such timber craftsmanship is invariably decorative and beautiful to look at; it is acceptable in a way that steel beams are not.

Stone and concrete

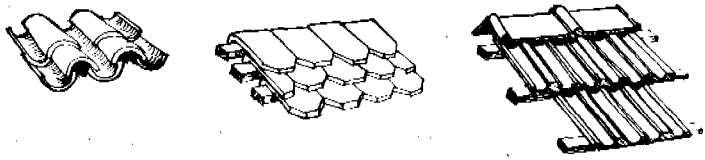
Throughout man's history he has always been able to make beautiful walls from rough irregularly shaped rocks, very often without any mortar at all. Many of the walls of Kerala's old forts, palaces and temples are without mortar. We built our own first house in the mountains of Kerala by asking local craftsmen to make for us their particular brand of rough dry stone walls, called Kayalas, which were both attractive and effective. Obviously this craftsmanship, which can make such good use of rough irregularly shaped stones of all shapes and sizes, is a cost-reducing technique which we have been foolish to abandon.

Many districts of Kerala are very rich in a soft stone called laterite. This is still used extensively in private building work, though the current trend is to plaster over its rich red colouring.

The use of exposed stone and brick is a sure way to reduce not only initial building costs but also maintenance costs later on.

Exposing stone and brick is an honourable way of reintroducing contrasting wall textures which have been lost today through the over-use of smooth cement plasters covering all wall surfaces.

Why not tiled roofs?



In many parts of India where brick is the commonest of wall building materials, tiles also have been made. There were the early potter-made half-cylinder pan tiles which nested snugly one within the other on top of any wood or bamboo frame structure. Later came the small flat tile which hung on wooden battens. Often this small rectangular flat tile had its corners cut off to give a fish-scale patterned roof surface. Variations in the type of clay used for tile-making produced varying coloured tiles which in turn were used to create patterns on the roof surface.

Then, a century and a half ago, the foreign missionaries introduced the interlocking type of tile, and this was extensively used until the modern flat concrete roof brought about a decline in the use of tile.

Perhaps it is now fortunate that cement concrete is too costly to be used in low-cost housing for the homeless millions in India. Meanwhile, I am using more and more tile roofs in contemporary buildings intended for all classes of society, in the hope that there will be a revival of a simple economical building construction system which former generations found both beautiful and efficient. I have (as will have been noticed) no love at all for concrete as used in India today.

On the whole, when we think of our millions of homeless or inadequately housed people and see the comparatively small budgets available to cope with the problem, it is clear that reinforced concrete work and ready-made systems which rely on steel and concrete cannot possibly solve our problems as easily, or as simply and effectively, as good old-fashioned bricks, tiles, stones and timber.

For further reading:

Architecture for the Poor, **Hassan Fathy, 1973, 350 pp., $5.95** (paperback) from Whole Earth Truck Store (W.E.T.S), 558 Santa Cruz Avenue, Menlo Park, California 94025, U.S.A. Postage 10 per cent extra (their book catalogue costs $1). Laurie Baker much admires Hassan Fathy's work.

Shelter edited by Lloyd Kahn, 1973, 176 pp. $6.00, obtainable from W.E.T.S. (as above). " . . . a big beautiful book with unlimited vision and ideas . . . highly recommended."

A Manual on Building Construction, Rev. H. K. Dancy; new edition 1975. 352 pp. £2.50 (£3.05 surface mail) or U.S. $4.76 from Intermediate Technology Publications Ltd., 9 King Street, Covent Garden, London WC2E 8HN. "Exceptional value as a practical field building manual."

How to Build a House using Self-Help Housing Techniques, 1974, 50pp., free to serious groups, from Department of Housing and Urban Development, Office of International Affairs, Washington D.C. 20410, U.S.A. "Excellent illustrations but designs are distinctly Western."

Above titles are quoted from *Appropriate Technology Sourcebook,* 1976, 304 pp., available from Appropriate Technology Project, Volunteers in Asia, Box 4543, Stanford, California 94305, U.S.A. Price in developed countries U.S. $4.00 (surface mail); price to those in developing countries (individuals and local organizations) U.S. $2.00 (surface mail) or U.S. $4.00 (air mail).

A Management Handbook for the Nigerian Building Contractor. Information Paper No. 9. £2, £2.30 by surface mail. Intermediate Technology Publications Ltd., 9 King Street, Covent Garden, London WC2E 8HN, U.K.

Prices may of course change.

There is a saying in Africa, "One head can't carry a roof", which grew out of the necessity to lift the heavy thatched conical roofs from the ground where they were made on to the walls of the huts. The villagers have always solved this construction problem by helping each other.

CHAPTER 9

A CO-ORDINATED PROGRAMME

"Practice what you preach"

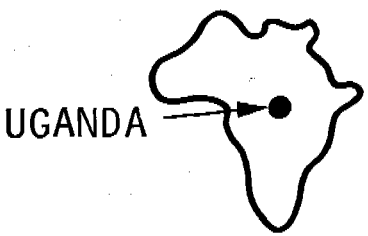
by Harry Williams

In the second half of the twentieth century, the Christian church has re-discovered on a worldwide scale the importance of the Gospel in all aspects of human life. The Church's concern for health might be said to begin with Christ's own ministry, extending through the apostles to the practice of the first and second century communities. This light never went out, though at times burning low. The big monasteries shared this longing for better health, and with the great missionary expansion of modern times, curative medicine and the training of all categories of health workers became part of Christian witness in most developing countries.

