BEYOND ILLNESS

a reader for women health activists in urban areas

Swatija Manorama

Chayanika Shah

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Comet Media Foundation, Bombay

September 1994

We thank the **Bombay Community Public Trust** for providing financial support to the writing and publication of this book

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Special Thanks
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Acknowledgments
Illustrations are reproduced from or based on the following original sources:
Bal Vaigyanik, Class 8, M. P. Pathya Pustak Nigam
Page nos. 1, 2, 5, 7, 8, 12, 16, 19, 41, 44, 50, 55, 59, 79, 83, 87, 88, 93
Shareer ki Jankari, a book prepared through the collective efforts of 72 women from Rajasthan active in a health programme, Kali for women, 1989
Page nos. 6, 18, 20, 29, 31, 39, 40, 52, 57, 58, 63, 72, 77, 79, 80, 86, 90, 94
Time Life Publications
Page no. 10

Typesetting
datafriends, Thane

Print Production
Jaina Pandya

Printing
Naaz Electro Prints, Bombay
Canyon Press, Bombay

Copies available at Comet Media Foundation, Topiwala Lane School, Lamington Road, Bombay 400 007

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FOREWORD

This book has emerged from the concerns of two researchers, Swatija Manorama and Chayanika Shah. During the past several years they have worked on science and society related issues, with particular emphasis on women's concerns. In the course of their practice as trainers of health workers, they had felt a need for clarity on the social implications of the biological content of such courses. This is how the idea of working towards a manual came about. They chose to address this work to the specific problems raised in the urban setting of Bombay. While some training material addressed to rural workers is available, there is not much made for the city. It was also felt that with the resources available in a city, voluntary health workers often require orientation to make use of these, and this work attempts to address this need.

It is hoped that the authors' attempt will add to the efforts by a number of groups to produce training materials addressed to learners who are seeking to combine health awareness with other projects for community involvement. We also hope that organisations conducting training of "para-professional" health workers will find the book useful.

We would like to thank all the friends who joined us for the many discussions that went into the writing of this manual. They are too numerous to mention here, but we know they will recognise their contributions when they read the text.

Finally we would like to emphasise that this is a first iteration. It is not an end product, but it holds great promise for further work on these lines.

We are grateful to the Bombay Community Public Trust for a grant which made this initial exploration possible.

Chandita Mukherjee
for COMET MEDIA FOUNDATION

PREFACE

BEYOND ILLNESS is an attempt to begin a process of creating a knowledge base for health activists in the form of a book. We hope that health workers will be able to place this knowledge base alongside their work experiences. What we have written can be modified according to the reader's needs. Hints can be taken from it to make innovations in the daily practice of health workers.

We would like to have prepared the book with a ring binding, so that the reader can go on adding material wherever she feels like within the book, and a place is created for keeping newspaper cuttings, notes and so on. It was not possible to bring out this trial version of the book in such a way, but maybe future editions can be so prepared, and every reader will go on to make this a book of her own, reflecting her own questions and needs.

This book is an exploration of the much-used term, "the holistic understanding of health". It is also an effort to look at health not just as absence of ill health, but as a reflection of the overall social, cultural and economic existence of a person.

The shaping of our body rhythms and overall pattern of health takes place in the social and physical environment which makes our existence meaningful. The physical environment provides the direct inputs for the body to function. We would like to explore the quality of these inputs in a city like Bombay where conditions appear to be totally beyond the control of its inhabitants.

In looking at human biology, and at the nature of facilities provided by the city, we have emphasised the activity and struggle of its people. We are interested in exploring the effort put in by individual bodies to be able to survive and function. In this connection, we also would like to explore the many collective efforts to bring about change in the quality of life in the city. They relate to a variety of issues which directly or indirectly lead us back to well-being and health.

From the way we see nature, the usual concepts justifying aggressive competitiveness and survival of the fittest do not seem to ring true. On the contrary, we believe in the continuity of all life, of both the living and non-living forms on this earth, and would like to draw attention to this concept, both for the clarity and for the feeling of richness that this connectedness gives us.

Our book begins with body physiology, but we try to explore it differently from the way we learned about the body in school. There we were taught to look at various body systems such as the digestive, the circulatory, the reproductive, as entities in themselves. However, the emphasis here is on the basic concepts which help us in understanding the coordinated action of the whole body. This is why we have chosen not to discuss the functioning of different organs in detail.

We believe that the purpose of the body's existence lies in its ability to work. Our bodies are continuously working and trying to maintain themselves. How the body manages to survive, faced with all kinds of odds in a city like Bombay, is also an important aspect of our enquiry. To our minds, these aspects are inseparable from a discussion of body physiology.

In our daily lives, each of us constantly attempts to cope, to adapt and to meet the physical and psychological stresses at both the physical and mental levels. Since we believe that our health is determined by physical parameters, the emotional and human attempts to change these parameters concerns us, and forms part of our understanding of health.

This understanding also poses a problem. Should we consider health only in the physical realms of body and environment? We do not think so. We understand health as a biological phenomenon expressed and shaped in its social, political and natural environment. From this viewpoint, health is seen as a dynamic process, located in society, not a static state to be achieved and maintained.

And yet there is ill-health and breakdown of the normal systems of the body. To be able to cope with such situations we need to be equipped not with medicine as much as with knowledge about the disease process and the 'natural' response of the body to it. Our stress here is not on specific illnesses and their cure, but on an understanding of disease and strengthening of the self to interact with doctors and others who appear to take over when a vulnerable person, in ill health, comes to them for help.

We conclude with a section on self-help in an urban context. In a city like Bombay there are a wide variety of health care delivery and medicine systems. The same is true for Madras, Calcutta and Delhi, as well as fast-growing cities like Pune, Hyderabad, Ahmedabad, Bhopal, Jaipur and so on. How can we strengthen ourselves as individuals and as a community to make choices among these health care systems? How can the health worker help in this process?

So in short, this book tries to open up thinking on many inter-related areas. It is not exhaustive, and in trying to cover the whole we may have missed some major issues or connections. We have touched upon many aspects but have not explored our thoughts to their fullest extent. This is partly because we feel that this work is not the end of this exploration. It is a starting point to understanding one's body and the surrounding reality. We hope that every reader will contribute to this process by looking inwards and outwards with some change in perspective.

Swatija Manorama
Chayanika Shah

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Chapter I

SARALA'S STORY

While working with health workers we often came across women who were trying their best to serve the community, and who kept running into a variety of difficulties in the process. Sarala is typical of such workers, and to begin the book, we give an account of her observations and reflections. Sarala's specific tasks are in the area of women and children's health.

"I think I am quite deeply involved in my work. Yet I constantly feel a gap between what I am supposed to do and the reality around me. Take my neighbour Leelaben. She works very hard, doing piece-rated sewing jobs to supplement the family's income. Considering the amount that her husband spends on himself, it is actually her earnings that support the family. Besides these worries she has the housework. She has to keep to the water timing, deliver her work on time--so much so that there is no time for herself. She has a pain in her knee which has been bothering her for many months, and yet where is the time to go and see a doctor? Even if I want to help her, I am not equipped to deal with her problems.

Leelaben worries about her children constantly. Her daughter Sharmila is eighteen, and she is being troubled by a group of boys in the basti. Leelaben wants to marry off Sharmila, but she does not have enough money. Leelaben is also nervous about committing herself to some unknown family about the

marriage. She feels she must be certain that her daughter would have some guarantee of security and happiness after her marriage. The marriage issue seems to disturb her constantly. At times she feels afraid that if she continues to delay the marriage, her daughter may get allured into something that would create a scandal.

Leelaben's son Ashok is unemployed. He does not want to work at any job which involves physical hardship. He contributes to the household expenses occasionally, but Leelaben is not very sure about the kind of work he is involved in. She prefers not to ask him.

Leelaben's concern with her children's futures keeps her awake night after night. Then she has a nagging cough which bothers her. She keeps complaining about her problems. All of it makes her sick. And Leelaben is not the only one in our basti with such worries.

Another good friend is Sakubai. Deserted by her husband, she brings up her three daughters alone. Working as a part-time cleaning woman, she has access to the houses of a number of well to do people. She often shares her experiences with me, and sometimes we think we are better off than many of her employers. She feels that despite appearances, many of these women do not have even a day's happiness in their lives.

Occasionally, when we have some time to chat, I try to tell Sakubai about my problems also. Sometimes I tell her to keep her house clean and to keep the food covered. Actually, Sakubai has the cleanest house in our chawl, but I tell her these things just to keep talking, and to keep trying to give her some support.

I stay in the same chawl, so I know how it is. I also get very tired doing both housework and my job. Lately, it has begun to bother me that though I work as many hours as my husband outside the house, I am made responsible for everything to do with the house and children. I have tried talking it over with my husband, but he resists taking charge of anything. According to him, some things can only be done properly by women.

Even though I know that these are convenient excuses, beyond a point I cannot insist. He is after all, the man of the house, and I cannot allow this to become a permanent conflict. I have begun to feel that these so-called personal problems are very much part of the chronic health problems that many people have. Yet there is little I can do to help anyone, least of all myself.

I sometimes wonder whether my neighbours expect me to do something more for them as a health worker. But what else or what more can I do? My job definition is very limited. I have to distribute contraceptives and motivate women for sterilisation and contraceptive use. I am supposed to take pregnant women to hospitals and see to it that they take proper treatment. I have to advise them to breast-feed their babies and get them vaccinated. Many times, women have to go through pregnancies without their heart being in it. It is forced on them, and I cannot do much for them, even though I am the one supplying contraceptives to them.

The women around me are all very different personalities, but their situations are very similar. The doctor in the municipal clinic had tears in her eyes the other day. She wouldn't tell me what was wrong at first. Then she said that she has had severe back pain for days. Even though she has a first class pass, she has to travel standing for almost three hours every day, and do all the housework morning and evening. Her husband never even offers to do the shopping for her. I had thought that when a woman has the same education as her husband, and earns as much as he does, things would be different.

I enjoy such sharing and discussion. The next day I go to our weekly meeting with all this on my mind. Perhaps I ask too many uncomfortable questions. My group leader tells me to keep quiet. She does not like such bold behavior in front of our superiors, and so she scolds me. At such times I feel that this is a way of warning my other friends to keep quiet. I prefer not to think too much about all this. Looking at the massive task before all of us, I feel quite alone and unsure about what is expected of me. ❞

What is the health worker's role?

What do policy makers expect of health workers? Can they, or should they limit themselves just to the simple routine tasks which Sarala spoke of? What are the specific problems of health work in a city like Bombay? Much is written about health workers in rural areas and the difficulties they face in their work. The urban situation is different in many ways and the dilemmas of the health workers are of a different nature. Often, the basic problems get more complex and acquire larger proportions with the strain of city life.

We had a series of discussions with health workers like Sarala, and these meeting led us to write this book. BEYOND ILLNESS also represents a dream we have. The book is not a manual in the usual sense. We offer you some thoughts, and an attempt to redefine

health, or verbalise on an evolving perspective about the complex of things usually labelled as health.

One of the first things we began to question is the perspective of most training given to health workers. The usual course contents emphasise subjects that are considered to be practical, and directly relevant to health workers' tasks. It is assumed that health workers are generally not interested in knowing very much, and in any case they cannot understand complex issues. Thus it is decided that course contents should be limited to the areas considered to be priority health problems of society.

In recent years, AIDS has emerged as a priority health issue. Some years back it was tuberculosis. In those days all the energies of health workers were spent in identifying possible cases for testing, and motivating patients to start treatment. Later they followed up with updating the patient surveys, making frequent visits to persuade patients to take medicines regularly, and then to ensure that they continued to do so for the full course.

Some years later, everyone felt disappointed with the outcome, despite the sincere and intensive inputs. The programmes were conceived in isolation from the world in which the patient lived and the conditions at their places of work. The crux of the problem was reduced to the patient and health system relationship, still further reduced to taking medicines on time. Even when the patients did come regularly to collect medicines, a number of their visits were wasted because there were no tuberculosis drugs at health centres.

Today huge amounts of material resources and personal energy are going towards raising public awareness about AIDS and its prevention. Yet it appears as if the valuable experience of the tuberculosis eradication programme is forgotten here. Besides the obvious lessons, there must be a greater susceptibility to AIDS amongst patients suffering from chronic diseases like tuberculosis. They should form an important target group for AIDS counselling and testing. But because tuberculosis is not the key word for the health care system today, even in the context of AIDS no special attention is paid to tuberculosis patients. The term "target clientele" is used very often by health administrators, but these obvious linkages are omitted by the system when locating a target.

Personal hygiene, and creating a healthy environment is a basic part of community health. In the training of health workers there is great emphasis on the proneness to disease if personal hygiene is not kept up. However, the difficulty of keeping oneself clean in a situation where even drinking water is scarce is totally disregarded. The problem is not even considered genuine, those bringing it up are dismissed, their responses taken as proof of "ignorance" and resistance

to change. This alleged reluctance to learn becomes identified as the problem, and the poor are held responsible for their low health status.

As in the other sciences, the naming of a particular cause is the crucial way in which the health sciences identify a disease. In the case of a new fever, for example, research concentrates on finding a micro-organism and its connection to a specific health condition. Once it is found, research moves to finding a drug which can destroy that micro-organism.

The identification of problems in terms of causes is itself problematic and leads to misdirected courses of action. For example, in the case of population control, the "cause" identified is women's normal ability to reproduce, their fertility. This view is totally misleading. It does not take into consideration the fact that fertility is related to men and women and it is their inter-relationship that gives rise to new births.

Research is carried out with women as targets of fertility regulation, and this "cause" or fertility becomes an important aspect of study. Fertility and educational level in women, fertility and the age at marriage of women, fertility and economic status of women, anything goes. Since the pre-occupation is with women's fertility, the effects of various conditions on women become points to be studied as well as acted upon.

Such misdirection of attention is not something unique in the case of fertility and personal hygiene alone. This is common to most community health areas. The points of emphasis of the training of health workers are also determined by the same rationale. It becomes difficult for an individual to move out of such frameworks even if they feel that essential points are being missed.

In the case of malaria, the cyclical action of malarial parasites and the role of the mosquito bite is not made clear. Eradication of mosquitoes is attempted with occasional DDT sprays in the open gutters and toilets of a slum area. The relationship of malaria to mosquitoes and the importance of protecting oneself from mosquito bites is never brought out.

Based on this rationale, it emerges that policy makers create an understanding that it is not possible for people to protect themselves from mosquito bites because of their living conditions, so there is little that can be done in a situation like this. The easy way out is to occasionally spray DDT in public places. That DDT, which is banned in many countries is bad for us, that mosquitoes become resistant to it in time, that it therefore possibly does more harm than good, are facts which are disregarded totally.

In actual fact, health workers have been able to organise united community action for cleaning the gutters regularly, and to keep the environment clean. Many have done much more to improve living conditions in urban slums. But the approach of making the community responsible, of involving them in health activity, is not emphasised in the health workers' training, and they are not encouraged to explore such potentials for action in their communities.

How can the feeling of futility while doing health work be turned around? We repeatedly heard health workers say that it takes a woman some time to become comfortable with a contraceptive method. After spending months guiding and motivating a woman to accept a particular method, they found it very disturbing to be forced to give her any contraceptive in stock at the clinic, without regard for the woman's health and convenience. If the health worker tries to question this arbitrary situation, and pursue her clients' demands, she is given no support by the authorities, and months of effort, and her credibility with the client are lost.

Then there is the problem of an inadequate knowledge base. Where does Sarala go for answers to her questions? As a health worker she is supposed to be capable of absorbing a limited number of facts presented mostly as *Dos* and *Don'ts*. That a person like Sarala would want to know more about the body, that she would wish she could understand disease better in the context of people, is a thought never entertained by those designing training courses. To make it worse, it is assumed that she as a person is not capable of understanding and growing through her work.

We would like to address ourselves to to this need of health workers in the next chapters. We would like to lay the foundations of a knowledge base for health workers who want to realise the potential for growth within themselves. A knowledge base that includes a critical evaluation of existing "scientific" facts and rationale in the context of our subjective experiences. A knowledge base that also invites collective and individual action, to make a difference in the quality of life in our cities.

Chapter II

OUR OWN SELVES, OUR OWN BODIES

During her talk with us, Sarala often referred to the differences between a man's life and a woman's life. Having taken the inequality between men and women for granted all her life, Sarala seems to be deeply struck by her recent realisations. The common echoes that Sarala finds between herself, Sakubai, Leelaben, the woman doctor at the clinic, and the women in whose houses Sakubai works--these aspects of women's experience as mothers, wage earners and persons interacting with the world outside the home--have been experienced by many of us at some time or another. Our primary relationship and interaction with the world is through our senses, located within our bodies. We come into this world with our bodies, and that is the only asset we can claim as our own throughout our lives. The body gives us our identities, a sense of the self during our existence. Yet, many of us are not comfortable with our bodies. Sometimes, and more often with women, the body become a cause of embarrassment and gives the self a deep sense of inadequacy.

Kaushalya is a health worker in a small village in Tamilnadu. At one of our workshops she shared her concerns about her body. "I know that there is a difference between my body and that of a man. But is that the only reason why everything is so different between them and us? I too eat like them, walk like them, work like them. Yet why is it that I do not feel strong and confident like them? My whole identification of myself with my body is itself so different from theirs!

Why is it that most of the time I keep feeling that my body is not normal, weak, in some way not as competent as a man's body?"

Let us look closely at the common belief that women are weak, incapable of hard work, and thus need to be looked after by strong men.

Try to make a list of all the tasks that you do from morning to night. How does it compare in terms of physical exertion to your brother's or husband's work? What are the comparable timings? What are you paid compared to what he earns?

Try this exercise with a group of women, and compare the experiences of different people. You could do this with any group of women, urban or rural, poor or relatively better off. It may reveal how we women take many things for granted, without valuing them in the way a man values his labour.

In principle the major difference in the bodies of women and men is in the structure of their reproductive organs. Women can bear children and men cannot. Is this basic biological difference alone at the root of the completely different experiences and expressions about the body by men and women? Throughout history, various biological explanations have been put forward to condone the oppression of women by men. These explanations are often centred around women's ability to give birth. Some of these theories say that because of this special character, women are weak, they cannot do certain kinds of work and need to be protected by men. Other theories excuse men's violence and aggressive behaviour towards women on the grounds of insecurity created in them by women's power of procreation.

Whatever the explanation, women's bodies become the property of men, their children the possessions of the man's family. This happens in most societies, and is part of the culture most of us have inherited.

It is not surprising therefore, that women's bodies are usually discussed in terms of beauty and desirability from a man's point of view. When a marriage is being arranged, we often hear assessments of the bride in terms of her child-bearing capacities. The family elders will openly discuss her looks and reproductive organs as an asset or property coming into the family.

Society largely pays attention to two aspects of women's bodies. One is in our role as mothers or procreators. The other is in our external appearance, especially until we become mothers. This

external self is the one that we recognise, and identify with. It is a part of ourselves with which we are consciously and continuously in touch. It is also an aspect which we largely model on other people's opinions and requirements.

After Kaushalya expressed her doubts at the workshop, we made a list of questions which each one of us tried to answer individually, and as a group. Beginning with the external appearance, the questions helped us to start entering into complex concepts relating to health.

This again can be tried out as an exercise with any group of women who meet regularly. We begin with a set of questions that each person thinks over alone, and then everyone takes turns to present their responses to the group:

- *Do I consider myself average in height and weight?*
- *Do I like my skin colour and texture?*
- *If I do not like my own features and appearance, how do I wish that I looked?*
- *Have I made any postural or any other adjustment to improve my appearance?*
- *Have they affected my health?*
- *Do I tend to go in for a particular type of clothing or make-up to enhance certain features of my body?*
- *Do I wear clothes to disguise certain unflattering features of my body?*

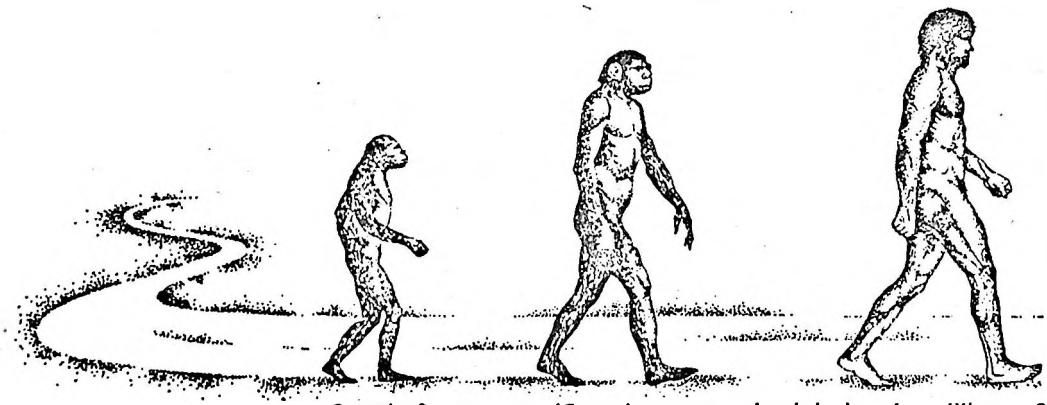
After individuals have presented their personal perceptions, the group could go on to asking themselves:

- *Do we as a group have differing notions about a good height and weight?*
- *Compared to our ideal for women's bodies, what is our expectation in body structure for a man?*
- *What are our notions about skin colour? Can a dark-skinned woman be considered beautiful?*
- *Can a dark-skinned man be considered handsome?*

- *Are we wearing comfortable clothes?*
- *Are they suited to our work and the demands of life in the city?*
- *Have ideas of beauty such as good height, ideal skin colour, proper dress and so on changed since our parents' times? Do teenagers have different views from ourselves in these matters?*

All of us, perhaps some more than others, mould both our internal selves and our external appearances according to the trends and requirements of society. Some aspects of this process of change take place relatively rapidly. For example, our taste in dress today may be completely different from our grandparents. Another kind of change takes place over lakhs and crores of years. This is the adaptation of life forms to external conditions, or the process of biological evolution. The origins of all life on earth, whether plant or animal, began with the same sort of one-celled creatures about 175 crores of years ago, when the earth's climate and atmosphere was nothing like what we know today. Gradually, as the environment changed, and different life forms emerged, the earth came to have the lakhs of different animal and plant forms that make up the world we know.

Of this long and complicated story, the episode of human evolution perhaps fascinates us the most, concerned as it is with ourselves. It is probably because we see so much of ourselves in them, that the monkeys and apes attract the largest crowds at the zoo. While people watch the tricks of the apes, they enjoy telling their children that had things turned out differently, we may have been like them.