Tackling disease near its roots

A growing awareness of the vastness of the problem of health in every land, and the quickly rising cost of curative medicine and medical education, prompted the search for programmes that tackled disease nearer its roots and mobilized whole communities in promoting health at a cost that could be met.

One such programme began in recent years in Kigezi, a district in the south-west of Uganda, close to Zaïre and Rwanda, and inhabited by a Bantu people numbering some 600,000. In parts they



are closely packed, with 300 to the square mile (115 to the square kilometre), which is as dense a population as can be found in Africa.

With an altitude of 5,000 to 8,000 feet (1,500 to 2,400 m.), a fertile soil and average rainfall of 50 inches (125 cm.) a year, a wide variety of crops can be grown. The high altitude favours cash crops such as tea, coffee and tobacco, and for the support of the family, sorghum, potatoes, peas and beans.

A pilot project

In 1965 the Church of Uganda decided to launch a pilot project to enrich the whole life of rural people in Uganda, and Kigezi was chosen as fairly typical of the country as whole. A survey was made and some of its important findings were:

(*a*) The low average age of the population—half were under the age of 16: so there were plenty of young active minds available, ready and eager to learn new skills and try out new ways of living.

(*b*) That with subsistence farming the average cash income was less than £16 (U.S. $38) a year: so there was a strong reason for families to earn more and improve their standard of life.

(*c*) That widespread disease was present: so the need to grow and eat more food and to protect children against dangerous infections was very great.

Its moving spirit

The moving spirit in drawing up a programme for better living was Richard Lyth, later bishop of Kigezi. Like Ambrose of Milan,

he had a wide knowledge of men. He had been a missionary educationist, a soldier through the East African campaign in Ethiopia and a District Commissioner in Sudan, where he established civil administration on an imaginative basis. His work at that time included running a dairy farm and a market garden.

When independence came to Sudan in 1954, Dick Lyth plunged into agriculture, practical and academic, before taking Holy Orders and returning to Africa. He became headmaster of Kigezi High School, and later bishop of the diocese.

Christian Rural Service

Dick, together with his African brothers, gave much thought to Kigezi's needs, and then launched a new project—Christian Rural Service. To the pioneers of this project it was important that the Christian gospel should be concerned with the whole of life, including agriculture, animal husbandry, literacy, cottage industries and the cottages themselves, in addition to health programmes. Also, that everything should be done in co-operation with government officers, both central and local.

The leaders knew too that they must harness the energy and initiative of the local community. Any new developments must meet the local needs which the villagers themselves felt. "It is no use scratching where it does not itch", as Bishop Lyth says.

No pilot schemes dependent on outside aid are likely to be permanent, so this pilot scheme aimed at self-support, even though funds were given from other countries at first.

Choosing the team

In Uganda the Church had led the way in both education and medical services. By 1964 the State had taken over many of these institutions, and this was a stimulus to the Church to enter new fields.

The programme in Kigezi began simply with two young men, Ugandans, equipped with bicycles! "World Neighbours", an American group interested in self-help schemes, injected the first funds.

Keeping in touch with both central and local government, a more ambitious scheme was prepared, and this time Christian Aid agreed to finance it for five years; £1,600 (U.S. $3,800) was given for capital requirements, and a budget of up to £2,500 (U.S. $6,000) a year was promised for the first five years, to cover salaries, training courses and travel costs. Christian Rural Service was well launched.

Much care was taken in choosing the first team. The workers had to be willing to live at the level of the community, and patient enough to look for improvement in village standards through the desire, conviction and effort of the villagers themselves. "Handups

are better than handouts" and the funds go further. Nothing must be done without consulting those in the community.

To begin with fourteen field workers and a team leader were recruited, and the selection was as careful as that of an expedition to the Antarctic or the High Himalayas. Recruits had not only to be strong, hardworking, self-reliant and co-operative, but enthusiasts with a sense of humour and, above all, a Christian vocation.

Bishop Lyth, as a former headmaster, was in a position to judge the first recruits. "Of course, none of the young men and women chosen had all of these qualities; but they had some of them, and they acquired others as they went along," he said.

The choice of the first group was vital, for the programme was based on the simple theory that if fifteen enthusiasts each teach ten others every year, and each one taught in turn does the same, the initial fifteen will influence the outlook and practice of 15 million in no more than seven years!

The enthusiastic worker was to be like the people to whom he went, and to make it easy to believe that his ideas would bear fruit, he was only given the kind of technical training and skill which his hearers could obtain for themelves. So the team used experts available from the State, that is the government assistants in the various departments, to whom village elders could also refer.

Change-makers

The team did not hurry. The first fortnight was spent in preparation of heart and mind, so that the approach to villagers would be as to equals, sharing problems, working together to find solutions and, above all, spreading goodwill in breaking down the barriers that tribe and creed create. There was even a need to build bridges between the different Government departments.

The team found the pattern for this approach in Bible study, prayer and discussion. As team members they were to be to a great extent "change-makers", working on the problems of each village and bringing the existing resources of the Government and the Church, in knowledge, personnel and supplies, to the local scene.

For example, Church and Government hospitals were always ready to co-operate. When a smallpox epidemic occurred, these institutions began inoculation campaigns. Christian Rural Service announced the dates when vaccination would be given, and organized the clerical and practical details, such as lining up the patients and washing the arms of the 36,000 who came.

The team bought their own bicycles and camping equipment, and maintained them; they also made their own visual aids for their health talks.

Learning practical skills

Of course they gained a wealth of practical experience as they cycled from one problem to another. After all, village problems are

much the same everywhere, even if they vary in size and relative importance. The workers received many nicknames—"Privy Counsellors" was an obvious one for those who gave advice on the placing and construction of latrines.