Certain features specific to humans evolved during the millions of years of development that preceded us. For example, the human baby had a much larger head then the creatures who were our ancestors. To be able to accommodate the child in the womb, and give birth to it safely, human female bodies evolved to have a wider pelvis. This in turn slowed down their ability to reach similar speeds

as the males when running. Another such development is that people staying in hotter climates have darker skin colour. This is actually due to the presence of certain pigments in the skin. These enable the skin to tan without burning, even with long exposures to the sun. Those with pale skins burn easily in the sun because they lack these pigments, and they have to wear protective clothing.

People's muscles reflect the kind of activity and exercise they engage in. If children grow up doing physical exercises they develop more muscular bodies, which in turn helps them to do intense physical labour as adults. Although men's bodies are usually thought to be more muscular, women doing physical labour have much more pronounced muscular structures than men leading sedentary lives.

In high altitude environments where the available oxygen in the air is less than that in the plains, we find that people develop barrel-shaped chests. This enables them to hold more air in their lungs, and thus to take in more oxygen than they could have otherwise.

Within our lifetimes we adopt lifestyles and habits which affect our bodies in a permanent manner. Social norms of beauty or desirability which may be fashionable at a particular period of time dictate our actions, and we humans often follow these trends without regard to our health.

Until about fifty years ago, small feet were considered to be the ideal of women's beauty in China. So around the time girls' feet reached about 10 centimetres in length, they were tightly bandaged and put into iron shoes. The feet were not allowed to grow beyond about 15 centimetres. It did not matter how tall the girl grew to be, she had to have tiny feet to show that she came from a class where women were not expected to do much outside the house. It was extremely painful to move around with tightly bound feet, the feet became permanently deformed, and the practice resulted in major orthopedic problems. It also meant that these women became house-bound and immobile for the rest of their lives.

At the end of the nineteenth century, narrow waists were considered an essential feature of beauty for European upper class women. As a result women were forced to stuff themselves into tight undergarments laced and bound in the same way that boots are laced. Thus women appeared to have tiny waists, but they could hardly breathe or eat.

At the same time, the ideal projected by that society portrayed the beautiful woman as being very sensitive, fainting away at the slightest amount of physical or mental discomfort. This delicate constitution was considered to be a sign of noble character. Today people feel that all this display of weakness was at least partially a

result of poor blood circulation and suffocation due to restrained expansion of the chest when breathing.

In many parts of the world, people have to have permanent marks made on their bodies for the sake of beauty and social acceptance. Among these are tattoo markings, scars from branding, and scars from slashing. They may seem painful and torturous to us, but they also show how much people are prepared to endure for what they consider the right appearance.

Social pressures often force us to make choices that are not suited to our bodies. Here in our city, a section of women spend a great deal of money subjecting their bodies to all kinds of painful treatments, surgery and diets. They may make themselves physically and mentally ill doing it, but it becomes a compulsion, to meet society's requirements of beauty.

The skin and the self

Another example of this is the so-called skin care that is advertised in the media. A fair skin is a sign of beauty and so needs to be obtained whatever be the cost. Whether it is physically possible or not, whether we can afford to do it or not, each one of us is trapped into dreaming of the fair, smooth, glowing skin to be achieved through bleaches, soaps, creams, powders and bitter syrups.

In all this external beautification we are made to forget that the skin reflects overall health, and has an important role which goes beyond making us look good or bad.

The task of the skin is evident in the fact that different parts of the body are covered with different kinds of skin.

Let us examine ourselves from head to foot, and list the differences in the nature of skin on various parts of the body.

- *How does it help to have hard, tough skin on our feet? Yet why are our fingertips so sensitive?*
- *Why do you think that there is such long and thick hair growing on the skin of our heads whereas the soles of our feet are hairless?*

The skin is the protective and interactive surface between our bodies and the environment. It not only wraps and holds the body together but also prevents unwanted elements from entering the body.

However the skin does not work like a waterproof and airtight plastic sheet. There is constant exchange between the body and the world outside going on at the skin surface. These exchanges are important for the overall health of the body. Evaporation from the pores of the skin in the form of perspiration is one such example. It helps the body to maintain the internal body temperature. Factors like fresh air and sunlight falling directly on the skin all are necessary for maintaining a healthy exchange. There are many women who are confined indoors because of customs like *parda*, and they have to cover themselves fully when stepping out. What would be the effects on the bodies of women covered from head to toe all the while, without exposure to sunlight and fresh air?

Sometimes it is not social customs that impose restrictions, but the circumstances in which people are forced to live. In Bombay and other urban areas where most families stay in one small room, the lack of exposure to sunlight is felt most by women who remain at home. Confined to their dark, unventilated homes, many women like Leelabai spend their entire days working at home on piece rate jobs while maintaining the house and family.

What can be the state of the skin of women like Sakubai who spend many hours working in close contact with detergent, other strong chemicals and water, washing clothes and vessels in house after house for ten to twelve hours every day? What could be the state of the skin of women exposed to dust of all kinds at construction sites? And what about the health of the skins of men handling hazardous substances in poorly ventilated surroundings with no protection whatsoever?

All these do not come into the skin care picture of the ads at all. And yet in reality these are the majority who have serious and chronic skin problems. The ideas about the skin, skin care, and beauty seen in the ads reflect the dominant attitudes in society. The science that has been constructed and developed in these circumstances too cannot escape this partial way of looking at the problem. The outlook of biology, of medicine, of the overall health care system and their methodology, seem to have completely bypassed the world of Sakubai and Leelabai, and of women in general compared to men.

Conventional science and myths about women's bodies

As Kaushalya said, a normal human body is usually taken to be that of a man's. A woman's body is considered to be a weaker copy, an aberration with an additional capacity of being able to reproduce. In most textbooks, a man's body is shown as a symbolic human body when talking of digestion, circulation or any of the systems common to all human beings, like the first drawing in the margin. A women's

body is usually depicted only while talking specifically of reproduction. That is why a diagram like the second one is not a common sight in most books.

The assumptions inherent in such a bias are not confined only to things like pictures in textbooks, but have wide ranging reflections in the very development of biology and medicine.

Clinical research experiments for specific drugs are generally carried out on male subjects. It is assumed that what would work for men would work for women. The difference in their bodies because of reproductive functions, are not considered to be of any significance while testing any drug or new technique, or even a theory concerned with the human body. The differences in the overall social cultural lives of men and women are also not given their due importance.

There is a neglect of a range of complaints and problems which especially affect women. Even common complaints like backaches and white discharge or pain during menstruation are not investigated seriously. These are termed as problems with a psychological basis. Women are dismissed as being hysterical if they constantly make complaints which do not fit into the model of human body developed by medical science with its understanding based on male biology.

Conventional medicine thus feeds a number of socially constructed myths about women by giving them a "scientific" basis. At one time there was a theory in biology which said that the brain size determined the amount of intelligence in the person. Women have smaller skulls, smaller brains and hence were said to possess less intelligence!

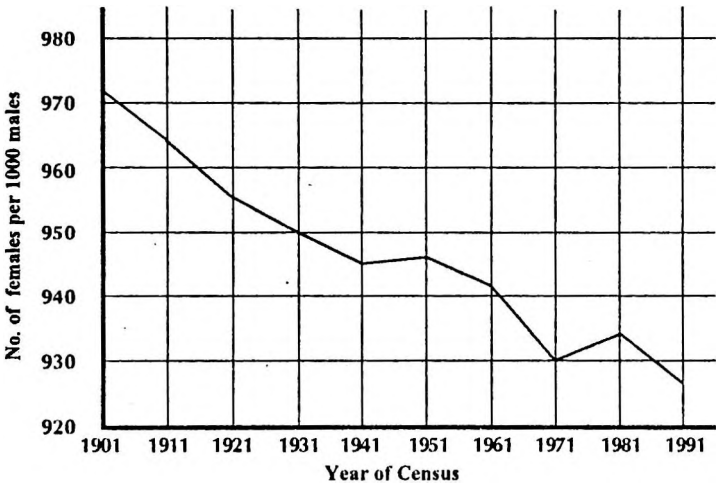
Interestingly, this theory was later hastily discarded because it was found that the men of African origin had larger brains than European men. That would have had disastrous implications for the doctrine of white racial supremacy. In a way the need to justify the model of white racial supremacy gained dominance over the urge to prove the lack of intelligence in women.

Some scientists continue to explain violent and aggressive male behaviour as an effect of the chemicals within men's bodies, even today when there is much research showing the contrary. In much the same way, women's submissiveness and docility are also made out to be biological, a state of being resulting from the proportions of certain naturally produced chemicals in their bodies.

Many other myths about the strength of men, of their being able to develop muscle power and hence of their being stronger than women, are also supported by biology and medicine. If we look back at the lists of work that women and men do, is it possible for us to

say that women are not as strong as men? They may not be able to lift the same loads at one time, but their endurance over a period of time has been proved to be far greater than that of men.

It has been observed that a female fetus and infant has more tenacity, and should survive more successfully than the male, if all conditions are equal. However the social conditions in countries like India are so adverse for females, that our census-by-census figures show a steadily declining female to male sex ratio.

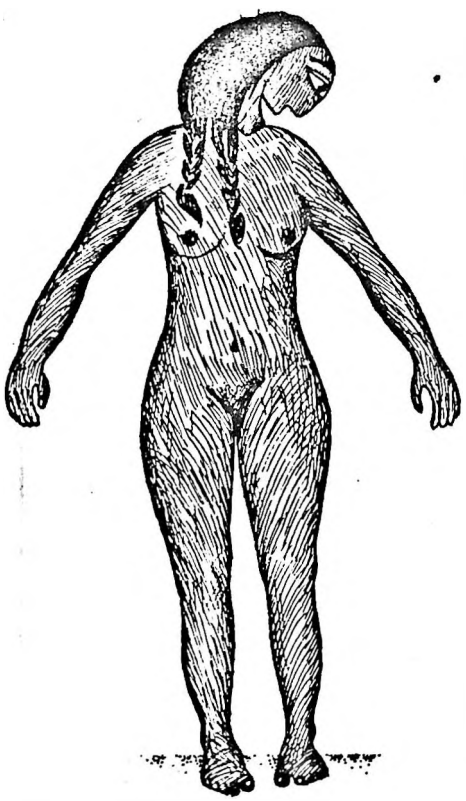


These figures represent an alarming trend directed against women. Right from childhood girls are discriminated against with regard to nutrition and health care as compared to their brothers. This goes on right through life, where the women in the family are constantly making sacrifices for the good of the others. This is something all of us know from our own experiences.

Such social pressures and customs also exert an important role in the overall health picture of any society. They have to be taken into account while studying biology and medicine. It is essential to see all knowledge and so-called natural behaviour in the social context in which it is taking place. Otherwise we attribute social problems to biology and vice-versa. Looking at health holistically therefore requires us to question and make some modifications to accepted biology.

The parts of the body and the whole body.

In spite of all these differences, and variations in all our experiences, there is a lot that is common to human beings of both genders. As a species we all have the same structural characteristics. Our familiarity with the similar features of the body begins very early in life. A two-year-old starts naming and recognizing the external organs first. Identifying her hands, legs, eyes, nose, mouth at first, as she grows older, there is more detailed identification--the lips, the nails, the nostrils and so on. Identifying each part distinctly is an indicator of a clearer and greater understanding of the body. It is considered a sign of growth, of having acquired greater knowledge. But as in all knowledge, the overall bias of society is visible here too. Maybe you could check this out for yourselves by looking at the following aspects:



Begin this exercise in your women's group by asking everyone to name the different visible external parts of the body such as the eyes, hands, breasts, feet and so on. Try to collect the names in all the languages spoken in your area. For example eyes are called ankh, dola, lochan, chokh, kannu *in different languages.*

- *However, if we go beyond the eye to the eyelid, eyelashes, pupil and so on, we may not be able to find specific words denoting or identifying particular parts of each organ. When you make a list of such specific words, you will find that the extent of clarity in naming and differentiating various parts of the body is dependent on various socio-cultural practices. After making the lists, the group could think over and discuss the following questions:*

- *Is there a difference in the precision with which different parts are recognised in different languages spoken by the group members?*
- *Is there a difference between written language and commonly used terms?*
- *Are certain parts of the body considered dirty, their names used as abuses? What could be the reason for this?*
- *Is there any difference in the treatment of women's bodies as against those of men in this respect?*

The structural similarities between women's and men's bodies extend to the internal organs also. An exercise like this is possible

only with the visible parts of the body. When we try to do it for the internal parts there is a problem. Those of us who have had some education are aware of the biological names of the different organs. However most people use their experience to identify the internal organs, and thus we have expressions like "bag of food", "bag of baby" and so on. One of the difficulties we have had in doing health education work is that when words and concepts commonly accepted in science do not exist in our everyday speech, the discussion can be quite confusing for the new learner.

Popular notions about the internal organs are quite different from ideas about the clearly identified and external organs of the body which everyone can see. One widespread notion that we have come across is that the stomach (*pet, pot*) is a term covering everything in the abdominal region, be it the organ for digestion of food, for excretion, or for producing a baby. Some people think that menstruation, urination, and sexual intercourse all take place through the same passage.

There is also confusion about the reproductive organs, especially the uterus. In some places women said that they have one bag to carry the baby, one for the menstrual blood and a third one from which the white discharge is produced. The white discharge from the uterus is sometimes identified as phlegm, the same substance that is thrown out in coughing.

There are some concepts which represent a person's self, such as the *mun*, the *dil*, and the *kaleja*. Though these do not represent any specific physical organ, they are recognised as existing within every person. These can be called floating organs. Some people locate it in the brain, others in the heart, still others in the liver. No matter where it resides, the floating organ reflects the personality, mood and sense of identity of a person.

However, when working within the understanding of modern biology as most health workers have to, such lack of clarity can cause a number of difficulties. In order to be a better communicator between the community and the health care system, it becomes essential for health workers to understand the basic structure of the body, and how the parts function. At the end of the chapter you will find a large chart of the human body. Along with it is a sheet with various organs printed on it.

In the same way as the external, visible parts of the body have been differently named, all the parts within also have been identified and their major functions understood by science. In modern biology, the internal and external organs have been further classified into systems, based on their major functions.

At the end of the book you will find a large chart of the human body. Along with it is a sheet with various organs printed on it.

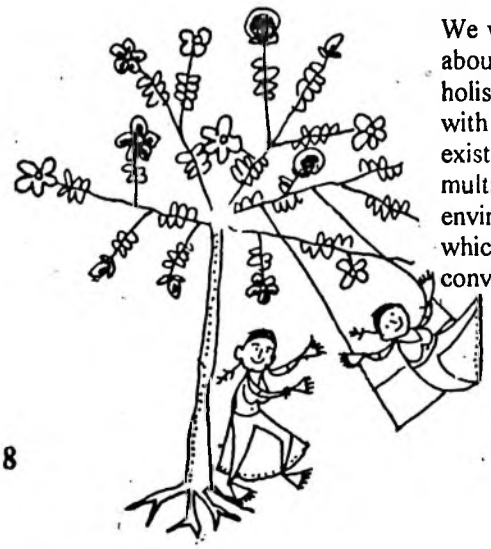
You can stick the sheets onto stiff paper and then cut out the illustrations of the organs. The organs can then be inserted into the indicated places in the alphabetical order of their labels. In this way you can become familiar with the location of these organs.

You can also colour the parts and the main body as you like. Before cutting up the diagram, you could make photocopies of it to share with others.

The names of the organs are given in English. You could label them in all the languages that you are using in your work.

All of us would have learnt about these systems, organs and their functions in school. Our study of biology in school extends over a wide range of topics. We study about the cell, we learn about the plants and animals and we also are told about the human physiology and anatomy. However there is a problem with the way in which this teaching and learning is carried out.

While we learn a lot about the various organs, these are like lists of words we have memorised. Despite our sincerest efforts, we remain unable to see the connections between them. As a result we are not able to construct a holistic picture in our minds of how the whole body works. The body becomes a collection of individual organs, connected to other organs in the same system. However the overall connections between the systems, the problems encountered by the other parts when one part cannot do its work properly, remains outside our grasp.



We would like to make some of these connections while talking about the body and its internal mechanisms. We believe that a holistic approach to health has to begin with making connections with all life around us, and the socio-cultural milieu within which we exist. Our emphasis here would be to look at the body as a whole, multicellular, complex organism interacting with the external environment. In the next chapter we will look at certain aspects which are not usually taught, or explained in the same way, in the conventional textbooks.

Chapter III

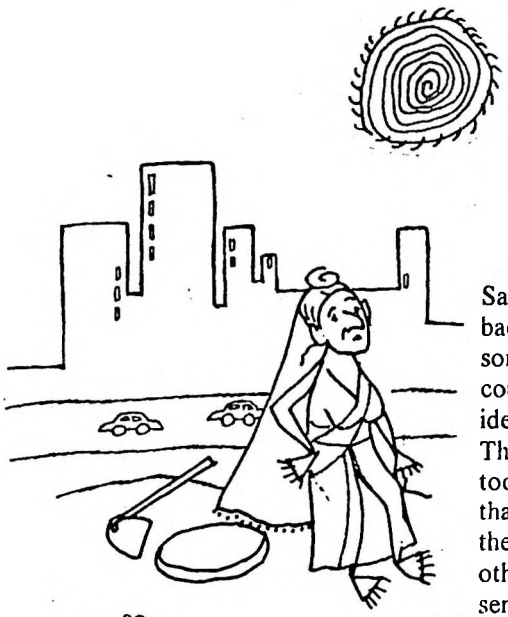
EXPLORING THE WORKING BODY

Sarala told us that some time back she had developed an embarassing problem--she used to get an urge to pass urine all the time. This made it difficult for her to move around the bastis freely. The doctor at her health post had told her to get her blood checked for sugar content. The problem was identified as an infection and it went away after she took some medicines, but Sarala was still intrigued.

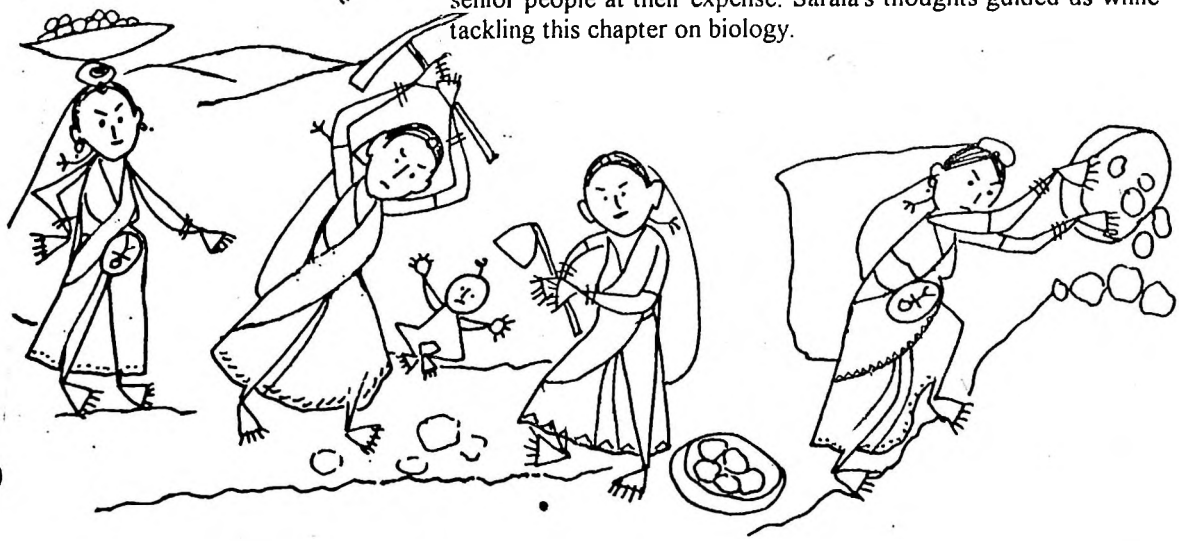
> "It is true that I end up drinking tea in almost every household that I visit, and my sugar intake must be higher than that of most people. But why testing of blood, and that too for sugar? I wanted to ask the girl in the laboratory but everyone around was so busy. I tried to look this up in a book, but I could not follow it properly. I also read about it in the health column of the evening paper and got some explanation there, but I want to know more about this sugar problem.
>
> The other day Sakubai was complaining about an intense chest pain which had been coming on from time to time. She was told to do various blood tests and also get a cardiogram taken. The experience terrified her and Sakubai kept on asking me what it was all about. I could guess at something based on an item in the health column but I could satisfy neither her nor myself.

There are other questions that bother me. The body maintains a constant temperature all the time. Even if it is very hot or cold the temperature of the body remains constant. How does this happen and why? When we were taught how to look after ill persons, it was emphasised that we must keep a temperature record. That an unusually high or even low temperature is an indicator of some problem is common knowledge. Why is it so? How does keeping a detailed record help?

As a health worker looking after women's health I am supposed to concentrate on childbirth and family planning. I am not told anything about the other functions of the body. Is reproduction taking place all by itself? Why are we supposed to cut it off from the rest of the body? Take Leelaben's teenaged daughter Sharmila--she has so much body pain during menstruation--especially in the back and the legs. In the days before her period she goes about in a sullen mood, and is very rude to her mother. Why does this happen? Can something be done for it? Why do some women get regular periods and others don't? How is the regularity of the periods maintained in the bodies of women who have no trouble with their periods? "



Sarala had kept such questions to herself for a long time. Her school background in biology had not helped her. She had reasoned out some logical connections, but she still felt confused. In her training course they had talked about diseases, but it was more in terms of identifying problems for referral to a doctor, rather than the causes. Though she had often felt the urge to ask, she felt inadequate and was too shy to speak up. She was also aware that the trainers assumed that trainee health workers are not interested in knowing more. And then there were her colleagues -- if she asked too many questions the others would say that she was trying to create an impression with the senior people at their expense. Sarala's thoughts guided us while tackling this chapter on biology.



Work and the body

Of all the different aspects of our existence as human beings, work is possibly the most important aspect. In this chapter, work became our starting point because the body's labour is what gives each one of our separate lives a purpose and meaning.

Work is necessary for existence and it is also the primary way society identifies us. We say "She is a doctor", or "He is an electrician", or "She is a really good cook". We may refer to a person whose name we do not know as "*Bhajiwali*" or "Postman". Our work is also what others value us by, and if we have a good reputation, it is usually in relation to our work.

To be able to do any work, be it heavy physical labour in the house, or something completely involuntary like the act of breathing, we need energy. Acquiring energy is a major task for the human body. The whole body functions in such a way that it gets its requirements of nutrition and rest to produce this energy.

At a wider level, imagine that all our private and individual activities can be totalled up and put onto one big chart. The whole complex could be seen as a process of acquiring and processing natural resources, and equally importantly, knowledge about natural resources. The outcomes of all these activities can be seen as being available for the use of everybody. No matter what work a person does, whether mother or schoolteacher, factory worker or farmer, processing of natural resources and information about them, are the major tasks performed by all of us.