They added knowledge as the months passed, for they attended a public health seminar here and a week at a District Farm Institute there, learning about coffee production or soil conservation, how to put up wire fencing or how to treat diseases in plants or animals.

The advantages to be gained from joining land holdings together were preached, for this is a country where a man may have a number of wives and has to send them to different places to cultivate his scattered plots.

Working in pairs

In Biblical style they went out in pairs. At first the whole team was confined to the domain of one chief, so that the leader could give them close oversight and personal training. They had long days. Before a simple breakfast there were literacy classes. This fitted in well with a campaign planned by local government. It was a novel experience for these young people to be teaching at all, and to be teaching men and women old enough to be their parents or even grandparents! Part of their own training consisted in the completion of simple forms as weekly or monthly reports on their work. From these the leader could produce an overall description of their progress.

They were obviously meeting a felt need. They carried a stock of Bibles and other books on their cycles, and these were slowly sold.

They were paid a small salary, in the hope that the Church would gradually take responsibility for this. So it was a principle built into this scheme that they would not charge the farmers for their work. But no goods or materials were given away. The poorest people value the things they buy, even though at bargain price. Books were bought because they were wanted. Sundays, of course, meant fellowship with the local church, visiting in homes and sharing in the services.

Needs and requests

There was no fixed programme; beyond the simple educational sessions the team "played it by ear". They grew wise at stimulating the chiefs or villagers to express their needs and define their problems. As their fame spread, requests for help were prompted by news of success elsewhere and were often clear and definite. Rivalry has its value in provoking effort and improvement. In this case it was not one-upmanship in wanting luxuries, but a wish for absolute necessities; most of the requests were for things that would benefit everyone and not individuals only.

At intervals the teams met at headquarters for Christian fellowship, a sharing of success and failure and the learning of new tasks—anything from cycle repairing or making compost to ways of using drama.

Clubs for young farmers and their sisters

The role of teacher included many aspects of health, though public health and nutrition were main targets. Teaching was largely by group discussion, with the team worker provoking questions and supplying answers where he had them.

This method is particularly profitable with the young, and Rural Service was especially successful in promoting youth clubs. They were related to the church, and mainly concerned to encourage self-help and to share the fun that is to be found in being creative.

Every club member had a personal project. It might be a few coffee bushes, a beehive, some hens or a goat, usually given by parents. Some had a small plot of land on which to try out new crops or profitable old ones such as banana growing. These projects gave the opportunity to carry out new ideas given to them in club meetings.

And what youth does not get the greatest satisfaction from the first earned income or from bringing personally raised food to the family meal? The Government was interested in improving farming methods through the next generation, so help was forthcoming.

There were girls' clubs too, in which colourful handicrafts were taught, improving the quality of life and also increasing income, for help was given in selling their work.

These had immense social value. Not only did the young women become skilful in those basic arts of needlework, child care, and the preparation of food, but they sang to such good effect that they visited other villages as choirs. There were nearly 3,000 such clubs at the last count, with a membership of 20,000.

Fertilizing the grass-roots

Competitions in handicrafts between neighbouring villages became common. Women had been used to working together in farms and gardens, as they do in many parts of Africa. So they were soon hoeing each field communally, and they sang as they worked. The men, who had not usually done the lighter cultivation in the past, much preferred to work on their own.

The team had a hard task to promote common planning and effort in farming and in all aspects of village life. But self-help groups, commonly of about twenty men, were patiently encouraged.

Skilfully the workers brought together men of different tribes and churches. Their aims in much of this service marched with the aims of government; but the method was a gentle one, putting as it were fertilizer on the grass-roots of society.

By their own will and decision the farmers pooled resources, bought bulk supplies and then shared them, using communally owned equipment such as insecticide sprays.

They learnt to plan and work together in such projects as constructing roads to take their produce to market. It was a short step to setting up village banks and getting advice on the managing of farming and marketing. Some of these small efforts grew to be registered co-operatives.

The home was the centre

People's homes were the centre of all the planning, both so as to limit the drift of people to the towns, and also because the family is the basic unit of the Christian Church and the nation. Home is the place where the first lessons are learned by work and example, and where, surrounded by love and trust, that inner discipline is taught on which all human relationships must be built.

New designs for the house (cheap and using local material) were demonstrated, and help was given so that the individual vegetable garden produced just the right food for children under five. Sometimes the garden provided enough for sale at the local market, and the money earned made a big difference to the family and community.

Intermediate technology (that is, the using of simple but effective tools and equipment) played a part, and again it had to be centred on the village house. Metal work and carpentry had many uses in farming, but handicrafts such as bead work, weaving of baskets and mats, pottery and woodcarving were good for the local market and brought in extra cash. The team gave advice and assistance on marketing these products.

Protein deficiency was tackled in the same practical fashion. When the villagers dug out a fish pond, the service stocked it with fish. The youngsters were drawn into this, both to stock the pot and also so that they could learn self-help and positive health.

Practical examples and discussion too

Although there were six small hospitals and eleven dispensaries in the district, infectious diseases of all kinds were common, and in particular tuberculosis was on the increase. The team was determined to work for better health by improving diet and family income, by changing insanitary habits and by providing safe water supplies.

In all of this, practical demonstration was more effective than talking, but every opportunity was taken to discuss these changes. Much was learnt during the discussions. The villagers brought out their problems, and then it was easy for the team member to suggest possible explanations and remedies. The talks covered first aid, the

causes of disease, and the value of both personal and village cleanliness.