From this point of view, it could be said that society as a whole is engaged in the act of fulfilling the basic needs of human beings: food, water, shelter, clothing, sanitation, education. The trouble is that society does not ensure that the needs of all are met equitably. Often much harm is caused to nature itself in the process of gathering its resources for enriching a small section.

Is the body a machine?

Right from the early years of school we learnt that the basic requirements of the body are air, food and water. These inputs enter into the body, are processed, utilised and stored, and then all that is not needed is thrown out of the body.

With this kind of simple explanation, it may appear as if there is an overall input-output mechanism at work here, checking entries and exits, and watching over the whole body. But is it really so?

In an industrialised metropolis like Bombay it is not surprising that people have a tendency to look at the body's activity in this mechanistic way. Often in everyday speech, in books, in radio and TV programmes, there are instances in which the body is looked upon as a kind of constantly working machine.

We have a problem with this kind of an analogy. No doubt, it is only an analogy, no-one seriously thinks the body is an engine or the brain a computer or the stomach a furnace. But such language leads us into a certain way of thinking which gives us a narrow and superficial perspective. This outlook fails to understand the vitality of the body and also limits or negates the responsive capacities of every part of the body. While praising the body's so-called clockwork precision, it misses out on its complex reactions to the unexpected situations we meet in the course of our lives.

The body is a living organism

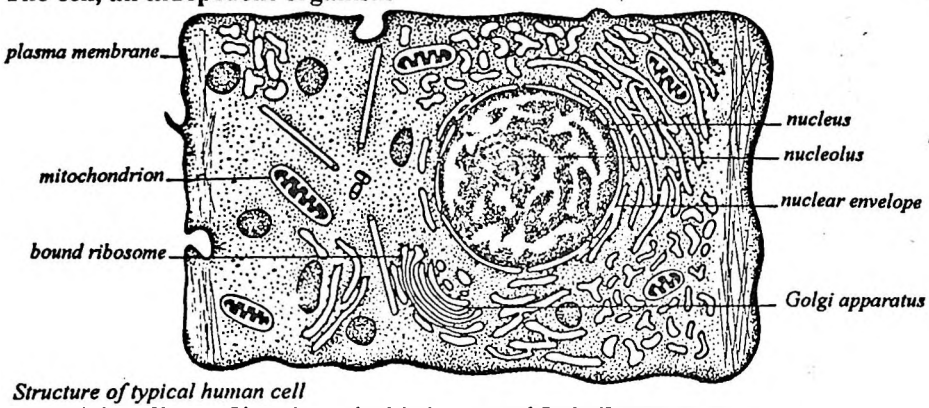
We would like to look at the body in a way that emphasises that the human species has a historical continuity and link with all life on the earth. We would like to take into account that the body is a collection of hundred trillion cells -- each of which is a living organism in its own right.

The body that we see, feel and live within throughout our lives is an outcome of a long, historical process. All life on this earth evolved from a single cell. It has been a process of billions of years which has resulted in the present coexistence of a multitude of life forms, ranging from a single-celled organism like the amoeba, to more complex multicellular organisms like the human body. However there is a continuity from the single cell to the present state. This common root shows us the relationship that we have with all existing life forms today.

This continuum of life within which we exist is an important concept. It enriches us emotionally. It helps us to realise the one-ness of all life on this earth. At the same time the recognition that each of the trillion cells in our bodies carries within it the knowledge of billions of years of existence is extremely empowering.

It is difficult to make the journey from our small and private perceptions of the external self to the vast, and intricate reality of each of the hundred trillion cells that coexist to give us human existence. Yet once this connection is made, the body itself becomes a fascinating entity, completely in our own hands.

The cell, an indepedent organism

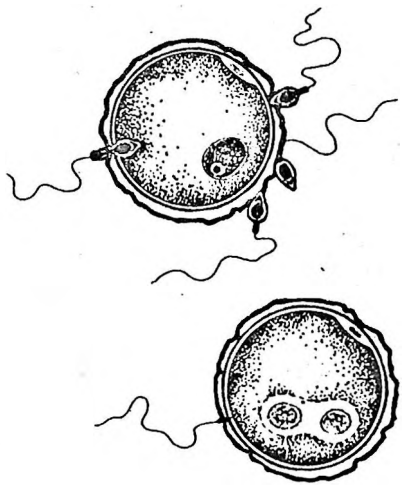


Structure of typical human cell
(adapted from Human Physiology, the Mechanisms of Body Function, Vander et al, McGraw Hill International Editions, 1986.)

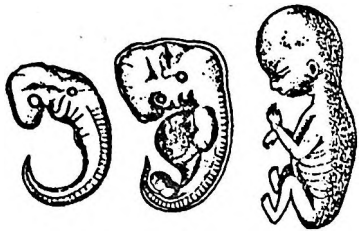
It is not easy to understand what a cell is because it is usually of a size that is invisible to the eye. Try to borrow a microscope and actually see the size, shape, structure of various cells. You could take the skin of an onion and see the arrangement of the cells in it, take a drop of water from the gutter, and see many live one-celled creatures.

Most interestingly you could see your own cells. Gently scrape the inside of your cheek with the wooden end of a match stick, and put the scrapings on a slide under the microscope and see.

Human life begins with a single cell--the fertilised ovum. Sexual intercourse between a man and a woman allows for the meeting of an egg and sperm. This leads to fertilisation of the ovum, to the formation of a cell that would develop into a new human being, different from both its parents. An apparently simple process in which a single cell leads to a complex multicellular organism, also gives rise to a host of complex social interactions, between two individuals, their two families, and society as a whole.



Discuss the different implications of pregnancy for women as compared to men in your women's group and put these down in your notebook. The similarities of the experiences of women from different economic and family circumstances and cultural backgrounds has struck us sharply every time we have done this exercise in women's groups.



The single cell divides into two, each of which further divide into two, resulting in a rapid multiplication of the total number of cells which form the fetus. As the weeks and months go on, the new life begins to look more and more recognisably human.

What determines the gender of a child?

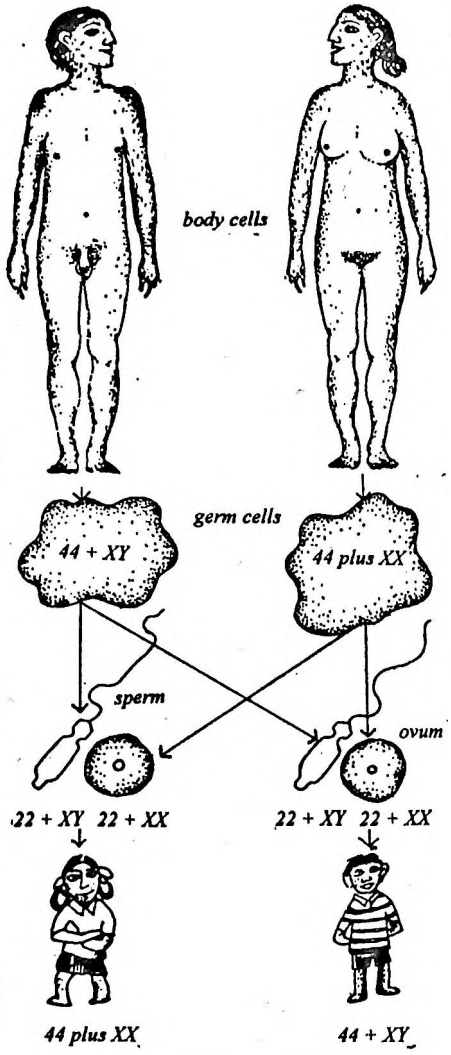
One of the questions that seems to concern everyone connected to an impending birth is the gender of the child. How much people are bothered about whether it is going to be a boy or not, and how easily they blame the mother if it is a girl! Sarala is often asked how the gender of a child is determined, and if science has found any medicines that could ensure the birth of a son. Sometimes the people in the community come under the influence of charlatans who promise them a boy in return for huge fees to perform some complicated rituals.

When exactly is the gender of a child determined, and how does it take place ?

Every human cell contains some material inherited from its parents which are called chromosomes. These small bundles of chemicals come in pairs, and there are 23 such pairs in every cell. These are formed right at the time of conception with the egg contributing 23 chromosomes and the sperm contributing the other 23 thus making 23 pairs.

Amongst the many things that these chromosome pairs will determine, is the sex of the child. One of the 23 pairs is unique in that it differs in the male and the female cell. The female cell has two identical components called the X-chromosomes in this pair while the male has two disparate components called the X and the Y chromosomes.

Since the mother does not have the Y chromosome, her contribution will always be the same X chromosome. It is the father who has the possibility of contributing either a X or a Y chromosome which will determine the sex of the child. Of course these combinations are a matter of chance, and nobody can be held responsible for the sex of the child.



(based on Everywoman, Derek Llewellyn-Jones, Penguin Books, 1971)

Cell multiplication is just one of the processes that take place during the early days of life. As the whole organism develops, some cells begin to exhibit specialised functions. In fact, as development

proceeds, each cell acquires a specific function. Some examples of such specialisation are the development of force and movement, in muscle cells and the generation of electric signals, in nerve cells. This process is called cell differentiation. The cells also migrate to different parts of the body, sometimes join with other similar cells to form tissues and these tissues in turn further organise themselves to form organs carrying out their specific tasks.

The human body is thus a society of cells of many different types which are combined structurally and functionally, and they interrelate in many different ways. All this happens in such a way that the functions of the organism as a whole are carried out. Despite this, each of these cells individually continues to exhibit the fundamental activities common to all life.

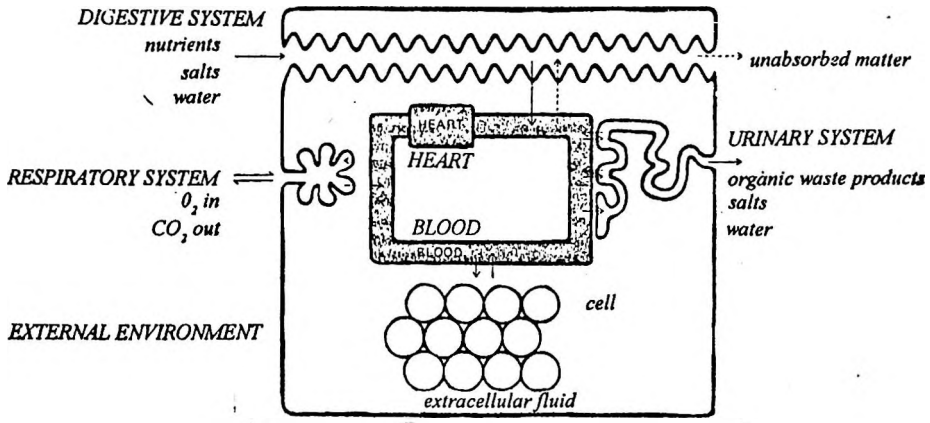
As a living organism, each cell also carries out the tasks of processing the inputs to create energy which it needs for its own functioning and maintenance. These requirements come from its surroundings, the external environmentals. A cell in a multicellular organism is most of the time isolated from the external environment in which the cell survives. These cells however draw their requirements from the internal environment within the organism, which is immediately external to the cell. It is the function of all cells in the organism to maintain this internal environment in such a way that it remains stable.

The activities of every cell in the organism then fall into two basic categories: firstly, each cell performs all the basic cellular processes like an exchange of materials across the membrane covering it, extraction of energy, synthesis of proteins and so on. These processes are vital for the cell and represent the minimal needs for maintaining its own individual integrity and life.

Secondly, a cell simultaneously performs one or more specialised activities in consonance with the other cells in the organism as a whole. Every cell continually helps maintain the internal environment of the body according to the requirements of all the other cells.

As much as the cell is a part of the body, we human beings are in many similar ways a part of the external natural and social environment in which we survive. Without wanting to make the analogy absolutely literal, we find that it somewhere reminds us of the need for us, as part of this environment, to do something to take care of it.

The environment, within the body or outside is a dynamic entity. It is constantly undergoing changes. We are regularly taking things from it and giving it something else in return. Such processes which restore the state in which optimal behaviour goes on continually.



(adapted from Human Physiology, the Mechanisms of Body Function, Vander et al, McGraw Hill International Editions, 1986.)

What keeps the cells together?

If each cell is capable of surviving on its own, then what is it that keeps them together?

A major actor in this task is the blood. It is the carrier of essential nutrients to all parts of the body. It is also the medium via which waste is collected from all over and excreted. Blood consequently forms an important factor in connecting the whole multicellular organism.

In society, however, blood is what seems to divide people. What are some common connotations of blood for us? *Hamara khun, royal blood, blood relationships,* somewhere blood is linked to heredity and lineage.

As women we have yet another association with blood through our monthly menstrual flows. Menstrual blood is considered dirty and polluting. For a few days every month, women are subjected to a strange rejection by their own family because of the fears and associations related to menstrual bleeding.

In fact menstrual flow is actually an indicator of the fact that blood is the supplier of the body's requirements. Every month the uterus is internally prepared for a possible conception. The lining of the uterus is made ready with an increased blood supply to meet the needs of the fetus that may implant itself on this lining. If conception takes place, the fetus will derive all that it needs to survive and grow from the blood supply to the uterus.

When conception does not take place, and there is no need for the lining, and it is shed. At this time a large number of blood vessels are ruptured. The consequence of these torn blood vessels is the blood flow seen during menstruation. It is the same blood which would

have given the basic requirements to the newly created life in the womb. Can such blood possibly be polluting and foul?

In early 1994 there was a controversy about hysterectomies being carried out on mentally retarded women who were living under the protection of the government in a home near Pune. These were defended as a birth control and menstrual hygiene measure by the authorities.

We would ask why this particular discharge of the body is seen as particularly unhygienic. The same patients have difficulty in controlling their other bodily excretions and in any case require special care.

While the authorities kept talking about menstrual hygiene, they were ignoring the role of the uterus as part of a system. Major surgeries such as the removal of an organ cause trauma to the body and create their own health problems in the future. The known ill effects of hysterectomies have been early ovarian dysfunction, depressions and increased risk of heart problems.

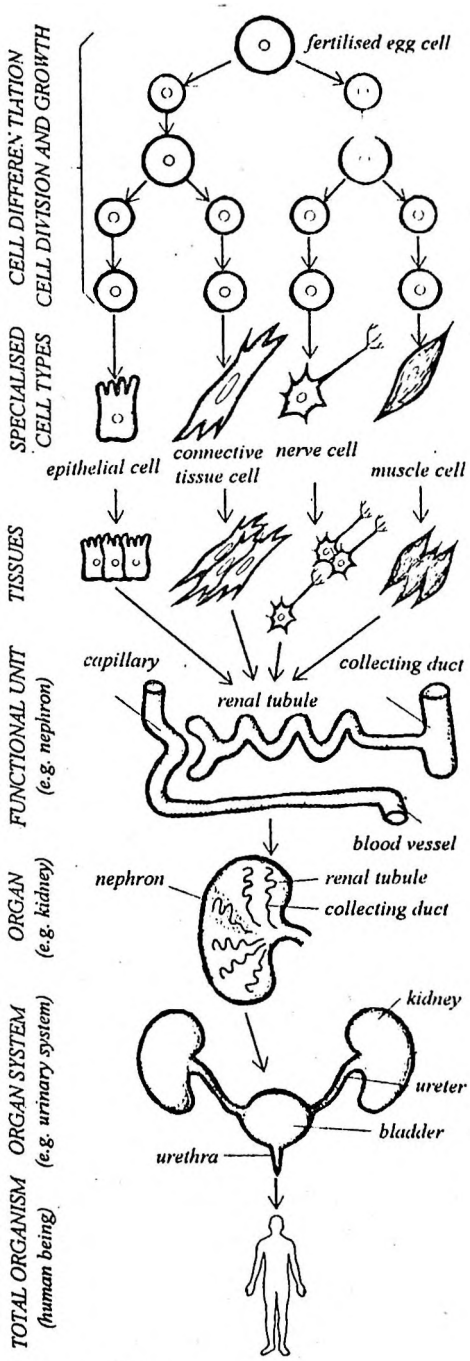
Particularly in the case of these women, parts of whose brains do not function in the "normal" manner, the after effects may manifest themselves in other unexpected ways. By subjecting these women who are not equipped to cope with any long term problems created by such an operation, who were the authorities trying to help?

Lastly, just because these women are mentally retarded, have they no rights over their own fertility? Would we tolerate it if the government were to forcibly carry out hysterectomies on people like ourselves without consent?

Blood is only one of the carriers meeting the requirements of the cells within the body. What maintains a stable environment is the co-ordinated action of the whole body. For example we have often experienced how the body maintains its own temperature even when there are drastic changes in the external atmospheric temperature.

Why are we not in a constant state of fever?

While we go about our everyday routines of eating, sleeping, working, running, there are constant chemical changes and reactions taking place inside the body. These generate a great deal of heat. How is it that we are not constantly in a state of fever as a result?

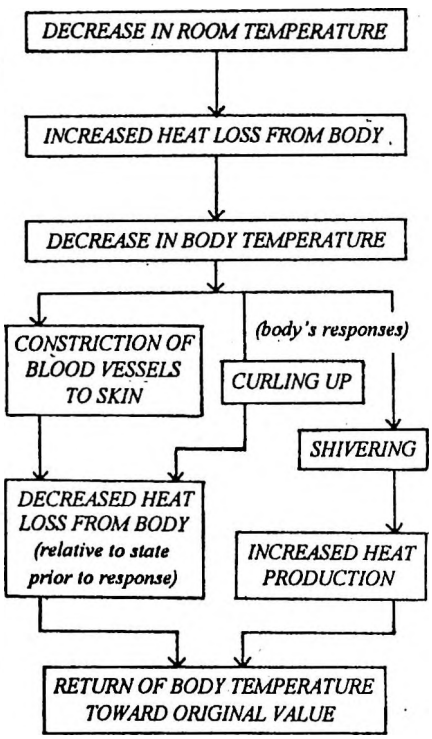


Levels of cellular organisation

(adapted from Human Physiology, the Mechanisms of Body Function, Vander et al, McGraw Hill International Editions, 1986.)

In normal circumstances, compensatory mechanisms ensure a simultaneous heat loss from the body. This results in a nearly constant internal temperature within the body. This steady body temperature has to be maintained, because most chemical reactions important for sustaining life can only take place at a balanced rate at these temperatures. This is why we do not feel that we are functioning properly when we are overheated in the sun, or if a sudden cold wave comes in winter.

Even if there are drastic changes like these in the external temperature, the body tries to maintain the internal body temperature at a constant level. Suppose there is a sudden fall in the outside temperature, as may happen to people living in a Himalayan village in winter, or perhaps a woman working in a frozen fish factory who has to spend time inside a room-size freezer.



Homeostatic system for maintaining relatively constant body temperature on decrease of room temperature

(adapted from Human Physiology, the Mechanisms of Body Function, Vander et al, McGraw Hill International Editions, 1986.)

The immediate response would be in the form of an increased heat loss from the body, to achieve equilibrium with the external environment. This extra heat loss however, reduces the temperature of the body. At this point some involuntary actions are generated in the body which decrease the heat loss and increase the heat production. The person would start shivering. This would lead to the return of the body temperature back to the optimum for proper functioning.

The change in temperature initiates responses which oppose or negate this change. In this example, a decrease in body temperature results in processes that would tend to increase the temperature thus bringing it back to normal. This is an important mechanism that the body adopts to maintain a stable equilibrium. It is called a negative feedback system.

It is important to note here that if the external temperature is below body temperature, the steady state temperature achieved by the body is a little below its normal temperature, so that the feedback processes are maintained. If the temperature came back to normal, the constriction of blood vessels to the skin would relax, and shivering would stop. This would lead once again to greater heat loss and reduced temperature. To avoid these reactions, which consume a great deal of energy, the steady body temperature in a cold situation is maintained slightly below the usual body temperature in a comfortable environment.

That a slight variation in temperature is normal, or allows the body to function normally, gives rise to an important generalisation. If a range of temperatures have to be considered to decide what is "normal" for an individual, how do you arrive at a figure that is supposed to be normal for all persons at all times? The norm not only

varies from person to person, but also has a range for that person herseif.

If we were to measure our temperatures at regular intervals over a period of twenty four hours, we would find some variation arising from different levels of activity of the body throughout the day and night.

It has been well established that in every monthly cycle there is temperature variation in women. After ovulation, when the egg is mature and released from the ovary, there is a rise in temperature to the extent of about one degree--which is kept up until menstruation occurs. In fact, this rise in temperature is a good indicator of ovulation having taken place. If you were to observe your own body over one menstrual cycle, you would see a number of overall changes in the body in accordance with the menstrual rhythm.

Besides temperature there are many other cyclical changes going on in the body. Each of these has a rhythm of its own. The rhythm could be diurnal, that is changing with night and day, as with sleeping and waking. It could be of twenty four hours duration, as with our daily expulsion of solid wastes, or longer as in the case of the menstrual cycle, or even longer as with the aging process. There are specific bodily changes associated with these rhythms, and the overall responses of the body to situations around us are also affected by these rhythms. The capacity to take physical and mental stress also varies within a given period because of the interplay of such rhythms.

Keeping up the balance while constantly changing

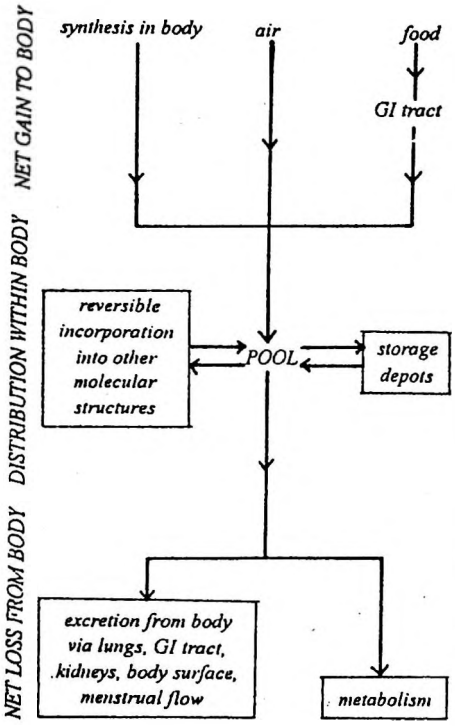
The emphasis of all body processes is on maintaining balance. However this is a special kind of balance, that keeps on rebalancing as the factors contributing to it go on changing. Nothing remains the way it seems for very long in the human body. This ever-moving process of equalisation is called dynamic equilibrium. The balance could be in terms of a physical parameter, in the way we looked at temperature earlier. Or it could be concerned with the quantity of a component such as water in the body.