When the villagers were convinced of the need for safe drinking water, they collected sand and stone and a few shillings for a mason's pay. Then with the cement and piping offered by the Government, a protected spring replaced the muddy swamp. Since 50 per cent of Africa's commonest diseases are water-borne, this was a significant advance in community health.

It was difficult at first to convince a community that the traditional dirty, fly-infested, rubbish-strewn surroundings of the house were a cause of ill-health, but once houses became cleaner, the villagers were proud of the improvement and communities rivalled one another in cleanliness!

In order to teach about a more varied diet and improved cooking methods, flash card lessons were given to mothers, and then cookery demonstrations, with a taste of the food for everyone. But it is not easy to modify traditional eating habits.

In this programme any teaching aid that could be carried by a worker on his cycle was pressed into service. The teams became very clever at teaching by parables, by handling simple flash cards and even more adventurously by the use of puppets. Eventually filmstrip projectors powered by torch batteries were included in the equipment.

Ideas take root

Reference has already been made to the independence encouraged in team workers. Not only did they buy and maintain their simple equipment, but at base each pair kept a stock of supplies, and their saddlebags contained pesticides and other farming requirements.

From the one area where the scheme began they scattered throughout Kigezi. The team leader kept in touch with them, and every few weeks groups gathered for discussion and spiritual and mental refreshment.

A van was acquired and supported the work of those mounted on bicycles, for it could carry large stocks of supplies and move to the main townships for major campaigns. In time a Ugandan took over from the expatriate as team leader, and then self-help and service schemes were fully controlled by national workers.

As the years passed, and the promised assistance from Christian Aid began coming to an end, self-help slowly grew stronger. Ideas and principles had taken root and in it all the Church was the mainspring.

It was not always success

Here and there minor setbacks occurred. The breeding of rabbits has been a good source of meat in many parts of the world. In Kigezi it failed, because the rabbits could not be penned, and fell

prey to army ants. But team members were resourceful and rabbits were replaced by poultry. Better breeds of chickens and care in preventing disease meant bigger eggs and more of them.

Not every worker proved a success. Some found the price in dedication too high. But others came forward to replace them, and they grew in stature as leaders and educators. Village hearts opened and sometimes it was skill as a marriage counsellor that proved of value.

Not every new idea was readily accepted, either. One improvement in house design which was tried out was a simple cooking stove made locally from clay. It produced much heat from little fuel, carried the smoke out of the house, and cut down the risk of burns to crawling babies.

But in spite of these advantages, particularly the fact that a load of wood lasted twice as long, the villagers complained that the warm heart of the house had gone—there was nothing to sit around. So this excellent idea was rejected!

Such a disappointment pointed to the need for an even more thorough survey of the customs and wishes of the people, before any new idea was introduced. But anyway there are bound to be occasional failures, and so much can be learnt from them.

Why did this Rural Service succeed?

The reasons for the success of Christian Rural Service in Uganda are worth seeking. Many would say that it came from the character and career of the leader, Richard Lyth, Bishop of Kigezi. His hard work and enthusiasm carried it forward, and no team member could be idle. He loved his neighbours and became their servant in working clothes.

But the bishop would tell a different tale of Christian Rural Service, saying that success was due to the way the team was chosen, and to the spirit of its members.

As in the early centuries of the Christian era, the Gospel was obviously "good news", bringing liberation of mind and spirit and freeing vast stores of creative ability and enthusiasm. Here once again was the excitement of a better life and a happier community. And all based on a deepened sense of brotherhood and mutual esteem.

For further reading:

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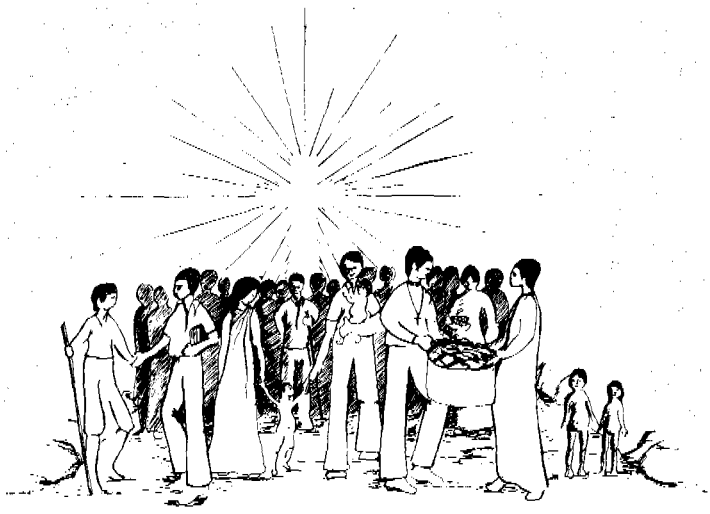
Mission to the Under-loved. R. Lyth, Ruanda Mission C.M.S., 157 Waterloo Road, London SE1.

[Editor's note: The currency equivalents used are those in use at the time that Christian Rural Service began, i.e. £1 = U.S. $2.40.]



CHAPTER 10

THE WITNESS OF A CHRISTIAN COMMUNITY

"Grace, like truth, will out"

by Harry Williams

Making men whole

"Hale and hearty"—we sometimes say, and we mean by this a state of health in which life is enjoyed to the full. "Hale" is an Anglo-Saxon word and it means "whole" or "complete": the word "holy" comes from the same root. We are using the same word again when we say that Christ healed a man with leprosy.

Was this old English linking of three separate ideas accidental? No, it is the kernel of Christ's teaching on health. He gave no complete answer to the question "What causes disease?" but He did teach and display a positive attitude to health. It was His constant aim to show that God's love for all mankind is expressed in His love for each individual man.

His powerful goodwill made Him wish to make each man or woman complete and fulfilled, to make each of us—whole. "They

that are whole need not a physician", He said, in answering the charge that He enjoyed the company of moral outcasts.

In the development of Western medicine, the task of the physician has become more and more specialized, more and more limited. It can leave out many ways of healing—surgery for example! But in Christ's day the title of physician could be used by the priest and the healer of the mind and spirit who never used any drugs.

Is it fair to say that at the latter end of the twentieth century, when we have the greatest number of curative drugs ever known, and are spending more money on health than ever before, there is less and less "wholeness"? Even the fact that the largest group of drug prescriptions written for the First World are those offering temporary relief to the troubled mind, points to a wrong emphasis in health care.

Now it is true that the best government in the world cannot be expected to achieve the wholeness of which Christ spoke. Wise laws may help toward peace of mind; they cannot guarantee it. A government can plan for improved agriculture but it cannot make sure that every citizen will take a balanced diet.

It is here that every Christian has a responsibility because he is Christ's disciple. Full health is a vital part of Christ's teaching and He gave it to His people. He even sent out His half-trained twelve to do what He had done, to heal the sick, to teach the people (the poor being particularly mentioned), and to cast out devils.

The example of Christ

Christ constantly refused to give the "sign", the magical proof of His divine appointment, but pointed seekers to His day to day ministry as the proof of His Messiahship. Neither did He indulge in huge impersonal schemes to root out all evil or disease. Even His temptations have a bearing here. What He did do was to show at every turn God's love and concern for the individual. He healed, not by public health measures, but by personal, individual confrontation. Peter and John, His disciples, continued in like manner. "In the name of Jesus Christ of Nazareth, rise up and walk", they said to the cripple at the Temple gate. Of course good government, sound public health departments, propaganda and education can well be Christian callings, but the Church is called in every generation to reveal Christ. This is an art which involves hand and heart as well as brain. It is not primarily a matter of dogma, preaching or education, but a living witness of the full-blooded type which Christ Himself gave. God *is*, He *cares*, He is *involved* is Christ's message continuing in His Church. It must show personal concern and evoke love and faith.[1].

And so the whole history of the Christian Church reflects this. Men and women who have themselves known the spiritual experience of "entering into life eternal" have proved that this experience belongs both to this world and to the life to come.

Therefore they have worked energetically to bring about the Kingdom of God on earth, knowing none-the-less that it can never come fully until all men everywhere bend the knee to the God whom we have glimpsed in Jesus.

As in all forms of human experience there is a tendency to fix labels on Christians: some are called "activists"—the doers—and others "pietists"—the ones who pray. In fact, this division into two groups is not fair, for in the field of health many of the pioneers, activists in thought and deed, have in inspiration been men of prayer.

The record of history

The first Christians were Jews brought up on the law of Moses, which taught men some of the most ancient principles of healthy living. To this they added a spiritual faith in the power of Christ to heal. The promised Holy Spirit was with them and they expected miracles "in the name of Jesus". Mental and physical disease was challenged and the greatest miracle of all—the fact that human nature could be changed—was clearly proved. Most importantly of all, they demonstrated a love for their fellow men which concentrated on their well-being.

The first hospitals were founded to care for those in need. Powerful drugs were few, but giving rest, providing nourishing food, and binding up wounds in an atmosphere full of the presence of a loving Father, truly worked. Pietists they were, constantly troubled by State and civic persecution, but the individual follower of the Way had "a heart at leisure from itself, to soothe and sympathize". So slowly came the understanding that all the wisdom that men had discovered, whether it came by experiment or by a sudden fresh understanding, could be used in a healing ministry with thankfulness to God.

In the field of healing, there was little tension between science and faith. The Church as an institution was the health service of mediaeval Europe. Sadly, the Reformation for a time stopped the care of the sick in hospitals, because the closing of the monasteries did away with the buildings, money and trained people set apart for this work.

The growth of modern medical care

Protestant efforts slowly built a new and largely secular health system but the Church, and particularly the priests and elders, lost their leading place in the healing ministry. The individual Christian might be active in one of the healing professions (and indeed nursing especially attracted many women with a Christian vocation), and the Church in some Western countries maintained hospitals. The direct responsibility, however, had shifted to professional groups which were under secular control, either by the State or by charitable trusts; these latter were largely humanist—caring for need but

without a full Christian motive—although Christians were certainly involved.

A little of the early "full Gospel" was revived with the great missionary expansion of the eighteenth and nineteenth centuries; medical missions provided a pioneer service and an excellent example to the State. Even today in a newly independent country such as Papua New Guinea it is estimated that 70 per cent of the total hospital beds are maintained by the Church. Whilst each New Guinea church planned its own health service, all are now linked with each other in a Church Medical Council, and this in turn is in touch with the Government so as to share in its responsibility for the total care of all citizens.

Should mission hospitals be criticized?

It has become fashionable to criticize this long story of Christian medical care, but it is truly a glorious one. The agnostic humanist finds fault with it as being a bait to non-Christians: the preaching service which preceded each out-patient session in the Victorian mission hospital is quoted as an example of this. Even governments in non-Christian lands have said that such medical work put unfair pressure on patients to be Christians. But such criticism springs from a complete lack of understanding of the Gospel. These hospitals inevitably and gloriously stress the spiritual component of health, and offer the inward rest which Christ proffered to the world's heavy-laden and weary.