The most important component in the body is water, taking up almost sixty per cent of a person's total body weight. Present as fluid in the cells, outside of them and in the blood, water is important in the maintenance of the body's equilibrium. The absolute quantity of water at any given time in the body is not important, it is the concentration of it at specific points that matters.

It is the same with other chemical substances, whose concentrations are crucial to health. The figure shows a sketch of the system of

balance of any chemical in the body. The overall distribution of the chemical in the internal environment of the body is called the pool. The pathways to the left indicate the sources from which there could be a net gain in the body and those to the right show the sources of net loss.

The picture makes it clear that the input from the gastro-intestinal tract or through the respiratory tract could also be synthesised within the body. The loss could be through metabolic processing during which the substance gets converted into something entirely different, or it could be excreted out of the body through the lungs, the gastro-intestinal tract, the kidneys or the skin on the body surface. Each substance has its own specific pathway.



Balance diagram for the path taken by a chemical substance

(adapted from Human Physiology, the Mechanisms of Body Function, Vander et al, McGraw Hill International Editions, 1986)

You may have noticed how when you are tired, a cup of tea can immediately make you feel revived. The sugar in the tea or even in a sweet makes a change in the body's energy level. It seems obvious that sugar is an important component in our diet. It is involved in the process of providing the body with energy to function.

When speaking of sugar here we are talking about the chemical sugar, not only the crystal sugar that we put in tea. Sugar is also present in all foods that give a sweet taste. The chemical sugar that helps produce energy is synthesised in the body from these foods.

There cannot however be unlimited amounts of sugar present at any one time in the body. Once the sugar exceeds the body's own limit, the excess is either excreted or converted to other substances which are stored in the body in the form of fat. Thus the fat stored at various parts of our bodies is not only made up of the fat consumed directly as oil, ghee and so on, but is a product originating in the sugars and starches that we eat.

This sugar is extracted from the fat as and when required by the body. Sugar is only one example of a substance which could exist in the body's storage depots. There are many other such chemicals which go through similar continuous processes of intake and loss, both sides of which have to be in a balance.

The most significant aspect of this process is the dynamic character of the equilibrium that is constantly being sought by the system. Any input that body has to have must be in a sufficient quantity, and of a quality that would ensure a balance of all chemical components. How achievable this is for many of us, and to what extent these needs do get fulfilled, are questions that we will go into in the next chapters.

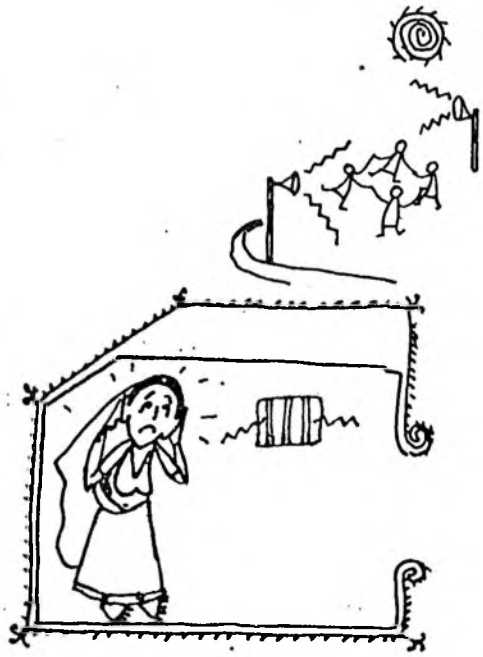
How do the parts communicate with each other?

We would now like to explore how this balance is achieved at the level of each cell, as well as for the whole complex multicellular human body. Obviously means of communication between cells have to be evolved. Cells placed at long distances from each other manage to function in coordination, for themselves, for each other and for the body as a whole. The two most important pathways for such contact are the nervous system and the hormones secreted by various glands in the body.

Human bodies are said to have a very evolved system of internal communication. This is attributed to the brain, the spinal cord and the nerves spreading from it to every part of the body. The credit for its efficient functioning usually goes to the brain. It is called the master of the body.

We have a problem with such representations, where one part of the body is portrayed as the master, leaving the rest of the body looking like a limp puppet in its control. This concept gives unnecessary importance to the role of the brain. More significantly, it undermines the mutual contributions made at every level within the body.

The nervous system including the brain works at two levels: it regulates body responses to external stimuli and it regulates internal mechanisms. There are endless examples of our responses to external stimuli. The skin--its ability to feel and touch, the nose the eyes, the ears, the tongue--all of these sensory organs play an important role in shaping our responses.



In a way, these senses are the body's medium of expression and communication with the external world. Every stimulus reported by the senses, be it a disgusting smell, a painful cut in the finger, a delicious taste in the mouth, a noisy environment or an enchanting sight, elicits a response from the body. In fact, identifying the stimulus as disgusting, delicious, noisy, enchanting or hurting is itself a response in accordance with which the whole body would react.

At this time, the nerve cells and the spinal cord communicate the message experienced by the receptor cells on the sensory organs to the brain. Reacting on the basis of past memory and experience, the brain sends back a signal through the spinal cord and the nerve cells to the body. This process is achieved by chemical exchanges between different cells.

The nature of the stimulus determines where the signal for any response or action would come from at this time. This is an active interplay of the whole body, responding participatively to the

stimulus. The widespread idea of the brain as master is an oversimplification which prevents us from understanding this.

Tastes change with circumstances

Another important aspect which tends to get lost in this understanding of the nervous system is the way in which stimuli are identified. There is individual variation in how people would identify any stimulus. The smell of frying fish could be disgusting for some and most attractive for some others. Certain music could be noise to some ears and a most fulfilling experience for others.

Such personal responses emerge from our memories and upbringing. There is no "normal" or "abnormal" here. These are totally subjective responses to stimuli, acquired through a process of exposure as we grow up.

Sometimes it is quite disturbing when people start judging others by their own typical tastes, and forming conclusions about those other people which are quite untrue. A characteristic example is the way vegetarians start seeing non-vegetarians as somehow immoral or prone to violence.

If this logic is taken further, one could convince oneself to think that killing such cruel people is perfectly justified! In fact something like this does take place when neighbours who have lived together for years start killing each other during a riot. People of one community are aroused against another group in such ways, on the basis of prejudices which actually represent their different upbringing and tastes.

Human beings also use the threads of common upbringing and tastes as a way of finding people with whom they can relate and identify. It is a source of strength and warmth in relationships. It is only when we use the fact of differentness to exclude others that we create problems.

However, tastes and preferences also change with experience. When a person comes to Bombay from a distant part of the country, she may come to know of a whole range of foods that she had never heard of before. Though she may not care for something like *pao-bhaji* or *vada-pao* at first, she may later develop a taste for these, and miss them if she leaves Bombay for a time.

There is another kind of individual change in a person's responses. It is the way the body gets used to being in an environment which is clearly not optimal for well-being. We see instances of this in Bombay life all the time. Have you seen how sitting in a fish market all day makes the vendors used to a smell which is too strong even

for daily fish eaters? Living on a busy road might make the person so used to the noise that she no longer feels disturbed by it. Constantly walking barefoot could lead to a situation where the person would not respond to sharp objects on a footpath in the same way as someone else, who is not used to it, may.

If one looks back, the body may have protested at first against the unpleasant situation with strong negative reactions. However if this is the adjustment a person has to make in order to get work, or a place to live, the body does make it.

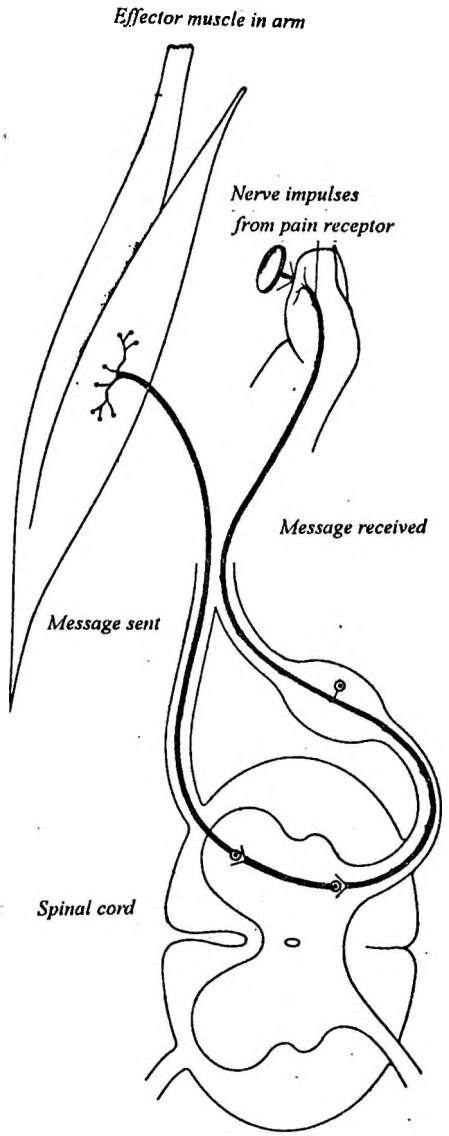
While accepting and acknowledging this subjectivity, we also have to realise that it is very difficult to ascertain or determine what "getting used to" something means. In extreme cases, it could mean permanent damage to the receptor cells of particular organs, resulting in failure to respond to situations which could be life-theatening. An example could be the deafness induced by working with heavy machinery--the same person could cross a road and not be aware of a truck that is about to run over him.

Most of the time "getting used to it" shows as individual variations within the limits of tolerance. A mother may be able to handle hot vessels with greater ease than her daughter. However, she will not allow her hand to get burnt, despite her ability to endure heat. Once again, we have to be clear that individual limits of tolerance are subjective, very much defined within the social context.

In most instances it is also very difficult to distinguish whether the body has "got used to" something, or if there is a change in the nature and character of the body, at the level of the receptor cells. In the absence of being able to make this distinction it is important to remember that our response to external stimuli is not just in the form of chemical exchanges, but also our own historicity and subjectivity.

Secret messages on unseen pathways

We must also look at the other aspect of the nervous system--the internal message communicated across the body in the attempt to keep the organism functioning with a stable internal environment. Here each cell contributes in initiating, receiving and acting on signals that actually make the whole central nervous system work. It is this co-operative effect on the part of the whole body that is significant. It is also important to know that a feedback system functions within the body. Certain changes in some part of the body initiate processes elsewhere which in turn further accentuate or extend the initial process.



(adapted from Oxford Illustrated Encyclopedia, Vol. 2, The Natural World, Oxford University Press, 1985)

Hormones are specific chemicals produced by certain glands in the body. These are released directly into the bloodstream and are carried by the blood to all parts of the body. An important aspect of these chemicals is that they are produced by glands which may be located in one part of the body, but act on organs placed at some distance. Every hormone initiates certain processes, each of them have different life cycles, actions and sites of action.

The feedback mechanism reflects the active participation of the entire body in regulation and control within the body as a whole. Be it the control exerted by the nervous system, or the control achieved chemically by the secretion of hormones, the feedback mechanism is also significant in its control over production and action of hormones.

The feedback or signal could return to the brain because of the concentration of some other hormone at a particular spot, or it could come because of the stimulus from a nerve cell or because of some other chemical balances. Usually it is a stimulus of some such kind that starts or stops the production and action of the hormone. A very interesting example of hormone production and its regulation by varying concentrations of other hormones is the menstrual cycle.

The rhythm of fertility and its control

Every woman's body produces an egg during each menstrual cycle. The cycle itself is the preparation for growth and nurturance of the egg in case the egg is fertilised. In fact, menstruation signals the end of one cycle which has ended without conception, and the beginning of yet another series of preparations.

Ask the women in your group to keep a record of their cycle for four months. This will allow the group to study the length of about three consecutive cycles. Take down everyone's dates on one sheet of paper to see the range and variability within the group.

Every time we have done this exercise, we have found that most women would have been having a regular cycle, except when they may have had some variation due to emotional stress, tension, fasting, illness or some such immediate causes.

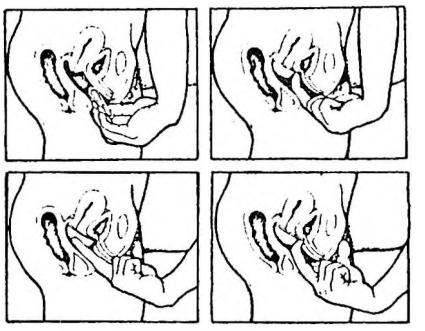
Some women will even boast about how regular they are, naming a date or a phase of the moon. This means that each woman would have almost a fixed number of days in which her cycle is completed. There is no ideal or standard length for the cycle. As long as the

periodicity is more or less maintained, the woman can be said to have a regular cycle.

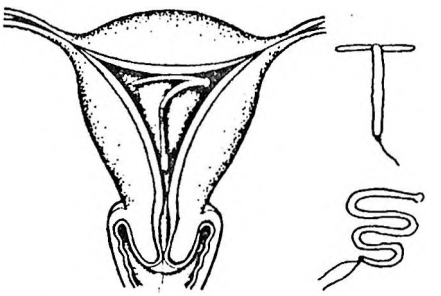
Obviously specific mechanisms enabling us to maintain this periodicity and regularity exist. This is achieved through hormones produced by the hypothalamus (a part of the brain), the pituitary gland (a gland attached to the brain) and the ovaries themselves.

It is vital to look at this whole delicate system in detail for one more reason that has important implications for women, that is, family planning. In the last few years certain contraceptives, working mainly on the principle of intervening in this cyclical balanced system, have been introduced on a large scale. While traditional contraception used some device to block the path of the male sperm to the woman's egg, such as the condom, these new methods rely on chemicals which are either taken as pills or are injected or implanted within the body.

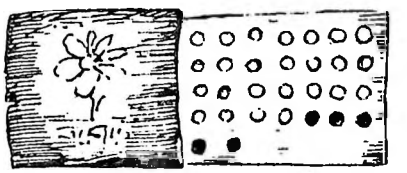
Many new long acting methods, with effects lasting from 3-6 months to 5 years are recently becoming available in public hospitals and clinics. These contraceptives, aimed at women mainly, are totally under the control of the providers, and once the chemical has been introduced into her body, the user can do very little to stop the effects. One has to be very careful not to be persuaded to take something which has long lasting side effects, or to recommend it to others. Often, the person providing the drug only mentions menstrual disturbance as a side effect and the user remains ignorant of cases of severe damage to the health of women using some of these drugs. To be able to appreciate the extent of damage that such methods could induce, let us go over the operation of the hormone cycle.



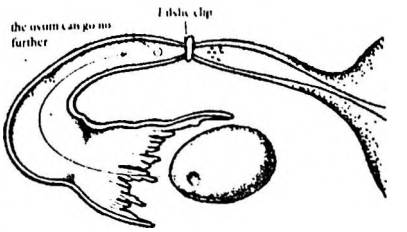
BARRIER METHOD -- diaphragm



INTRAUTERINE DEVICE -- Copper T



HORMONAL METHOD -- pill



TERMINAL METHOD -- tubectomy

How does the hormone cycle operate?

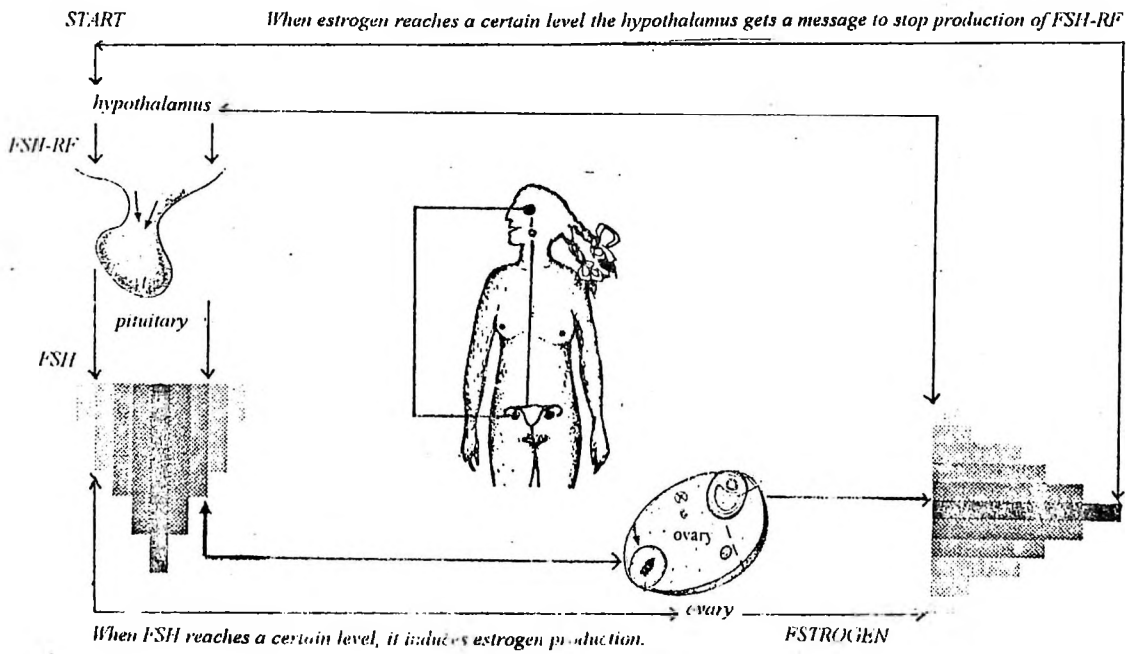
Let us begin just after menstruation takes place. The concentrations of all hormones related to the cycle are at a minimum at this time. This is an indication for the hypothalamus to release a hormone FSH-RF whose task is to stimulate the pituitary to start secretion of the hormone FSH. Once a certain concentration of FSH-RF is present in the blood, the pituitary gland starts production of FSH.

Increasing concentration of FSH gives two signals to the ovaries. One is to start the process of maturing the follicles and the other is to produce another hormone, estrogen. Estrogen mainly helps the follicles to mature further and release a egg while also preparing the uterus lining for embedding of the embryo if fertilisation were to take place. Rising concentration of estrogen in the blood gives a signal to the hypothalamus to stop FSH-RF production. This is the negative feedback mechanism.

The stoppage of FSH-RF production results in a reduced concentration of FSH-RF. Low concentration of FSH-RF means that the pituitary ceases to receive a signal to produce FSH. Reduced FSH concentration stops production of estrogen in the ovary.

Thus these two hormones, FSH and estrogen balance each other's production and presence in the blood by interacting with each other. We are calling it a negative feedback because rise of concentration of one gives a signal for the production of the other to begin, but the rise in concentration of the other gives a signal for stopping the production of the first.

The cycle does not end with the actions of these three hormones. As FSH-RF concentration decreases the hypothalamus starts producing another hormone, LH-RF which also primarily acts on the pituitary, beginning production of LH. LH helps in bringing the process of maturing a follicle in the ovary to completion till the release of the egg.



A similar negative feedback system operates between LH-RF, LH and progesterone

(Based on drawing by Puja Mohanty, in Prajanan, Chayanika, Swatija, Kanavi, 1993)

The follicle left behind after the egg has left the ovary starts producing another hormone called progesterone. The main action

of progesterone is on the uterus. It helps the uterus lining to develop and prepare for the embryo, in case the released egg gets fertilised.

The progesterone also has another vital task, to give a negative feedback signal to the hypothalamus to stop production of LH-RF. If the egg does not get fertilised, there are no other signals and as the feedback stops progesterone production, the fresh lining is shed away as in the form of menstruation.

This types of feedback mechanisms are dependent on a range of variable factors. What then are the norms according to which we decide when the body is not functioning properly? One method used to determine normalcy in biological functioning can be the calculation of the average of many persons' responses. Behaviour which moves away from these averages can be said to be abnormal. Another way is to list certain basic criteria to determine normalcy, based on the study of many persons both healthy and ill.

Upsetting the imbalance to create balance

However the "normal" functioning of a body takes place in a variety of situations. It is also something that varies from person to person. The nutritional and environmental conditions are different for each of us, in quantity and quality. The amount of emotional support and psychological security differs in every family. The opportunities to explore one's own potential and to fulfil one's desires may be available to some and completely absent from the lives of others. Social and cultural factors may put a number of restrictions on some people's existence--and yet most people's bodies function and behave "normally". And within the many and varied circumstances that we live in, the human body performs the same basic tasks, reproduces and sustains life.

Internally, the body tries its best to adapt itself to a host of unexpected situations. It could be initiating processes that would upset an imbalance and thus create a balance. It could be making responses which would force us to take certain actions consciously, to meet the body's need at that particular moment of time. A prolonged exposure to some kind of difficult environment could lead to a permanent change in the basic structure of the body so that its smooth functioning is retained. There could be temporary and immediate ways of relieving the body of build-ups of stress.

We can see examples of this happening to our bodies all the time. It is just that most of these actions are so involuntary and the body is so used to responding specifically to particular situations, that we do not recognise this as a process of adaptation adopted by it.

In winter we wear more insulated clothing compared to summer This is an active and conscious act to protect our bodies. But the body itself has its own mechanisms to deal with fluctuations in external temperature. Because the body expends more energy to maintain internal temperature at that time, the requirement of food goes up. At the same time heat loss is minimised by constricting the pores of the skin. This is why, though we feel more hungry, we are less thirsty in winter.

On the other hand in summer, especially in dry climates, there is a constant feeling of thirst and we have a comparatively high intake of water and fluids. At this time there is a lot of heat loss through sweating, and evaporation of water from the skin pores. This helps to keep the body cool, and an increased thirst helps maintain the internal balance of water.

As we said earlier, the body has a certain rhythm and pace at which it needs its essential inputs and rest. If the person's work is such that this rhythm is constantly broken, the body finds ways to adapt to it.

Within the family, one must also be sensitive to the tension created by forcing certain habits and adaptations on others. When frustrated parents forcibly feed children large amounts at mealtimes, and scold them for wanting snacks in between, they may be unwittingly interfering with the children's own body requirements and rhythm. The children may require to eat small amounts throughout the day, and their unwillingness to eat big meals like adults, may be reflecting their inability to adapt to the adult rhythm.

One common response learned early in life by the body is the ability to control the urge to defecate until a suitable place is found. The necessary muscular control is retained all through the years from infancy to adulthood. It is another example of the body's adaptation to social existence, especially in surroundings like metropolitan cities, which do not have open spaces for these functions. Similarly the body adapts to long hours of work during which it receives no food. Or the body learns to make do with the minimum rest possible.

Actually, all our responses, of hunger, thirst, feeling hot or cold, sleepiness, pain are all ways by which body demands some action which would help to restore the imbalance created in the body at that moment of time. In that sense, it is a means of adaptation of the body to a changed internal equilibrium and balance--this change itself occurring as a result of activity on part of the body or changed external conditions.

Some common responses of the body to restore balance

Hunger

Hunger often gives rise to drowsiness. This is a temporary coping mechanism by which minimum energy loss takes place at a time until the next meal. All the energy that is available is utilised sparingly by the body till fresh nutrition arrives.