A vision of fullness of life

Further, as Michael Wilson reminds us:

> a mission of fullness of human life is essential, to inspire us to build a healthy society now in a world where men are sick and resources are limited.[2]

Dr. Denis Burkitt, a surgeon who is world famous in medical research, said to a group of doctors:

> So far has scientific achievement progressively taken the place of God in the Western world that man's spiritual nature has been relegated to a position of such trivial insignificance that in many circles its very existence is questioned.[3]

He continued:

> Yet, in spite of all this, we are inwardly aware that the major problems besetting our profession, overshadowing our hospitals and troubling our homes, are seldom related to academic inadequacy. They are outside the realm that is amenable to scientific exploration or even financial rescue. The basic problems are seldom deficiencies in ability and resources, but relate to the deeper problems of attitudes and relationships. Few problems arise with regard to techniques for procuring abortion or the mechanics of initiating or terminating resuscitation. Reducing

alcoholism or drug addiction involves moral and spiritual, rather than scientific, resources. Science cannot judicate in such matters. It has nothing to say on the true nature of man, the sanctity of life, or moral standards.[3]

Inner resources of the spirit

In many situations a doctor cannot promise a patient a full cure for disease, nor can the politician or administrator guarantee that life will become better. Spiritual resources have a vital role in meeting the grim challenge of incurable disease. Here is Dr. Burkitt's comment:

> A person's well-being must depend to a considerable extent on the balance between the adversity which he or she is called upon to face and the inner resources available to deal with it. So very often our patients have a problem that is not removable and sometimes is only slightly alleviable. In those circumstances the all-important factor is the ability to accept and even to triumph by the aid of inward resources.[3]

He describes a particularly telling encounter with a woman who had a cancer of the breast, which had spread widely through her body.

> Her radiant faith in Christ, amounting to positive joy, was to my wife and myself an unforgettable demonstration of triumph over what to most would have been the most oppressing of circumstances. Here was someone with a positive answer to a medical problem for which scientific medicine had no more to offer. Since some success in treating an often curable form of cancer in African children exposed me to appeals for help from patients in advanced stages of other kinds of cancer, I asked our friend if she would record in the form of a letter where she found resources to triumph in adversity. Here is part of what she wrote. "All this suffering I share with thousands upon thousands of other people. What I should love to do is to share too something of the joy which contains it, and the great depths of peace which lie under it, like the life-giving waters that lie hidden under the fields and woods. I am proving the truth of what Christ said to His followers: 'My own peace I give you'. This is because God in Christ has revealed Himself to me in a new way and His presence has become increasingly real to me in this suffering.
>
> "Although I have for many years known something of what it means to offer my life to Christ and practise the realization of His presence, I have recently in a new way been able to see His glory everywhere, to know Him better and to be more ready to accept His will. I know that when He said 'Happy are those who mourn, God will comfort them', He meant exactly that. And the word here translated as 'comfort' does not mean 'make comfortable', but 'make strong'. What makes us strong is His presence, a presence which is here with us now and also waiting for us on the

other side of death. 'An anchor for our lives, an anchor safe and sure. It enters in through the veil, where Jesus has entered on our behalf as forerunner'.

"This joy which I am experiencing in spite of my suffering is shared by my husband. It clothes all our grief and anxiety in light. It overflows to the children, so that often the house is full of laughter and everything around us flowers into life. The reason for this is quite simple. It is that through the very intensity of what we are suffering the reality of God's love has blazed up in our lives, transfiguring everything."[3]

And Michael Wilson adds:

The cross is the model of a different way of dealing with evil, of bearing it. On the cross Christ suffered the hatred and brutality of his enemies and his friends, withstood it, and gave back forgiveness to those who nailed His hands, understanding to the thieves at His side, and love to His mother and John. It is this way toward health through suffering which is denied in Western culture today.[2]

Learning the lessons of health

In varying measure Christian hospitals have taught the lessons of public health through their day-to-day work. Some of the larger hospitals with patients, students and large numbers of relatives, may have had 500 or more persons within the compound at any one time. These have been taught largely by example, as they have shared in the life and programme of the hospital. Patients and relatives returning to hundreds of scattered villages have told others about their discoveries, using their own words with a personal emphasis that has carried conviction.

When we wish to convey new ideas to people who cannot read, one of the most important secrets of success is the trust and confidence which such persons have in the speaker. Government officials have often won success in public health campaigns because they were widely known and trusted for their honesty and hard work. In the same way the staff of church hospitals have been allowed to have a part in teaching better health, because they were well known in their community.

In India, the Christian Medical Association pioneered flash cards thirty years ago. These simple drawings were easily understood by an illiterate audience. They were both dramatic and amusing. Health workers visited the periodic rural fairs. In Kashmir one clever couple used puppets to the same purpose. The audience laughed as loudly as the Punch and Judy crowd did and such lessons are remembered.

In this way the Christian Church at "grass roots" level can be a successful teacher of new ideas on health. Christians can indeed teach the need for better feeding, good farming, clean water, latrines, child welfare, and immunization against common diseases.

But as well as all this, the Church has its own secret to pass on—the peace of God that only Christ can give. Many doctors and scientists agree that health is not just health of body—man's mind and spirit need help and care too.

Unexpected failure

Again, the Church at grass roots can help comprehensive health schemes in ways that make success more likely. There have been unexpected failures and distressing side effects from some big national and international health programmes which seemed to be well planned. Human nature, which makes men selfish and always wanting more, is not easy to control and it is the rock on which many otherwise sound scientific schemes have been broken.

In a wide band of Africa south of the Sahara is a land with little water which supports a wandering population of more than 20 million people. In the Sahel man had a weak grip on life. There was a delicate balance between the number of people and animals in the area and the food which could be grown to feed them. Everyone lived very simply, and stored up food to eat in the times when the rains might fail.

But five years of drought during 1969-74 brought starvation. Why? Other countries had planned to make a permanent improvement in the Sahel's living standards and give protection against famine. It was known that water in vast quantities lay beneath the desert. So machines moved in to release it and make the desert blossom.

This made possible the production of cash crops, and an improvement in each man's income. Modern health services were organized with dramatic improvement in child care. The number of cows and goats increased enormously. Envious people living in nearby countries migrated to the life-giving wells, and over-grazing soon used up the food that cattle could eat.

The human population had grown rapidly and traditional practices such as the storing of three years' supply of sorghum and the use of drought-resistant strains of millet were given up when new methods of cultivation began. A larger population was left, but without enough food for its needs. A grand development programme had suffered a major setback, due not to act of God but to the faults of human nature.

The lesson of this book is that even modest schemes which the local people carry out themselves are more likely to improve the standards of living than greater ones imposed from outside.

Keeping it simple

This is the day of intermediate technology (the use of fairly simple tools and equipment) and the varied approaches to health reported in this book are of this character.

> The title "Intermediate Technology" points to a scale that is somewhere between the traditionally evolved technology of the hoe, the handloom or the cart and the sophisticated industrialized technology of the combine harvester, the textile factory or the jet-engine. Intermediate technology has the immediate effect of enlarging rather than diminishing the human beings whose strength and skill it augments. It fits into their scheme of things, their system, without toppling it off balance and so destroying it. And, above all, it deals gently with the environment.[4]

Village polytechnics are teaching practical skills in handling metal and wood on simple lathes and their application to agriculture and village homes. Major improvements in farming equipment are possible without tractors and less violence is done to existing lifestyles. If it is linked with improved agricultural methods, also at simple level, which allow each small farmer to retain his individual interest in his soil, such intermediate technology can greatly improve the yield from the soil. If population control can be added, material well-being can be expected, even if most people will not be rich for a long time.

We need a fellow-feeling

Whilst this book is written first of all as a practical handbook for the Church in developing countries, it has a message for Christians everywhere. We are one world Church, "members one of another". So before we can share wealth and wisdom, we need an imaginative fellow-feeling for others—a knowledge of what is going on in other lands and an understanding of the particular need of each.

Giving money to a beggar even from the kindest of motives is both inadequate and oft-times corrupting. There are communities of leprosy victims in India who virtually run a begging business, each working a separate beat and bringing home the rupees and paise to maintain a workless society.

What a contrast to the training departments of Christian hospitals and the workshops of vocational training centres, where similar men and women receive the best that surgery can do for them, and then learn to become not only self-supporting but creative as well.

Julius Nyerere, President of Tanzania, has stressed that the poor in the First or Third Worlds need above all else to be given confidence in themselves, and to be stretched in ability. So the missionary should work with rather than for his people.

As Hollenweger says:

> What is decisive is not deprivation, but the feeling of deprivation. . . . The function of sects, from the sociological point of view, lies in the overcoming of this feeling of deprivation, status contradiction, loneliness, poverty, sickness, racial discrimination, speech and language difficulties, handicaps of character, etc.[5]

His reference to sects describes the influence exerted by Pentecostal movements particularly in South America. It should be the influence of the whole Church of Christ. This thinking has been applied with success to Christian programmes in drug addiction in the Western world. Here the discovery of the Early Church that "human nature could be changed" has again been demonstrated.

The approach is not only nearer to the mind of Christ: it is also more economical of Christian funds and Government revenues. But here a warning. The great world charities realize that this self-help is not only the best way of helping difficult situations, but the best way of using money. It readily becomes the *only* kind of scheme acceptable.

But those programmes which bind up men's wounds and minister to spiritual need will be part of a health ministry as long as the earth lasts. Undoubtedly, the Jericho road could have been better policed, thieves could have been caught and travelling made safe. But the spiritual importance of being a neighbour and giving love, caring, and simple comfort was the point of Christ's parable. And the Samaritan was a foreigner.

> The social scientist is problem orientated and his solutions are apt to be faceless: it is a pity that a welfare system cannot be geared to the one-to-one pattern of caring described in the parable.[6]

The Inns of Healing maintained by the Church in many lands will never be self-supporting whilst they care for the very poor, but like the monasteries of the Middle Ages they are salt in society. Most Western churches have a personal link with such centres of Christian example, and it is surely our special responsibility to help them with gifts.

Learning to be content

But there is a yet deeper lesson for the Christian in this review of the self-help possible to the world's poorest communities. Many in the West would gladly share their possessions if they were living in an African village. But this longing to share must also be felt when life is lived in Europe or America, for there is literally too little food, and too little in the way of natural resources and wealth in the world to allow some countries to be rich, even modestly rich, while there is poor nutrition and disease in another.

Three thousand years ago Isaiah reproached the leaders of Judah, its watchdogs: "greedy dogs that never get enough . . . every one of them does as he pleases".[7] Today it is greed in terms of possessions also; the status symbols of house, colour television, expensive clothes, cars and boats. As Dickinson says, there is today a fundamental questioning of the assumptions of success—in the good life and "the meaning of the Gospel in a world of limits".[5]

The lesson surely for the disciples of Jesus, whether working man or wandering prophet, is deliberately to give up the attempt to be equal with those who are richer, and instead be content with less. To be like our grandfathers, content with the home, the furniture, and the clothes that *we have* and then to give what we can spare to the poor.

Many young people have deliberately decided to live "the simple life". For some this is a revolt against society, capitalist or communist, but for others it is Christian simplicity, as Richard Dickinson records.