Pain and pressure

In case the body or any part of it is exposed to some pressure, which could represent danger, there is a response of pain which helps us to realise that something needs to be done to alter the situation. We immediately realise that we have to move ourselves or change our posture. Thus pain is also a response that helps the body to respond in a way that allows it to continue normal functioning. It is a manifestation of the process of adaption.

Feeling dull

We yawn in a variety of situations--be it boredom, tiredness, hunger, sleepiness. Yawning involves taking in a deep breath and with it a generous supply of oxygen. The body goes on doing this till it gets the required food or rest or relief from the boring activity because of which it had started switching off and feeling lethargic. Yawning is usually a response to a situation where for various reasons, the body needs an extra supply of oxygen to get revitalised and activated. More than average work needs to be done in these particular situations. So the body responds by asking for more oxygen until the cause of its dullness is attended to.

Blood clotting

When blood vessels are broken, clotting of blood is another temporary response to check unlimited blood loss. A chemical which helps the blood to form clots is produced, stopping the draining out of blood from the point where the blood vessels have been cut.

Indigestion

In a sense this is a method of adapting to harmful situations arising in the body. When there is some kind of indigestion or upset in the bowels, the body responds with a poor appetite, and the person expresses no urge to eat despite hunger. This allows the bowels to rest and recover.

In Bombay, we live in an extremely crowded and fast moving environment. This affects our overall senses and alertness. This situation is bound to change some of our faculties, and make them more active. Otherwise people would not be able to cope with the pace of the life here. Without such adaptations it would be impossible to travel everyday for hours in packed trains, and to be able to sleep, rest, and even relax in them. Or to spend a lifetime sharing an 8 by 10 room with five to six other persons. Or to live one's life matched to a rhythm set by water timings, work timings, and school timings.

In the end we would, however, like to state that adaptation also has a limit. Its possibilities are dependent on the environment in which one is living, and on its allowing the body to adapt. Again is it possible to determine a conducive environment as against a harmful one?

Social practices and norms have already put limitations on the body's ability to adapt. As women we know that it is not possible to get all the nutrition we need when we are eating the leftovers of the menfolk. Is it possible to glow with health while coping with the mental tensions and nagging sense of fear experienced by us at all times? Yet, the fact that our internal environment is in constant interaction with the external environment makes it necessary to talk about it, and the efforts to make it healthier for more people. This is the theme of the next chapter.

Chapter IV

OUR BODIES AND THE CITY ENVIRONMENT

During our lifetimes, our bodies have to adapt to many changes in the external physical and social environment. We may be born in one situation, then our parents move, and we grow up elsewhere. Later, we may find work, or a married home in some completely different environment, and later in life too, we may continue to migrate. Even if we remain at the place where we were born, it could happen that the environment there changes beyond recognition over the years.

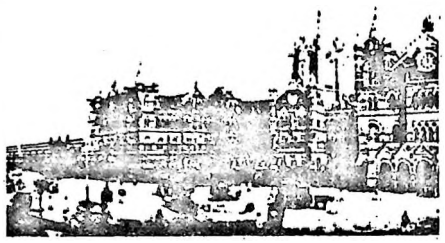
Our bodies have to make all kinds of efforts to adapt to such modifications in the external environment. At the same time it is also true that there is a limit to the capacity for such adaptations.

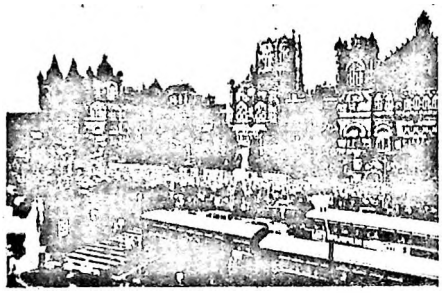
Once again we would like to look at Sarala's story. Sarala had been brought up in a village where the way of life made certain specific physical demands. Walking long distances, fetching water, fuel and fodder every day, she had been used to a certain pattern of living.

Today everything--even Sarala's style of dressing, has changed. She does walk a lot even now, but the distances are not the same, and she is unused to carrying heavy loads. At the same time she is able to do many things, like managing to get in and out of trains during the rush hour, that she could have never imagined possible when she first came to Bombay.

Lately Sarala has been feeling that the demands of the city on her body are becoming more and more difficult to meet. The crowds, the nagging tensions, the increasing violence and insecurity as well as her advancing age are all putting a strain on her. Even simple tasks like filling up the water for the house, going to the toilet, crossing roads, getting in and out of buses and trains, have begun to require conscious effort.

Over the past two hundred years there have been many changes in the environment of the area covered by the city. A quiet corner of India made up of seven small islands, where a handful of village people lived mostly on fishing and farming, grew to become the industrial and trading metropolis that we know today. Over the years, the pace of change has kept increasing steadily. One of the biggest periods of growth in both the population and physical size of the city has taken place during our own lifetimes.





The scene outside Victoria Terminus station, Bombay, a century ago and at present

If one studies the last hundred years alone, industrial locations, traditionally placed outside the elite areas of the city have continuously shifted outwards. In their peak periods, each of these have been pockets of intense activity. Even in our own times, we can remember the crowds at railway stations near the textile mills, such as Elphinstone Road and Currey Road, during shift change hours.

As the city kept spreading, the residents had to be mobile. Unlike other Indian cities, an efficient and easily accessible transport system came into being here in Bombay. Of course with it also came the hazards of movement of heavy vehicles and human beings.

To add to this is the necessity of transporting vast amount of goods and materials. In addition to the trains and buses, there are over 4,00,000 heavy and light vehicles plying on the streets of Bombay. With the movement of so many vehicles and human beings on the roads, came the resultant hazards of traffic and pollution.

These are some figures about urban basic services which reflect the conditions of life of the urban poor:

- *40% of urban residents in India live in just one room.*
- *75% of the one room tenements in India have no windows.*
- *27% do not have access to drinking water and the 73% who do, do not have access to a safe water supply.*

(Figures courtesy UNICEF, 1989)

The call of the city

With such a large number of people coming to the city, looking for work, housing has always been a major problem. Cross-ventilation, sufficient light, good sanitation, clean water, open spaces are only suggestions for good living restricted to text books. Getting even a space to live in is a struggle of a lifetime for most.

Within the available space arrangements are made for as many as possible. Pavements are used to build houses. Scrap materials become walls and roofs. New marshy lands are reclaimed and areas considered unfit for human occupation become homes of large numbers of people.

Behrampada in Bandra East is a *basti* settled during the last fifty years. Initially the area was a marsh that was filled up with soil by the early settlers themselves. Today some builders see the area as being suitable for developing as a commercial centre. This has created undue stress on this predominantly Muslim basti made up mainly of artisans engaged in traditional crafts, and piece-rated hand work. They feel that it is they who developed the area and will not hand it over. All kinds of pressures are being put on the residents to move out. Many have been living here for decades and cannot afford to go elsewhere. In a communally charged atmosphere all kinds of criminal charges are being levelled against the locality people to frighten them into leaving.

At the same time that such attacks are made, the vast expanse of the city also provides spaces for all those who are shunned by society. For example, leprosy patients undergoing treatment and recovering from the effects of the disease have often been seen to be living together in self-organised bastis. At other places eunuchs are seen living similarly. Such spaces are carved out of the anonymity that such a large city offers. They do not emerge from a generosity and liberal outlook on the part of the other citizens of Bombay.

Who are your neighbours in the basti?

Despite migration from every part of the country there is a lot of segregated living in the city. Where we might expect completely mixed localities we find that the ghettoisation of particular castes and communities continues. It can be seen in the form of lanes and clusters inhabited by particular castes in the bastis. Entire buildings are reserved for particular communities in the Housing Board colonies. Entire areas like Kasaiwada and Meghnagar are so named because of the particular community living there.

You could do a survey to establish the correlation between regional or caste identity and the choice of residence in a particular basti. You can do it by asking questions like the following of the adults in the families:

- *What is the occupation of different members in the family?*
- *When did they come to Bombay?*
- *What is their religion/caste?*
- *What was the occupation of their parents and where do they live?*
- *How long have they been living in that area?*
- *How did they come to know of the availability of the house?*
- *In whose name is the house?*
- *In case the person is a married woman, where and how far is her natal family?*

Such studies of the whole settlement make us conscious of the continuous process of change that goes on whether we are aware of it or not. This is especially important if we wish to bring about some further changes to improve living conditions. Collecting such facts about a basti helps us also in looking at it in connection with the rest of the world around us. This again is important, for changes in the basti are very much linked to changes outside of it. It is always helpful and necessary to have a wider perspective without losing sight of the small basti that one is working in.

Similarly, you can build a picture of the historical development of the locality. If there are some persons who have been living in the same area for many years, you could ask them questions such as these to build up a history of the basti:

- *When did the first settlers come into that area?*
- *What do they remember of the landscape then?*
- *Who were the first people to come?*

- *What kind of work did they do?*
- *Does the area have a mixed population in terms of religion and language?*
- *Has it always been so? What could be the reasons for change if any?*

These kinds of surveys also help us to develop an understanding about the individuals in the community with whom we have to work. It also helps build rapport and make space for more meaningful responses to the community's needs. For example, some of the people from the basti would have retained their original professions, but many would have changed their occupations over the years. By talking to them we could know more about the acceptance of these changes, of the adaptation to city life or the willingness to respond to changed external situations.

You could do another survey based on specific questions exploring changed external conditions with the people in your community. Knowing their perceptions of these specific conditions, peculiar to urban existence, could be a guide to us as health workers. You could ask:

- *What kind of drainage system does the basti have?*
- *What is the garbage disposal mechanism?*
- *Is there a nalah flowing through the community or near it?*
- *Is the basti located near the railway tracks or a running main road or highway?*
- *Is the area situated in an industrial belt of the city?*
- *If yes what are the kinds of industries there?*
- *Do they emit substances which could affect the health of the community?*
- *If so, can the residents do something about it?*

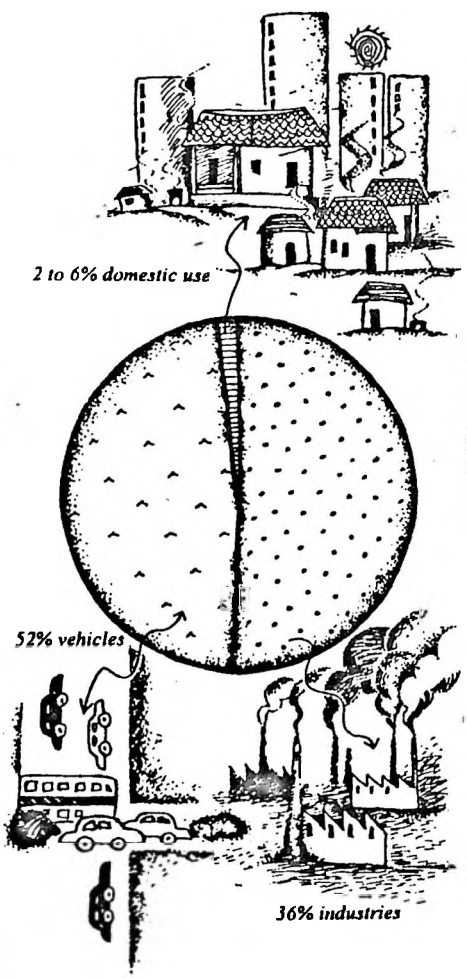
The processes which led to the present-day inequity between rural and urban areas have been taking place over a long period of time. The evolution of the city itself has been at the expense of the rural communities surrounding it. With changing industrial patterns

causing changes in agriculture, the exploitation of natural resources in the rural areas is becoming increasingly evident. The city does offer jobs and opportunities and even a cash income to a large population, but it is totally dependent on the countryside for its survival.

Both industrialisation and urbanisation lead to unprecedented interventions in natural processes. Unplanned growth of industries and the proliferation of polluting production processes have ravaged the city's environment. One indicator of such destruction is the quality and quantity of air that is available. The accessible air in the city is not conducive to a healthy life. This is experienced by every individual in the city whether rich or poor.

How good is the air that we breathe?

Not only do polluting industrial processes affect the balance of nature and the environment drastically, but they are also responsible for the growing disparity in the distribution of the natural resources. Most of us think of air as something freely available in limitless quantities. However good air is as scarce and as precious as water.



Most people are forced to live and work in cramped conditions. Due to this, they may develop health problems stemming from an insufficient supply of the life sustaining gas, oxygen. This, however, is just one aspect. Much of the air that reaches the lungs is a kind of "exhausted" air, not only lacking in oxygen but also full of dangerous pollutants.

How is the total amount of oxygen available in the atmosphere shared by different users in Bombay?

- *2--6% goes for domestic use*
- *36% is used by industries*
- *And an amazing 52% is consumed by vehicles!*

About 2971 metric tonnes of pollutants are released into the air of Bombay every single day.
(Figures courtesy Dr. S. R. Kamath).

What these chemicals can do to the living organism is reflected in the statistics related to the health status of citizens. Below are national figures for some of the diseases that are very much related to the

quality of the environment in which we exist. It is evident that there is no consistent decline in the morbidity or mortality of the population as a whole.

Diseases	*1987*	*1988*	*1990*
1. Tuberculosis			
No. of cases	*8,90,000*	*10,75,000*	*11,32,000*
Deaths	*9,375*	*10,698*	*9,308*
2. Acute diarrhoeal diseases			
No. of cases	*1,00,80,000*	*82,61,000*	*95,80,000*
Deaths	*6,730*	*7,290*	*8,633*
3. Asthma and bronchitis			
Deaths	*1,558*	*2,097*	*1,885*
4. Heart attack			
Deaths	*886*	*1,261*	*1,236*

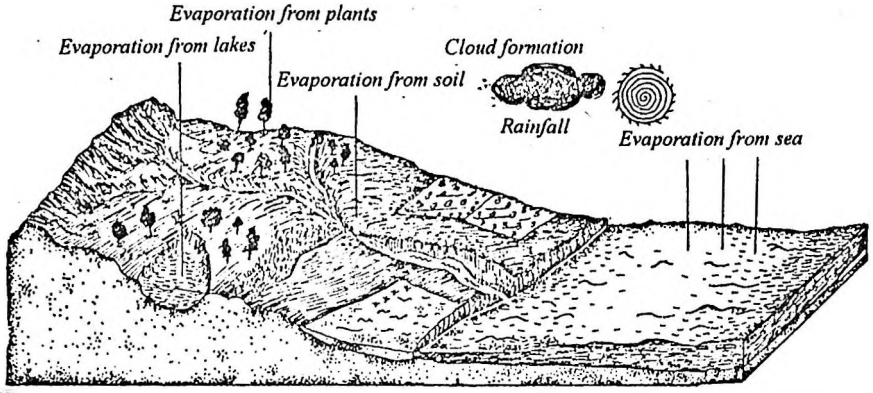
(Source: Health Information India, Central Bureau of Health Intelligence, Ministry of Health and Family Welfare, Govt. of India, 1988, '89, '91)

What about the water we use?

The other important natural resource is water. Most of our water supply is collected from rivers and water sources outside the city, and piped in. A major portion of Bombay's water supply comes from the Vaitarna dam. While this dam gives us plenty of water, its existence has created summertime droughts in the villages near it. At the same time that we wish for greater amounts of water for the city, it is also important to see what the city's demands do to the localities from which the water is being drawn.

A large part of Bombay's water is supplied to industries. Many industries are also responsible for polluting the local water resources. There is very little flowing water here, so pollutants do not get washed away but accumulate in the soil, and come into contact with the underground stores of water. You may have seen Municipal notices on old wells warning about possible pollution of the water. These accumulated pollutants affect plants and marine life as well. The scale of the unthinking demand put on natural resources in a city like Bombay disrupts natural balances in unprecedented ways.

The water supplied for domestic use is distributed in a most inequitable manner. For most of us, this unfair distribution is represented by the tap timings of the Municipal water supply. Women, who are inevitably the ones responsible for the running of the household and hence also for the water supply, find their lives and schedules being entirely determined by the water supply hours.



The Water Cycle

(based on Samajik Adhyayan, M. P. Pathyapustak Nigam)

At the same time there are areas where the residents not only receive running water for twenty four hours, but they have so much of it that certain buildings can afford to use water to fill swimming pools. At the same time, a large part of the city's population do not even have shelter and they live on the pavements. They get no water or toilet facilities whatsoever.

The search for work is an important activity in people's lives. To be able to earn a living in the city, it is assumed that people have to be ready to give up even the basic necessities such as clean air and water. For a majority in the same city, the pavement dwellers are considered almost subhuman. They are held responsible for the changing face of the city and its problems, be it crowded trains, rising crime or poverty. Everything is traced to these latest immigrants, who are also the poorest.

The Municipal Water Supply of Bombay

Each ward of the Bombay Municipal Corporation receives a direct water supply for three hours every day. Since water is a resource for which we pay, the amount of water reaching each household is more or less determined by its paying capacity. The same main feeder pipe carries the water for the whole city. Branches lead off from this main feeder to reach right into residential complexes. The amount of water that would reach a particular outlet point would therefore depend on the dimensions of the connecting pipes.

There is apparently a well worked out system for determining the dimensions of these pipes. For a building with middle or upper class residential flats, the amount of required water is calculated keeping in mind the total number of flats, their area and the number of people per flat.

The size of the supply pipe is then determined by considering the distance of the building from the main feeder and the pressure of water at the branching off the point in the main feeder. Most middle or upper class housing complexes are able to invest in their own overhead storage and pumping facilities, providing a twenty four hour supply to each flat.

The rule for obtaining a water connection in a low income area or settled slum is more straightforward. The procedure assumes a low paying capacity and thus less water is offered by putting in pipes of reduced dimensions. In this case a group of fifteen neighbouring households have to apply together. They are entitled to one tap between all of them, whatever the number of residents. They get this water for a continuous period of three hours daily.

Since they are obviously a low income group, they have no option of building automatic storage systems. Each household has to store its own requirements for the day within that stipulated time. The tap timing could be any three hours during the day without regard for the user's convenience.

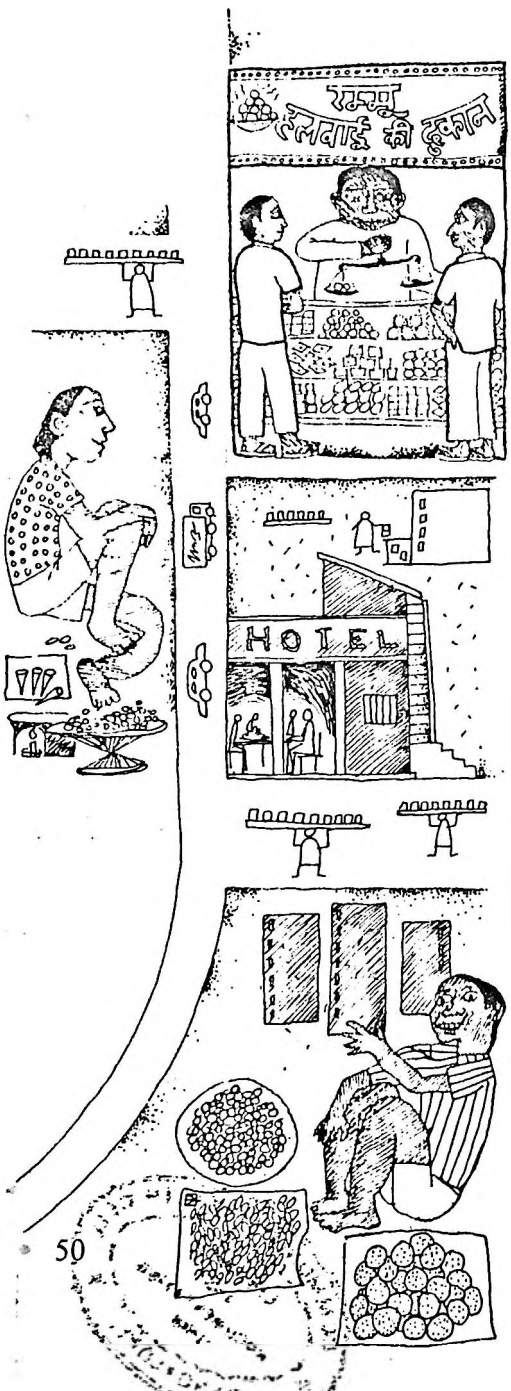
It would seem that even with a basic requirement of life like water, the paying customers get all the advantages and gratification.

Disparity is very much a part of the city. In fact if we look back, unequal distribution of water was supported by the caste system in traditional Indian society. The oppressed castes were allotted separate wells, usually the ones that were not abundant in water and necessarily far away from the village itself. The disparity continues in the city, only now the "caste" is defined differently.

And there is the matter of two square meals

This is how water, an essential input for the body and equally important for maintaining hygiene and cleanliness, becomes a rare commodity. There are similar problems with the other major input to the human body, that is food. These relate to the amounts as well as the quality of the foods that are available for different sections and people. Good, wholesome food at affordable prices is again a rarity.

In this particular sphere, things seem to be getting more difficult with every passing year. With the public distribution system becoming increasingly irregular and open market food prices soaring, it becomes more and more difficult to provide the required nutrition to the family. Often, what appears to be reasonably priced turns out to be adulterated, not giving the apparent food value and at the same time having harmful effects.



As we have seen in the earlier chapters, it is important for the body to have a balance of all nutrients. If it does not, it continues to function but at less than peak condition. Such is the situation for many urban dwellers today.

The question acquires new dimensions in the matter of food, because there are many cultural and social values attached here. Though we live in a cosmopolitan city, people from different regions retain their own tastes. For example while hot, spicy food is preferred by many, the type of chillies used are specific to the region of origin. At the same time, with the stresses of city living telling on their health, many people have given up taking as spicy a diet as they may have indulged in at home.

There is also a growing variety of typical city foods, often a blend of different tastes. A Bombay favourite is *vada pav*. Filling and cheap, people prefer such foods even if they are aware of the amounts of baking soda in it, and the digestion problems due to the oil. It is a food that can substitute for a proper meal with minimum expense, and so it is popular.

Bombay has a long tradition of eating places run by women from their homes, called *khanawals*. They cater to single men living in conditions where cooking is a problem. They provide home-like food at minimum expense to the customers, and give the housewife caterer an additional income. Perhaps many other solutions to common problems, which benefit both the provider and user can be invented by those who work in the community.

In many communities there have been successful struggles initiated by women's groups for proper grain supply at the ration shops. In recent years it would appear the government policies supporting fair priced food distribution are gradually being withdrawn. It becomes the responsibility of the residents of an area to see to it that the public distribution system works. It is they who have to watch against adulteration and exploitative price fixing by the shopkeepers.