> . . . the development debate has revitalized a strand of Christian thinking and living which has been largely obscured in the last three centuries. Despite its recent eclipse, the simple, reflective and meditative style of life has its origins in the deepest traditions of the Christian community. A return to a simple, non-consumptive life-style is interpreted by many social activists as new pietism which has no concern for the neighbour or the world. Often it is interpreted as a search for individual purity, or as escapism from the complex issues of systemic institutional change. Often that non-consumptive life-style is condoned only as a harmless, but ineffectual, Christian witness. However, others are convinced that a simple, reduced-consumption life-style for the rich is not only necessary for personal integrity, but may be the most effective witness and impact that individuals can make upon a system dedicated to stimulating consumption.[5]

Family life-style

The life-style of the family which follows Christian standards is a powerful example which all cultures need today. Even the best laid plans for a nation's health can be spoilt by corruption in civic and commercial life. Prices for commodities like coffee or sugar can be dishonest, and money or goods given for a community may be used for personal gain. So the Christian manager or worker in every land has a chance to witness by his life of hard work and integrity.

Then in the family and the clan, the Christian is bound to seek God's guidance over the size of his family. Gone are the days when the word in Genesis on "having many children and spreading all over the earth" can be taken to mean large families for everyone. The earth is almost filled with people now, and in many lands it is overfilled. Most Third World countries must keep down the number of their people as much as possible. In all these matters the most effective ways of changing age-old patterns of behaviour are by example and sound teaching in the community.

The cry for peace of heart

It is now realized in Britain that a National Health Service must be backed by a strong community which has a great variety of skills

of brain and hand. And medical people should use both complicated and simple ways of treatment. Kindliness and sympathy mean as much as skill. Never has the need for this blend been more obvious throughout the world.

Recent years have witnessed some of the greatest mass programmes ever undertaken to secure better world health. But after the first flush of enthusiasm reaction has set in. Diseases which were apparently wiped out are creeping back again, and as more people live in cities other diseases have appeared where they were previously unknown.

To meet these problems, new hospitals have been built and equipped everywhere according to the pattern used in Western countries.

The church hospital that introduced Western-type medical care to a district a century ago, is now in difficulties and thought to be inefficient. But it is still needed if it can be a centre of excellence where dedicated enthusiasm and love make up for the lack of expensive equipment. It is still the training centre for health workers, and must link up with the types of self-help programme outlined in this book.

Time will bring a wiser judgment on the successes of medical missions, for the present mass endeavours to wipe out disease have been in part based on a materialistic outlook, which thought of happiness as coming from possessions. This has produced widespread discontent and unrest. So the Christ-centred simplicity of earlier efforts is still important.

Health is wholeness

Today the Christian has the responsibility of demonstrating that health is wholeness. It is rooted in peace of heart which protects him and gives strength to him and his neighbour.

Mental illness has greatly increased in the rich countries where large amounts of drugs are given for depression and anxiety. But this does not mean that the Third World has escaped. The breakdown of age-old customs and beliefs in developing countries has left many people unprotected against a new and frightening way of life. As a result they get ill.

An African man knows that loneliness is bad, and that men and women are meant to live happily together. A man who offends against the community, whether his offence is imagined or real, will feel this sense of rejection. In the same way living in big cities makes men feel lonely and lost, and as a result they become ill.

The fetishes used in tribal medicine only work when there is a guilty conscience which needs peace. In somewhat the same way, the rise of so many independent churches in Africa is regarded as an

expression of the need for a friendly group where a man will feel at home. A deep longing for fellowship is then satisfied.

A part for Christians to play

In the early centuries of the Christian era the Church was the first to begin health programmes, and the monasteries did all they could for sick people. When the Roman Empire ended and the long Dark Ages began, it was the Church which saved much of the education and the rule of law of the empire, combining wise laws with compassion and mercy and creating in men's minds the understanding of God's great power as Creator and loving Father. In most cases in those days the doctor was a priest.

In the twentieth century Christians such as Paul Tournier and Leslie Weatherhead have shown how a man's whole personality can be restored to health. Many general practitioners, psychiatrists and medical missionaries in all parts of the world have had the fulfilling experience of using the best of medical training in a Christian calling. They have known the resources of God in healing.

Such resources are needed in healing the sick in all cultures. Where the health worker, because he is not a believing Christian, cannot go beyond the knowledge given to him in his professional training, the resources of God must be available through the service of a truly committed Christian, whether he is a layman or clergyman. In the conquest of fear, the freeing of a man from guilt and the strengthening of the weak, faith, hope and love are the three great Christian words that are the gospel for the African kraal or township as well as for the flat or attic in Los Angeles or Paris.

In Britain the members of a community health team believe that no one of them has all the wisdom or skill needed to treat each patient. In such a team, the pastor too should play his part, encouraging confession and speaking of forgiveness and God's grace.

In the Third World, even more than in the First, the whole congregation can take a share in such work. It will have in it men and women who do different kinds of work and are rich in their gifts of temperament and talents. As this book shows, these differing talents can greatly help the health of the community and by their example the congregation can live out the wholeness Christ preached.

Such a worshipping group should be a healing community, a welcoming fellowship, well able to strengthen the weak, the lonely and the heavy-laden, and also to comfort those conscious of failure and those aware of wasted years and powers. In such a fellowship miracles still happen.

Here is an opportunity for unity if not union between the world families of the Church. "The kingdom of heaven is within you", Christ said, but to some extent where Christian men and women cooperate to build a healthy community His Kingdom has come; His will is being done on earth.

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