Another problem that has come up in recent times, is the proliferation of junk foods which have no food value. These are widely advertised, and children and adolescents are especially vulnerable to their allure. As people who are more aware of health than others, health workers should work against the growing popularity of such products at the level of community culture. These snacks also take away a large chunk of the family's already limited food budget. And after the struggle to provide a proper meal, mothers find that children do not have an appetite because they have filled up on junk foods beforehand.

What can we give growing children whose hunger between meals is no doubt genuine? Greens of any kind eaten raw or with just a bit

of cooking are a good source of nutrition, also providing the roughage that the body needs. During seasons when they are cheap one should try and eat more of them. Another such group of foods are sprouts, easily grown at home, and a good source of proteins even if eaten raw. Then there are other inexpensive snacks such as *ber*, groundnuts and sugar cane. You can probably think of several such cheap food items with good nutritional value.

Solutions have also to be worked out at the community level. In many middle class housing societies, people make their monthly food purchases together, to get the maximum concession possible on the bulk of their collective order. Many work places have cooperative societies for this purpose. Is it possible to find some such solutions in the communities that you work in?

Getting rid of the body's wastes

The other major problem in the city is that of sanitation, more specifically of the availability of toilets. Lack of sufficient and proper facilities leads to many problems, not only for individuals but also for the health of the whole community. Constipation as well as frequent loose motions are both chronic problems for many people in the city. They emerge out of a lack of suitable toilet facilities.

- *72% of the total urban population in India do not have access to sanitation.*
- *80% do not have private latrines.*
- *66% of public toilets remain water logged.*

(Figures courtesy UNICEF, 1989.)

This is the situation in officially recognised slums. There are a large number of people who do not come under this category and so do not even figure in such statistics. As a result of this state of affairs, any open and shielded ground is used for defecation. The long tracks of the suburban railways are a common accessible place. Women however, have a special problem. They have to use these public places under the cover of darkness, and so have to adjust their timings accordingly. Late night or early morning is also a time when the trains are not so frequent or crowded, allowing for some shelter from public gaze.

Sakubai works in five houses, doing the floors and washing vessels and clothes. Of these however, there is only one house where she is allowed to use the toilet. Sakubai plans her day in a such a way that she reaches that house in the middle of the day, though this means walking longer distances.

Meena works in the packaging department of a pharmaceutical company. Although there are twenty women working there, no toilet facilities are provided. Of her thirty minute lunch break, she spends about fifteen minutes to go to a nauseating overused toilet in another factory, awaiting her turn in the queue.

Manju sells pins and *bindi*s in the local train. She keeps jumping in and out of trains all day. Her prime concern is dodging the police and getting into trains without changing platforms. In this process she never gets to reach a toilet. Some time late in the night when the trains are empty she relieves herself in the coach. She does not like dirtying the compartment, but does she have an alternative?

Shamshad, an I.I.T. graduate appeared for a job interview. Off the record she was told that her name had been taken to be that of a man, and had they known otherwise, she would not have been called. The company did not have any women on their rolls and their excuse for not hiring a qualified woman was that they would have to construct separate toilets for women.

Suppression of the urge to urinate is the cause of a large number of ailments in women. Women's groups have made demands for special additional toilets for women at all railway stations for these reasons. In the situations that we have narrated, the circumstances that a person is placed in dictates the natural urges of that person. Any solution to all these problems can only come from efforts taken by the community as a whole. Sulabh Shouchalaya is an example of the use of an alternative management strategy for public toilets that seems to be working well.

Take a survey for yourself, making notes of your observations in a notebook.

- *What are the common health problems of people in your basti? How many of these can you see as emerging from unhealthy living conditions?*
- *Have you observed any special problems of women apart from those related to reproduction?*

- *Is it possible to introduce some changes through cooperative efforts by the community?*
- *Can you see discriminatory practices affecting individuals within households? Can anything be done about it?*

This study cannot be done quickly. It is something that you will have to keep working on as you go about your daily tasks.

When we are talking about bringing about good health, it is important to not get disheartened by the distressing magnitude of the situation. It is important to act in whatever way possible individually and as a community. Such actions can help people to gain the strength to survive in the grim circumstances of the city. At such times it is also strengthening to know that the body itself has its own adapting mechanisms with which it tries to survive in as healthy a way as is possible. This adaptation of course has its limits, and it is part of our work as health workers and as individuals to aid the body by giving it more space and less strain.

Can something be done about the workplace?

One important objective which attracts people to this city is work. Bombay does provide earning possibilities to most of its immigrants. The industries and the allied services, as well as the fact that there are some persons with a large purchasing power, have made the city into a centre for consumer goods and trade. People survive here doing all kinds of tasks.

Working in the industries and other occupations creates strenuous situations for the persons involved. It could be the timing of shift duties which disrupt the biological c'ock and rhythm of the person, or it could be the travelling in the crowded trains and buses and the stress due to it. Besides of course there is the noise and pollution that surrounds us wherever we go in this city. There is also a great deal of stress caused by the effort to maintain all the various schedules in situations that are many times not in our control.

In the industries where workers are supposedly working for heavy salaries, many suffer losses in their vision, hearing, and sense of smell in the strenuous working conditions. By the time they retire they suffer from chronic ailments and weakened bodies, old before their time. Insufficient regard for safety precautions and uncaring attitude of management towards workers leads to many accidents, and often such incidents do not even come out into the open.

Health workers should make it a point to learn about the compensations available in case of accidents related to the workplace.

It is not as if the law or the legal proceedings would always be in the favour of the worker but it is important to be aware of one's legal rights, however limited they are. There are a number of individuals and organisations who work in the area of occupational health and we have given a list of these at the end of the book.

More vital for a healthy work environment is the creation of situations where the risks are minimised and occupational hazards with long term effects on health are prevented. This consciousness amongst all people including workers is on the rise today.

Building such awareness has not been an easy task. In the past workers would often reject the demands of trade unions for environmental safeguards, special safety equipment and protective clothing. Their argument was that if management was willing to spend on these, then the same money could be converted into extra allowances which could be added to their salaries.

The management would also be happy to avoid the extra work involved in instituting the changes, and things would continue as before. It was also felt that it was somehow unmanly to wear earplugs, gloves or face masks when people had been working for years without such protection. Even if such devices were provided, they were not used on grounds of discomfort in an already overheated and uncomfortable situation.

Increasing awareness about occupational health hazards has had far reaching consequences. In the same factories where workers demanded risk allowances about ten years ago, today they insist on protection and demand changing of production processes to minimise risks..

In these situations it is also important to remember that often medical experts are as unaware of the hazardous effects of certain industrial processes as the public. This was starkly brought to light in the Bhopal gas disaster at the Union Carbide plant in 1984. Not only did the disaster claim thousands of lives when it took place, there are thousands of survivors still alive today whose lives are completely ruined. The experts were at loss to provide relief and explain what had taken place because they had no knowledge of the chemicals involved. It is thus vital that the individual persons themselves acquire as much knowledge as is possible both for monitoring of their work environment and for taking preventive measures.

While some provisions are provided for the workers in the organised sector who work in industries covered by regulations there are a large number who work in sectors that are not under the umbrella of such regulations. Most conspicuous among these are the rising

numbers of women who sit at home and work on a piece rate basis for contractors.

The jobs offered to women have always been underpaid and highly discriminatory. Women have been working in the service sectors as telephone operators and nurses or in the pharmaceutical and electronics industries at backbreaking, routine, monotonous jobs. The shift duties in these places disrupt the possibilities of a normal life for these women who are already carrying a double burden of the wage work and the housework.

In the rural areas, women form 27% of the work force involved in agriculture, forestry, horticulture and related activities.

Compared to this, just 13% of workers in the organised sector in the urban areas are women

(Figures courtesy Census of India, 1991.)

It has been observed that professionals like nurses sometimes develop a kind of paralysis of the mind because of frequently having to work extra shifts, constantly on their feet, without adequate sleep.

The most common job for women in the pharmaceutical industry is packing. Both sitting for hours at a time and carrying loads lead to severe backaches and other problems like menstrual disturbances and white discharge. The exposure to drugs while doing tasks like filling of capsules can have other dreadful effects not only on the woman herself but also on the offspring that she may have in future. And yet these are the tasks that women are offered.

In 1991, the International Labour Organisation put together a number of studies carried out in different parts of the world and concluded that the majority of workers in all parts of the world were women, and they received much lower wages than men doing comparable tasks. Most of these workers had no access to social security benefits. Though some countries did have social security schemes, most home based workers did not avail of them. The ILO also noted that the home based workers as a group worked for longer hours and were more exposed to health and safety problems. They performed both domestic and paid work throughout the day and were always alert to the pace and quality of work for fear of rejection.

A study based on interviews of home based workers in the slums of Bombay has startling revelations. This study has found that backaches

and body aches, loss of vision, migraines, respiratory problems, excessive white discharge, urinary tract infections figured prominently among the health problems of home based workers.

The problems of health are reflected at various other levels. The difficulties of the financial situation and the physical and mental stress of coping up, give rise to many insecurities. The city has become a ground for all kinds of competition operating at every level. Life has become a process wherein people become alienated from themselves. This sense of alienation and insecurity marginalises a large section of people, and does not allow them to claim even basic human dignity for themselves.

What about those on the margins?

Khushboo has come from a town on the borders of Maharashtra and Karnataka. She comes from a community who marry off their daughters to the local god in childhood, making them into *devadasi*s. Khushboo was forced to work on the highway as a roadside prostitute catering mainly to the truck drivers, based at a place near her village. She then chose on her own to come to Bombay and work in the red light area as a professional prostitute.

Prostitution is a major trade which works at the expense of women. It has social sanction because it is believed that men have unlimited sexual urges and also that women's role is to satisfy these. In a city where lakhs of men live alone for years, there is a market for paid sex, which reduces women like Khushboo into a commodity.

The rise in the number of STD cases registered by Government hospitals and the fear of the spread of AIDS has brought this issue into the limelight. Once again prostitutes are being victimised. Men who go to prostitutes are considered a high risk group. No one talks of the susceptibility of the prostitute to such health disorders. Socially, it is the prostitutes who are looked down upon, not their clients.

Prostitution is also a kind of threat held over the heads of all women. It marks a divide between the bad prostitute and the good housewife, a permanent reminder to all women to stay within the limits prescribed by society. If they toe the line and obey the father or husband, they will be looked after. Otherwise they will have no choice other than to become prostitutes. The sale of women's bodies is an expression of the control over women's sexuality and independent existence.

According to a 1991 study quoted in WORLD AIDS, it is believed that 90 million persons suffer from sexually transmitted diseases (STDs) annually in India. However not all will approach the established health structure for treatment. STDs have come to be viewed as the wages of sin, and approaching the health authorities is tantamount to making a public confession of one's sexual life.

Incidence of sexually transmitted diseases

Year	*No. of cases reported and treated (in lakhs)*
1975	*4.11*
1979	*5.36*
1984	*9.19*
1986	*12.76*
1989	*13.64*

(Source: Health Information India, Central Bureau of Health Intelligence, Ministry of Health and Family Welfare, Govt. of India.)

Myths of maleness and femaleness colour much of our behaviour. The image of the hero as an aggressive, inherently violent and uncontrollable male youth has been cultivated in popular film culture. The only expression that such young male characters have in response to any trying situation seems to be violence.

The fact also remains that such fictitious characters reflect the authentic unrest and insecurity in society, especially amongst the young. With the growth of consumerism and easy access to anything that may be on sale, we see a gradual change in culture, even amongst those whose parents' values would clash with such activities. Drugs, alcohol, rape, pornography, murder, fighting, extortion are gaining credibility in this section of the population. Gangsterism is taken up as a profession, and being a member of a gang is a sign of prestige. The lesson of the modern era seems to be that practicing violence is the only way to survive.

As a city we have undergone the trauma of the 1993 riots, of the mindless carnage during it and in the subsequent bomb blasts. And today we are experiencing an increased level of gangland violence which seems to touch everyone from child brown sugar addicts to

top industrialists. It is a much more violent situation than any in recent times. In all this open violence it is going to be all the powerless sections, especially women who will be the biggest victims. Is there something that can be done by the community to turn back the wave of violence?

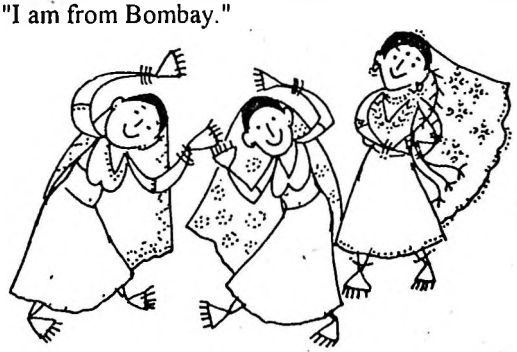
Some questions to think over with others:

- *What was the experience of your community through the riots and during the process of returning to normalcy ?*
- *How many blue film parlours are there in your basti? Who goes to them?*
- *Why do you think that they do?*
- *Are there any liquor dens in your basti?*
- *What is the drug abuse and drug peddling situation in your basti?*
- *What is the situation of prostitution?*

These contradictions are a part of urban life. The city promises work for all, but unemployment has increased and so has poverty. One wonders if a development process based on unplanned industrial growth, automation and monopoly production, could be seriously aiming to reduce poverty.

In such a bleak atmosphere it is easy to ignite a dispute, arouse animosity and create violence without much engineering. This is what was seen in the city of Bombay in early 1993. A sense of unrest, and the possibility of riots had been in the air all through the preceding year.

And yet, this dream city has a specialty of its own, a humanity that co-exists with all the tensions, which emerges out spontaneously in the most unexpected of places and times. That is when one is happy to say "I am from Bombay."



BOMBAY'S PUBLIC HEALTH SYSTEM

GENERAL DATA

Greater Bombay population : 11 million

Actual burden : 15 million

Population density : 18,000 per sq km

Health expenditure of BMC and State government : Rs. 300 crores annually

Estimated daily morbidity (at 1%)

1,10,000 New cases

2,20,000 Old cases

3,30,000 Total cases

HOSPITALS

	BMC	State Govt	Central Govt
TEACHING HOSPITALS	4	4	—
GENERAL HOSPITALS	13	7	10
OTHER HOSPITALS	4	6	—
DISPENSARIES	149	3	22
BEDS	10,000	6,000	3,000
MATERNITY HOMES	25	2	—

PRIVATE SECTOR

Hospitals and Nursing Homes	1,000
Beds	10,000
Medical Practitioners (including unqualified)	40,000 to 50,000

ESTIMATED DAILY USERS OF BMC & STATE GOVT. FACILITIES

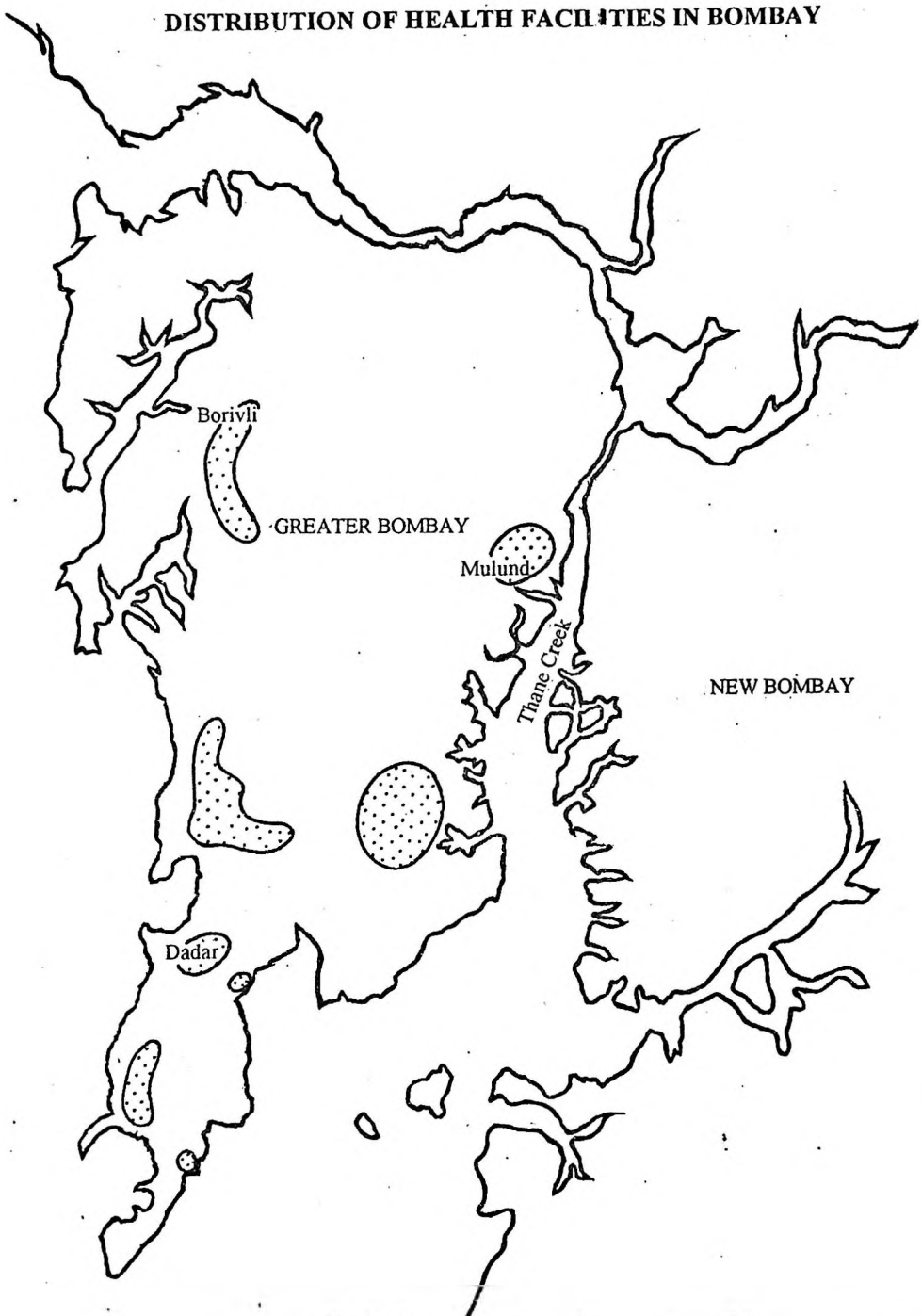
75,000 persons daily

OR

274 lakhs per year

(Figures courtesy Ravi Duggal of CEHAT)

DISTRIBUTION OF HEALTH FACILITIES IN BOMBAY



This map is imaginary and not according to scale. It represents the idea that health facilities in Bombay are concentrated in south and central Bombay whereas the population pattern has changed over the years, and the majority of the people now live in the northern suburbs.

Chapter V

WHAT HAPPENS WHEN THE BODY BREAKS DOWN?

The body tries to constantly adapt itself to external situations in ways that would help maintain stability and efficiency. Considering the conditions of living for most people in an urban environment like Bombay, it is almost a miracle that they manage to function as efficiently as they do. And yet there are problems and situations in which breakdowns do occur, in which a body is said to be in a diseased state.

Nagamma has not been able to go to work for several days. She has severe backache and feels uneasy and restless. She is also suffering from heavy vaginal bleeding. Nagamma is a construction worker and every day off work results in a loss of the day's wages. She cannot afford to sit at home. If the illness persists, in two or three days her children will have to go hungry and they may also fall ill. There is no time or money to go to a doctor, and she also knows that the doctor can't do much to help. She feels that she will get relief if she stops working, but that is not a choice open to her. In any case, she gets work for only eight months in a year.

When Nagamma had been ill earlier, Sarala had insisted on taking her to a private doctor. The doctor had said there was nothing seriously wrong, and he had given some pills. The medicine had helped Nagamma somewhat, but the doctor's fees could not be paid every time. The medicines were also expensive. So long as Nagamma

pushed herself to go to work, her husband was not bothered. On the contrary, he kept cursing Nagamma because he could not have intercourse with her when she was bleeding.

The diseased state is not something which has a standard definition. While Nagamma knows she is ill and must rest, her social position is such that she has to insist she is fine and continue working. Being ill or being healthy is very much determined by an individual's social status.

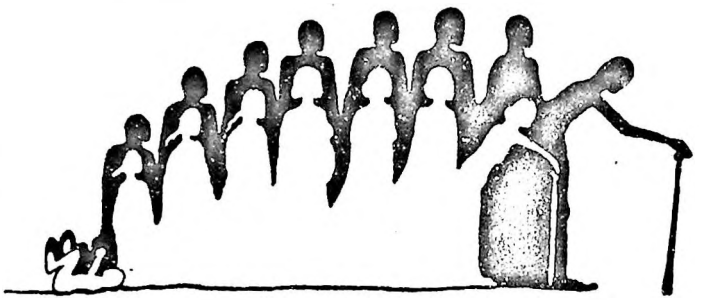
Our bodies are very specific to each one of us. We live in different material, social, and emotional worlds. And everyone has different physical capacities and endurance levels. Thus if a breakdown situation arises, our responses may be as distinct as our experiences are.

The stereotyped image of a heroic woman is that of a resolute person, capable of taking immense amounts of suffering without complaint. The more hardships such heroines endure, the stronger they seem to become. Such images of ideal women are constantly repeated to us from childhood, in the form of traditional stories, local gossip, films and TV serials.

This role model strikes deep roots inside every young girl. Thus in the usual family situation, the woman in the house does not take to her bed until it is absolutely impossible for her to carry on with her normal routine. In the process of doing what is expected of a "good" woman, she may be causing great harm to herself, but no one really looks at that. We have all come across such instances, in our homes and elsewhere, and have perhaps been pressurised by circumstances to act this way ourselves.

As we said earlier, the otherwise fitter female fetus has lower chances of survival after birth than her male counterpart. This is because the girl child is discriminated against in every aspect of her upbringing, even when she falls ill. Her nutrition, health and educational requirements do not engage the attention and the resources of the family in the same manner as her brother's needs would.

Daily wage earners like Nagamma have to work continuously in conditions of acute physical discomfort. They have to keep up their activity until age makes it virtually impossible for them to sustain it any longer. On the other hand, there are people who can take the liberty of a day's rest, with full wages paid, for a mild illness. How ill a person is, is therefore a very relative term. It is a subjective interpretation of one's own state.



(illustration from Taking Sides, C. Sathyamala et al, ANITRA, 1986)

This table gives the age specific death rates for the urban male and female population in India for the year 1987. The death rate as given here is the percentage of the corresponding total population of that age group. The rates are higher for infants and women in the reproductive age group. Beyond this, probably the total number of women has gone down so much that the death rates have also reduced.

Estimated age-specific death rates in urban India

Age group	Male	Female	Average
0-4	18.1	18.2	18.2
5-9	1.3	1.9	1.6
10-14	1.1	0.9	1.0
15-19	1.2	1.8	1.5
20-24	1.6	2.1	1.9
25-29	1.8	2.0	1.9
30-34	2.6	2.1	2.3
35-39	3.1	2.7	2.9
40-44	5.3	3.1	4.3
45-49	7.0	5.7	6.4
50-54	12.5	8.6	10.7
55-59	19.8	13.1	16.7
60-64	31.9	23.2	27.5
65-69	47.9	34.4	41.0
70 and above	97.0	81.2	88.5

Source: Sample Registration System, Registrar General, India.

Yet the fact remains that physiological disorders of the body do occur. Despite the body's capacity to adapt to all kinds of adverse situations, in spite of the fact that the body tries its best to maintain the internal equilibrium, there occur states of breakdown when the body fails to continue normal functioning.

So what would be our answer to the question "What is falling ill?" We would identify illness as that state of the body in which there is a failure of the internal mechanisms in adapting to changes in the external environment. This results in breakdown of the equilibrium between the internal and external environment.

In whatever way we understand illness, we need to realise that the breakdown which is visible to us, and which we see as an illness, is the culmination of something ongoing. It is the final manifestation of a process in which the body has been struggling to continue efficient functioning under adverse conditions.

What we call the illness is a description of the visible symptoms of the disease. The symptom is just an indicator of the disease. It is not the disease itself, and definitely not the cause of the disease. Because of the diseased state, the particular abnormality, and disturbed internal equilibrium are apparent. Hence what is visible and accepted as disease is something like the shadow of the problem, not the problem itself.

Think of any major illness that you have had or someone close to you has had.

- *What do you think were the causes?*
- *Did you go for any treatment?*
- *Did you consult a traditional healer, or a modern doctor, or did you combine both styles of treatment?*

Similar questions can be asked of other people in the community in the course of your usual rounds. This could help you to form a picture of the attitude towards illness that generally exists in the community.

The illness, as distinct from its symptoms and its causes

What is the reason for the occurrence of breakdown? Even though visiting a doctor or a hospital for treatment is a common thing in a

city like Bombay, in most cases the patient's understanding of why the illness has come about is quite different from the doctor's .

People often attribute the cause to some supernatural power. An illness could be described as bad luck or as the result of someone having cast an evil eye (*nazar lagana*) on the victim. 0r it could described as possession of the body by an evil spirit seeking to inhabit an innocent person's body.

Such "causes" have been traditionally linked to major illnesses, especially those which are rare and seem inexplicable in origin. The cure of such illnesses is also then concerned with supernatural factors. The treatment is centered around getting rid of the supernatural influence.

Searching out and punishing the person responsible for invoking such spirits is considered a long term solution to the problem. This can become a vicious matter, and a powerless person, often a woman, is singled out and accused of being a *dakin* or witch. Popular opinion is aroused against her, and the entire neighbourhood is led to commit violence against her.

Studies in some communities have indicated that a woman identified as a dakin is often a woman on her own, someone apart from the norm. She is different, self-confident lives a somewhat rebellious life, and by just being what she is, she is considered a threat to society. In reality however she would be poor, and amongst the most marginalised people of the community. Many social and physiological problems are considered to be the "doing" (*karni*) of such women.

Most communities have also had traditional healers of various kinds. These are persons who have inherited a knowledge base built over centuries of observation and experimentation. They do not think in the manner of a medical doctor, but they understand the body and the medicinal properties of plants and other materials from the surrounding environment. Many such healers are women, and every grandmother has a stock of such knowledge commonly called as "*Budhiya ka jhola*" or "*aajibaicha batwa*". However, such practices have not always been seen in a positive way by the powerful in society.

In the West and in India, such women have been persecuted because their knowledge, and the influence and power arising from it. While their method of healing has been criticised, there has also been a systematic attack on them as persons. Until recent times, in the West such women were called witches, and harassment and killing of women accused of witchcraft was very common at one time. So much so, that "witch hunting" became a commonly used phrase in the English language for wrongful persecution of innocent people.

In our understanding, we accept both the traditional and modern systems of dealing with disease. We think that the traditional systems of healing have evolved on a basis of understanding and reasoning of their own, and are effective and viable for several important reasons. Most importantly, these remedies work effectively for many common ailments, they are administered sympathetically, and they cost much less than modern medicines.

At the same time however, people calling themselves traditional healers may indulge in practices based on superstition. They may exploit the simple faith of people to charge them exorbitant fees. They may even be using steroids and other modern drugs in the guise of herbal medicines. Many such "healers" flourish in Bombay.

We believe that all such efforts have to be carefully examined much in the same way that modern medicine's "scientific" and "rational" understanding of disease and treatment also needs to be tested and examined. Modern medicine too cannot be accepted without questioning.

Is there a war going on?

How do we understand the causes of breakdown within the framework that we have so far evolved? We would now like to look at the dominant understanding of disease in modern medicine, and at the limitations of this approach. At the same time, we would try to explore possibilities of interaction with the modern health delivery system in ways that become effective and meaningful for users.

The dominant understanding of disease in modern medicine has been based on cause-effect explanations. This has helped to bring the understanding of disease out of the realm of the supernatural, and made it possible to look at disease in a more rational way. The basic idea is that every phenomenon has some material cause which set it off. For most diseases, various kinds of micro organisms in the environment have been identified as the major cause.

The body is a part of nature, and it continuously interacts with all kinds of other organisms. We live peacefully with most of them and this is how millions of species of life forms survive together. However there are certain micro organisms which are not usually part of the ongoing process of maintaining the internal equilibrium. They disrupt the usual body processes, upsetting the internal equilibrium of the body as a whole. The body has a mechanism with which it tries to deal with such situations. This is called the immune response of the body.

The immune response is usually understood as a defense mechanism. The body is said to attack the "foreign" organisms that invade it by setting up a resistance army to exterminate the intruder. Such terminology and imagery is the language of warfare and is very much a product of the dominant social thinking around us. The first response to issues concerning aliens or any unwanted external elements is to wage attacks and wars.

An insect living on a particular plant may be going about meeting its requirements much the way we meet our own needs. However its existence is seen as an "attack" on the farmer's crop and the typical response is to eliminate it with the strongest pesticides possible. People have now come to realise that such methods do not really work in the long run, that you destroy many good things alongside the harmful, and that you could end up having more resistant forms of the same pest over time.

However such an ideology, of attacking and exterminating is constantly being justified and practiced all over the world. Not only do we come across this attitude in the treatment of illness, but also in the social field.

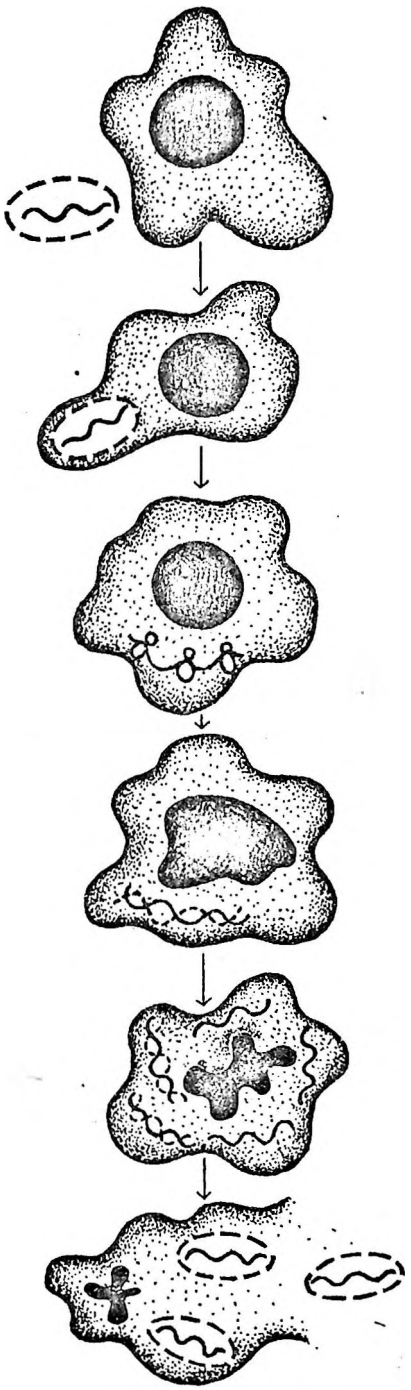
Anyone who does not "belong" is attacked by others who claim to belong, and wish to retain the purity of the group that they are part of. The groups could be nations, religious communities, sects, castes--everywhere the assault is on the "otherness" of the group taken to be the enemy. It is on the same militaristic basis of understanding that the immune system is often seen as the body's mechanism to attack and exterminate the invading organism.

Protection is not the same as warfare

We would like to follow a different path towards developing an understanding of the immune response. We believe firstly that it is not a defence mechanism as much as it is a protective one. Its purpose is not to exterminate anything that does not fit. Its actions are more directed towards nullifying any disruptive effect that these organisms would have on the normal environment. The presence of effects which could be harmful and destabilising to the body set off the immune response. It is a process acting to preserve the internal environment rather than to eliminate external alien organisms.

Although this shift in emphasis may appear at first glance to be just a different way of saying the same thing, it is much more than that. It forms the basis of the understanding of disease, and indicates the way in which treatment would be carried out.

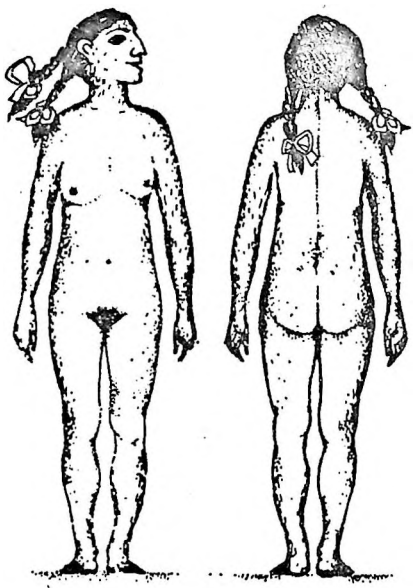
If the understanding is that exterminating the disease-causing organisms is the suitable course of action, then all kinds of anti-



This is a symbolic sequence illustrating virus takeover of a healthy cell and subsequent events

bacterial drugs would be recommended. If on the contrary, the understanding is that activating a response to preserve the internal balance is required, then the treatment would be very different. It would be more oriented towards strengthening the natural processes that exist in the body, and which become active in the presence of any disruptive element.

The immune response



The protective activity on the part of the body operates at various levels. There are two main groups of immune responses. One group works against specific objects which are known to the body. This is called the specific immune response. The other group is the non-specific immune response, in which there is no particular recognition of the causative organism, but there is a general reaction to things that are considered to be unnatural to the body and not required to be present.

With regard to the non-specific immune response, there are a number of barriers, starting with the skin, which do not allow the disturbing organism to enter the body. Not only is the skin a physical barrier between the body's internal environment and the external environment, the secretions from the skin also act as chemical barriers of a sort.

Besides this, there are other surface barriers like the mucous membranes at the openings of the body. These secrete a sticky fluid called mucus, capable of carrying away particles adhering to it. The hair at the entrance to the nose which traps fine particles entering our bodies through the air we breath, works in a like manner. The sneezing and coughing reflexes that act when we inhale dust and other irritants are similar barriers. Finally of course, there are innumerable micro organisms all over the surfaces of the body, inside and outside, which prevent others from taking over their space, and thus act as a protective cover.

Explore all the openings in your body.

What are the natural barriers and protective mechanisms working to safeguard the internal environment at each of these places?

But some still manage to get entry

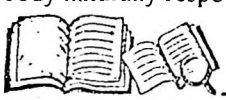
In spite of all this, there could be minor cuts, scratches or bruises through which certain of the unwanted micro organisms could enter

the body. Usually, there is an intense reaction to these by the body. It activates itself locally, in that particular area to prevent the spread of these unwelcome organisms to the whole body. The idea is to throw out the incoming organism and also to repair the cut in the tissue as soon as possible. The inflammation or pus formation that takes place at the site of an open exposed wound is such a reaction.

These localised reactions also induce systemic changes in the body, one of which is fever. Fever can be explained as an attempt to raise the body temperature to a level where the micro organism cannot survive. An increased local activity at one point thus leads to a certain kind of change all over the body.

Some entry of micro organisms also takes place through the regular channels of entry in the body such as the gastro-intestinal tract, through the food we eat, or the respiratory tract via the air that we breathe in. Disruptive organisms entering the body in such ways are absorbed into the blood stream, and from that route, into the whole body.

Most such entrants are either bacteria or viruses. It is important to be aware of the differences between them and also to know how the body naturally responds to them.



While specific bacteria and viruses may act in their own particular ways, certain broad generalisations hold.

Bacteria are unicellular organisms which can sustain their own lives, provided they find a suitable environment, nutrition and so on. Some bacteria actually destroy the cells surrounding them by releasing chemical substances that are certain to cause damage. Other bacteria just release toxins that disrupt the function of the organ or the tissue.

Some common bacterial infections are typhoid, tuberculosis, pneumonia, leprosy.

Viruses, on the other hand, are small bundles of the basic life determining chemicals. They have to live in other cells to survive, and once they move in, they take over the energy production mechanisms of their hosts.

A virus could multiply rapidly within a host cell, turning it into a kind of factory to reproduce itself. In the process it may use up the cell's essential constituents and end up in killing the host. The viral particles released from such a host cell would then enter the neighbouring cells and repeat the process.

Some other viruses replicate fairly slowly. They could become associated with the basic genetic material of the cell and replicate along with the host cell during cell division. Thus their characteristics are passed on and could remain in the cell and the body for many years before any actual disturbance is perceived.

Commonly found viral infections are measles, common cold, influenza, malaria, scabies, herpes zoster.

Due to this basic difference in them, bacteria and viruses act very differently in the body.

When looking at the action of organisms we must also pay attention to the pathway through which they enter the body. If a virus or bacterium enters a part of the body which does not provide it with a suitable environment, it is not going to cause damage, and it may not even survive there for long. It could even happen that in one part of the body a certain bacterium plays an important role in maintaining internal equilibrium while the same organism could cause serious problems elsewhere.

Urinary tract infection for example, is a very common infection among women. The organisms that cause this trouble are part of the digestive tract and are an important presence there. It is only when they enter by chance into the urinary tract that they become a cause for infection. The usual explanation given for the entry of such bacteria into the urinary tract is improper washing after defecation.

There could, however be other reasons too. One common cause is carelessness on the part of male sexual partners regarding personal hygiene, which ends up giving women chronic infections in this area. Infrequent urination, water scarcity situations or general low nutritional status could make some women more prone to these infections than others. The broad health situation of most women is not constant, and those who suffer urinary tract infections are prone to get recurrent attacks.

How does the body respond to organisms?

All of us are constantly exposed to a variety of sources of infection. Yet we actually fall ill comparatively rarely. One of the responses of the body to the entry of an unwanted substance or organism into a cell, or into a certain vicinity, is through specific actions at the cellular level. This is called the specific immune response.

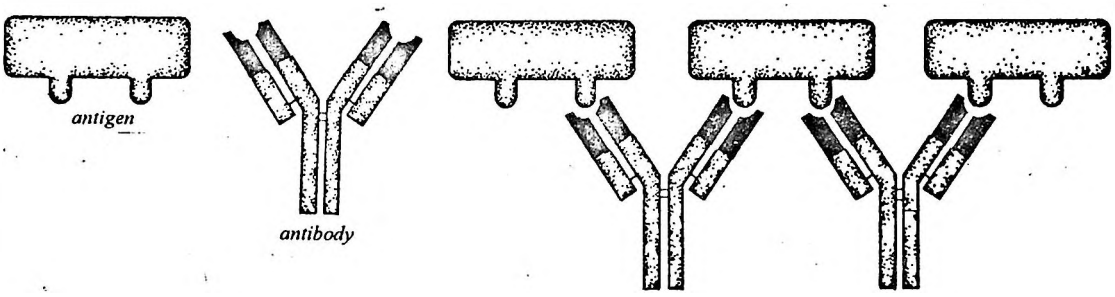
A specific immune response is either generated through creation of antibodies or by the action of specific cells present in the body, which themselves act like antibodies. Essentially, the incoming organism's

structure is ascertained and its chemistry is taken into account. This interloper is called the antigen, or toxin. The antigen's activity is neutralised or nullified in two basic ways by the body. It could create antibodies which lock the antigen inside a structure, not allowing it to act or spread further. Or, it could neutralise the bacteria or virus by building locking structures on the cells themselves.

You must have heard people say that once you have had measles you will not get it again, or at least not in as severe a form. The same is said for many other illnesses. How does the body acquire the ability to protect itself from a disease that it is already familiar with?

In the case of exposure to a virus or bacterium for the first time, there is an initial non-specific immune response. Here, physical and chemical barriers to neutralise and inactivate the newcomer come into play. When these fail, there is an effort at intense and localised non-specific activity. Meanwhile, the body uses the time to generate a specific antibody response. This antibody then reaches the site of action to deactivate the antigen. If the non-specific response is sufficient to discourage the antigen, the specific antibodies created would not be used at all.

If there was a case of exposure to the same antigen in the future, the same sequence of events would probably take place. However the difference would be that the specific immune response would get activated much sooner, and with greater intensity. Essentially the person would have some immunity against that particular strain of bacteria.

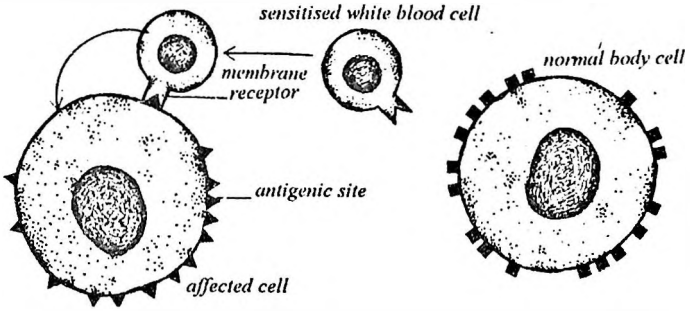


(adapted from Human Physiology, the Mechanisms of Body Function, Vander et al, McGraw Hill International Editions, 1986.)

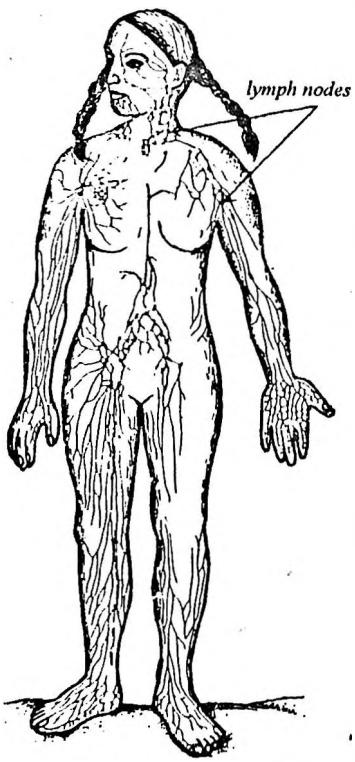
The same principle comes into play when we get ourselves immunised. A small quantity of antigen is introduced to the immune response system of the body, and it creates the necessary antibodies which act when the body is exposed to an infection of the same type.

The second kind of immune response is that in which there is no creation of antibodies but wherein the cell itself has receptor sites similar to antibodies. In this case, action can be taken only when the

antigen of the disruptive organism is present on a cell surface The antigen gets attached to the receptor sites of the immune cell, and becomes neutralised. Obviously the number of organisms that can be neutralised in this way are much smaller in number than in antibody action. The targets in this case are usually are virally infected host cells of the body, and possibly cancer cells, which are body cells that have gone berserk.



Deactivation of affected cell by sensitised white blood cell (Adapted from Cerottini)



Both these kinds of cells, the ones which help in producing the antibodies and those which themselves help to mediate immunity, are present in various parts of the body. They are found most particularly in the lymph nodes and the spleen. This information is helpful in detecting infections and diagnosing illness, as we shall see later on in the chapter.

Although it sounds as if the two types of cells are very distinct, there is a great deal of linkage between them. Activation of cells of one kind could lead to some other follow-up actions. Or it could lead to inhibition of some other reactions.

There are feedback mechanisms at work here too, which could act positively or negatively on each other. Antibody formation could be triggered because of an activated cell-mediated response, and the latter could also set off the former. The two types of cell actions could even inhibit each other's activities.

As in the case of inflammation, here too there are systemic changes. A change in body temperature because of the breakdown of temperature control mechanisms is one of the commonly observed responses of the body. It is an indication that in a inter-related self-sustaining multicellular organism like the human body, the breaking down of an antigen cannot be an activity left to one or two types of cells. It is the whole organism that has to work here.

On the whole, action against any infection means a great deal of work for the body. During and after such periods of illness, the body would need specialised care and rest. The reverse would also hold

true--if the body is not strong enough or not quite equipped at the time that an infection enters, it would find it difficult to resist it.

The tragedy of the failed immune response

Lately we have been hearing a lot about AIDS, or acquired immune deficiency syndrome. In AIDS, there is a breakdown of the immune response of the body, making it susceptible to all kinds of disease-producing organisms. Under normal circumstances, precautions can be taken to prevent the entry of unwanted organisms into the body, but there is a limit to the amount of care a person can take. If we were to worry about catching infections all the time, we would get very little done in life!

Most of the time, we are not affected by potentially harmful exposures because the immune response protects our bodies, as we said before. In the case of a person suffering from AIDS, this response is non-existent. So, if an organism finds an entry into a part of the body where it can create havoc, the AIDS sufferer's body cannot counter it in any way.

In normal situations human beings carry of a lot of organisms, from which their bodies are protected. A person suffering from AIDS is however, unprotected and hence more at danger when coming in contact with other people. The tragedy is that people with AIDS are shunned, and considered a risk to others. In fact, they are more at risk from the so-called healthy people.

Here in this small manual, we do not have the space to go into the social and other dimensions of AIDS. However and there is a lot of material available on the subject elsewhere, and the list at the end of the book mentions some such sources. We are very much aware that it will be a disease devastating the lives of many families in the near future, and society as a whole will have to find means to cope with the crisis.

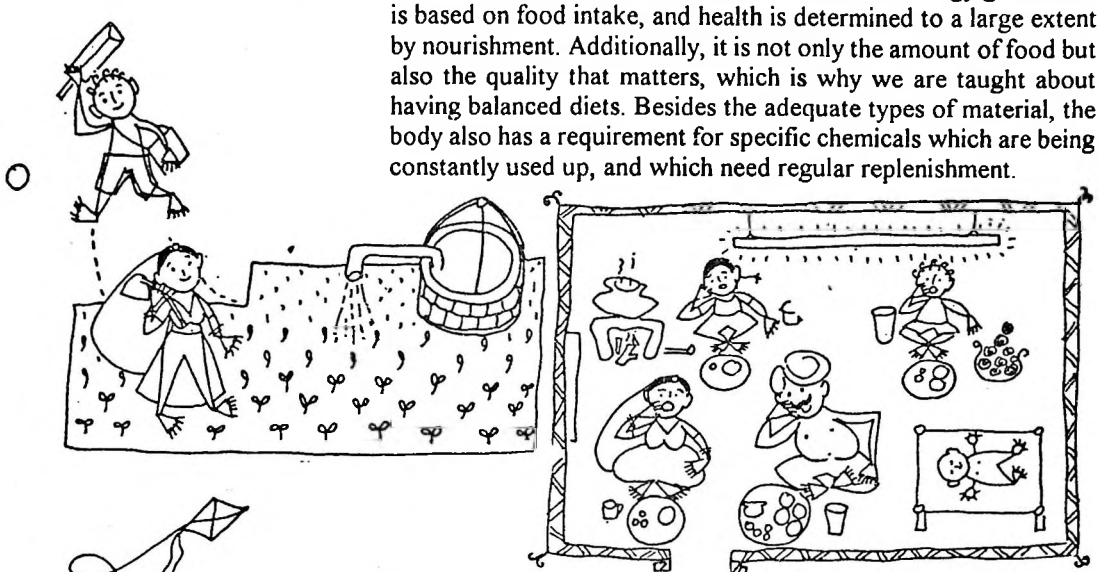
The germ is not the whole story, how does it find a home?

In the usual teaching about disease, there is a lot of emphasis on tiny villainous creatures called germs. Such talk about *kitanu*s or *jeevanu*s or *jantu*s creates an overwhelming impression of a war situation. It seems to follow that all we have to do is to stamp these enemies out of existence with the right injections and pills, and all will be well.

We disagree with this inordinate emphasis on germs, and other causative explanations for the onset of disease. Since immune response is essentially an indication of how effectively a person can avoid an illness or a breakdown, it is obvious that the general health

status of a person is an important factor in determining whether she will get an illness or not.

The health status in turn is linked with the economic status of individuals and of families as an economic unit. Energy generation is based on food intake, and health is determined to a large extent by nourishment. Additionally, it is not only the amount of food but also the quality that matters, which is why we are taught about having balanced diets. Besides the adequate types of material, the body also has a requirement for specific chemicals which are being constantly used up, and which need regular replenishment.



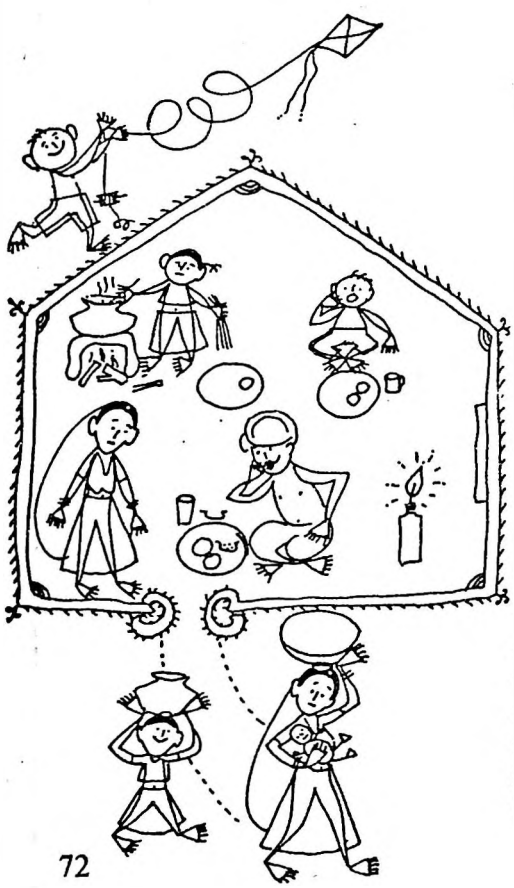
The comparison between the two families speaks for itself.

(based on Shareer ki Jankari, a book prepared through the collective efforts of 72 women from Rajasthan, active in a health programme, Kali for Women, 1989)

Poverty does not permit people to eat what they need for health. It is difficult for most people to be able to achieve a balanced diet in a city like Bombay. While there is disparity and inequality between different sections in the city, within the family too, there is further inequality. The men and boys receive favoured status.

Women in every family not only eat last, but also eat less of what would be considered "good" food. For the double burden of the work they bear in the house and working outside, and the third burden of child-bearing and rearing of children, they in fact need extra supplements of almost all nutrients.

Women need more iron in their diet than men, for example, to make up for the amounts of iron lost in the menstrual blood every month. The social and other biases do not recognise this need. As a result, an estimated 90% of Indian women suffer from anemia. Less iron in the blood results in lowered oxygen supply to the whole body, which in turn means reduced activity on the whole, and as a further consequence, increased proneness to disease.



Factors such as poverty, inequality, reduced access to resources, and so on, have their impacts in other spheres also. Most people do not have healthy places to live or work in. The sanitary conditions and the water facilities are not adequate, and because of these situations the communicable and other diseases like malaria and tuberculosis are rampant. When we talk about health, we must always keep this overall social situation in mind.

Discussions about the dismal health picture often end up blaming people, particularly poor people, for their state. For many years now, one of the most popular arguments to explain poverty, and any other social problem for that matter, is the overpopulation argument. The people of India are themselves to blame for their own problems, it is said, because they have too many children.

In the city of Bombay where the desired population control targets have been achieved to a large extent, what do we see? In spite of achieving the targets the general living status of the people has not improved. On the contrary, it has deteriorated further. The disparity in access to resources which meet the natural needs of people is lopsided. It is this unequal distribution that leads to the appalling conditions in which the human body has to survive. The extra stress that adverse conditions put on normal functioning leads to breakdowns, and makes the onset of disease a common occurrence.

What are the common events in breakdown?

There are some common illnesses in Bombay, very much a product of the environment here, and the lifestyles people lead.

Colds

The common cold is a viral infection and except for letting the antibodies do their work, there is not much that can be done about it. The antibodies can be helped by building up good resistance, as expressed in the proverb "Feed the cold".

There are some measures that can be taken to give some relief from the discomfort of the cold. For soothing the affected membranes one can take steam inhalation. Keeping the mouth moist also helps. This is why chewing toffees or lemon drops gives relief.

Cold capsules and other instant reliefs publicised in the media are not of much help as far as the cold is concerned. While we know that the miraculous recovery shown in the advertisements is exaggerated,

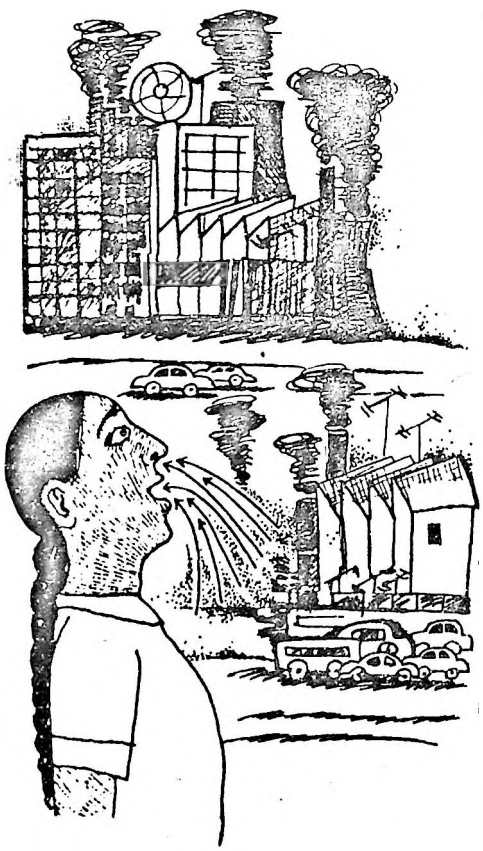
we still succumb to the message. Perhaps it is because one suffers so much that one thinks that anything is worth trying out.

If at all the remedy seems to act, it is probably because by then the body has produced its antibodies and brought the cold under control, and the natural period of the cold is over.

Colds and asthmas due to allergy

In medical terms, allergic colds and in more extreme cases asthma, are an outcome of hypersensitivity of the immune response. In other words, an overly sensitive response of the body to some outside substance.

In the normal course of events, an upper respiratory tract infection would follow a bout of the common cold. However, a recent study by the Rotary Club of Bombay, shows that 60% of people in the city suffer from this illness. This is unusually high and mainly due to the pollutants in the air.



This type of cold comes in the form of attacks. Many people suffer severe attacks and they take recourse to every possible type of medicine. There is again not much that can be done except to get tested for the substances causing the allergy. Several allergens may be involved, but even if one is traced, and a drug which can prevent an overly sensitive reaction to that allergen is found, it could give the person some relief, and reduce the strain on the body.

Medication may reduce the severity of the attacks by restraining the body's reactions to irritating substances in the atmosphere. The general precautionary measures for such illnesses is to eat at regular hours and sleep at regular intervals. This may be a dream as far as most of the citizens of Bombay are concerned.

Problems of the digestive tract

Another set of commonly found illnesses are related to the digestive tract. Among them is chronic constipation or chronic diarrhoea, excess acidity, stomach ulcers, stomach aches and other pains due to gas build-up. Most of these problems are related to the strained conditions and irregular life patterns in Bombay.

Symptomatic and momentary relief for such illnesses can be achieved, but not permanent cures. Precautionary measures such as eating at regular intervals, ensuring that fibrous foods like green leafy vegetables are included in the meals, and avoiding spicy foods, may help to a great extent.

Fried and spicy foods generally contain amounts of baking soda which irritate the stomach linings, but there is not much choice on the Bombay streets. Most of the items are fried, made with potatoes and have lots of spices, salt and soda in them. The taste for such foods are built up as a process of adaptation to the city environment. The most one could do by way of prevention is to avoid eating such foods as a regular practice, before stomach problems become chronic.

What about good blood and bad blood?

Although these social and environmental conditions are an important cause of disease, there are other factors at work here too. We are quite used to hearing statements such as, "These lower caste (or poorer class than the speaker) people breed too much", or "They are of bad blood", or "They are that way from birth, even if they try, they can't change".

Or we may hear the arrogant voice again making statements about "our family" "our people", and how such superior persons cannot allow themselves to get tainted by mixing with people of lower quality. Hindi films are full of blazing dialogues like "*Meri ragon mein mere gharane ka khoon hai, isliye...*" with the speaker attributing all kinds of superhuman qualities to himself in the name of his clan.

The question is, what is it that flows in the veins of the family? As we know, right from the moment of conception, when the single egg cell from the mother joins with the father's sperm cell, every individual carries genetic materials from both parents with her. This differentiates one human being from another biologically. It accounts for certain differences in our external appearances, and also the visible similarities to our parents and siblings.

The problem today is that these facts are being used to give a scientific basis and credibility to discriminatory and unjust social practices. It is being used to justify the ugliest human behaviour, communal and casteist in nature. Although there is genetic inheritance from one's parents, it is difficult to say with any kind of certainty how important they are in shaping our adult selves. In other words, no one can tell which of the external and internal characteristics that typify a person are the way they are because of genetic effects, and which due to the complexities of human existence, especially in a big city situation where life has changed so drastically in such a short time.

Modern medicine has made some advances in detecting and identifying genetic patterns which make some persons more susceptible to certain kinds of diseases than others. Because of this knowledge it

is possible for example, to study the genetic make-up of a couple, and if the risk of a certain disability to their future offspring is evident, they can be advised accordingly. In our opinion however, the reductionist approach to medicine sometimes stretches this understanding a bit too far at times. As a result, genetic causes are dragged in to explain every type of disease and pattern of behaviour, particularly so-called aberrant behaviour.

The outcome of this could be a perverted social philosophy, which dictates that some people are supposedly genetically superior to others, and only they should be allowed to have children. The other inferior people should be sterilised for the good of society. When taken to an extreme, such thinking finally dictates that the ones classified as inferior do not even deserve to live. And that they should be locked up and killed, as has happened in many countries at different times in history. In modern times, the perpetrators of such crimes often twist and distort the findings of genetic science to justify their actions.

But what do gene pictures tell us?

There are certain kinds of malformations that have been linked to particular genetic patterns. For example, on the basis of a particular gene picture, it can be said that a person has a greater probability of getting sickle cell anemia, than another person who shows another kind of picture. In this illness, the capacity of red blood corpuscles is impaired, their hemoglobin content and hence their oxygen-carrying capacity is reduced, and the result is a form of anemia which makes the person prone to infections.

Similarly, certain diseases like diabetes, which is impairment of sugar metabolism, are hereditary and their continuation through the generations is carried in the genes. In like manner, there are other genetically indicated problems, such as those related to blood clotting, muscular dystrophy, Down's syndrome, and others, whose presence can be detected in the fetal stage much before there is physical manifestation of the disorder. If the parents of such a child can be warned of this, and the necessary precautions taken right from infancy, that person has more chances of leading a smoother life than otherwise.

Kunda was promised as a bride to her father's sister's son almost as soon as she was born. In the Konkan region, this is a preferred form of marriage, and it is said to reinforce the good relations between two families who are already bound by marriage relations in the previous generation. She and her cousin were married as soon as he got a job and a place to stay in Bombay. Her first child, Vidya, turned out to be hearing-impaired. She struggled to get her into a special

balwadi with other such children, to buy her a hearing aid, and to give her speech lessons at home, according to the way it was done at school. When she became pregnant again she was overjoyed, but this time too she was shattered when the infant boy turned out to be even more hard-of-hearing than his sister. Sarala was very disturbed when this was discovered, and she wished that she had known of some way to predict and prevent it.

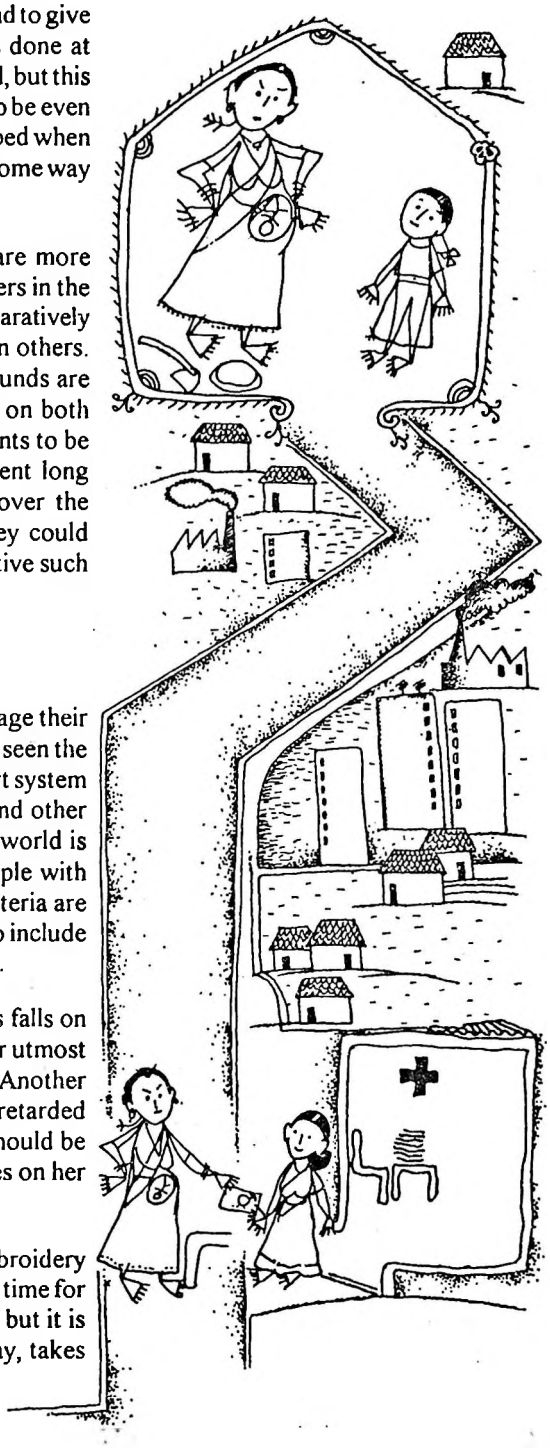
Children of couples who are cousins or close relatives are more prone to have impairments and inherited illnesses than others in the community. Being from the same family, they receive a comparatively smaller variety of genetic materials from their parents than others. In contrast, people with greater diversity in their backgrounds are less likely to have coinciding hereditary health problems on both sides of the family. Gene pictures help closely related parents to be warned about the existence or possibility of an impairment long before the birth of a child. The couple can then think over the decision to have the child. If the problem is serious, they could perhaps decide not to have children, and to seek an alternative such as adoption.

Who's to decide what is normal and abnormal?

People suffering from some of these disorders cannot manage their lives in the same way as the majority of people. We have all seen the difficulties faced by visually impaired people in the transport system of this city. It is much the same for those without limbs and other physical problems creating difficulties in movement. Our world is structured and constructed in way that is suitable for people with certain abilities. Those who do not fit into the accepted criteria are dismissed as abnormal. Society seems to make little effort to include the different abilities and disabilities of people in its range.

As in Kunda's story, the responsibility for disabled persons falls on the family concerned. Usually it is the mother who does her utmost to support the affected child, and make her life bearable. Another one of Sarala's neighbours, Mahmooda, has a mentally retarded daughter called Yasmin. She is determined that Yasmin should be independent, and be able to at least manage her daily chores on her own, and not have to rely on others when she grows up.

Mahmooda looks after the house, does piece-rated embroidery work at home to earn some extra money, and still she makes time for her daughter. She has got her admitted in a special school but it is far from her house, and the travel up and down, twice a day, takes upto three hours, and a great deal of energy.



For the last ten years Mahmooda has struggled with Yasmin's special needs, getting little help from her husband and other "normal" children. She has surely achieved a better future for her daughter, but she has aged by twenty years in this time. Such problems are usually not considered problems of society as a whole, and not much is done at the at the level of community. It is left to each individual to find a solution within their restricted resources and knowledge.

In recent years, individual solutions are being offered to the family in terms of pre-natal diagnostic tests. With the help of these, the mother can choose not to give birth to a child who would suffer from predictable problems. Otherwise, there is very little by way of rehabilitation efforts made to facilitate normal life for such people. There is hardly any data collected on the extent of these problems.

Even the availability of diagnostic tests is not widely known. The general public are not aware of the conditions under which a pregnant woman should go in for such tests. In the meanwhile, the diagnostic tests are most widely abused for detection of the sex of the fetus. If it is female, the fetus is likely to be aborted by parents desperate for a son. In Maharashtra, it is illegal to use any diagnostic method for sex-determination. Only a few registered genetic clinics are allowed to carry out pre-natal diagnosis, that too only for detecting genetic abnormalities. Even so, there is widespread misuse of these facilities for sex-determination and pre selection to favour males.

According to the Maharashtra Pre-Natal Diagnostic Regulation Act, the conditions under which a woman is considered eligible for pre-natal diagnosis are as follows.

- *If there is history of genetic abnormalities in the family.*
- *If she is 35 years of age or above.*
- *If she has a history of spontaneous abortions.*
- *If she has been exposed to hazardous teratogenic (capable of bringing about genetic changes) materials during the pregnancy.*

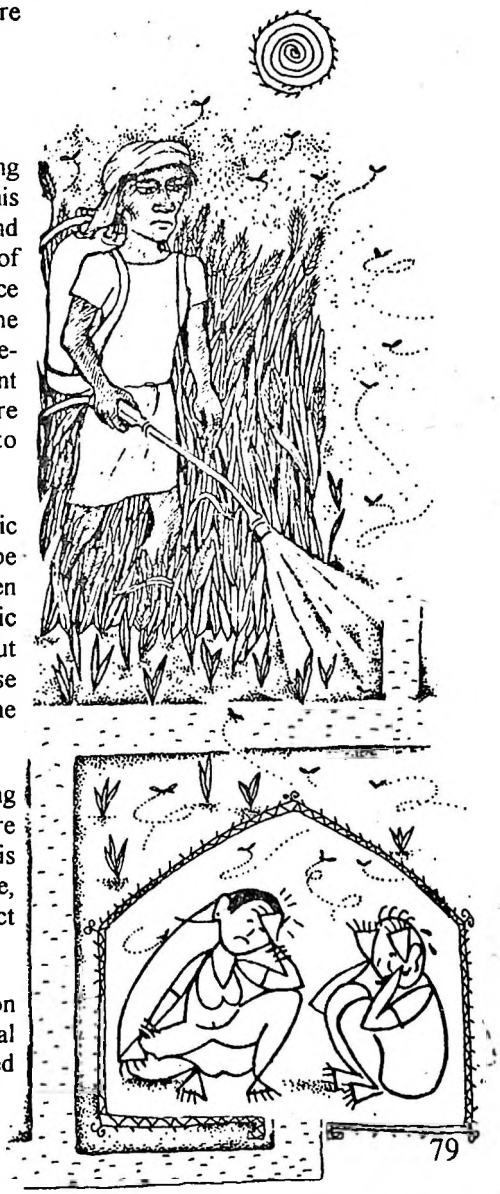
Though individuals who resort to these tests do so undoubtedly due to their own problems, what are the ultimate outcomes of such testing? Is it not further weakening the status of women? It is almost as if being of the female sex is itself a mistake in this male-dominated society. Despite laws discouraging screenings for sex pre selection,

doctors and their clientele seem to be determined to help each other in secretly carrying on a crusade against women at large.

Their actions question the right of women to existence in our society. The irony is, that all this is being done in the garb of helping women. Both the mothers of daughters, and the unwanted daughters themselves, are supposedly being aided by such activities. Ultimately, society gives sanction to women's negation in these ways. Additionally, by treating these acts as private, no thought is being given to the breakdown of the society as a whole in the long run. It is impossible to imagine the consequences when the sex ratio of women to men, bad enough as it is, would become even more adverse to women.

Thinking in the short run, disasters in the long run.

Short term remedies are usually just namesake solutions. In the long run they create unmanageable problems. A familiar example of this is the DDT spraying that was carried on throughout the 1950s and 60s to get rid of mosquitoes and malaria. During the years of exposure to DDT, the surviving mosquito strains developed resistance to DDT at the genetic level. Now they do not get affected by the DDT-type sprays any more. In a similar manner, many disease-producing bacteria have been driven to develop more virulent varieties by the uncontrolled use of antibiotics. These new strains are producing outbreaks of new forms of old diseases, resistant to known drugs, and effectively incurable.



At the same time there is a growing phenomenon of induced genetic problems and few of the planners and decision makers seem to be conscious of the need for stringent safeguards against them. Even where they exist, they are not enforced. Vast quantities of toxic chemicals are constantly being released into the atmosphere without regulation. In modern times, living in a city like Bombay, we expose ourselves to a host of chemicals whose effects are invisible at the moment.

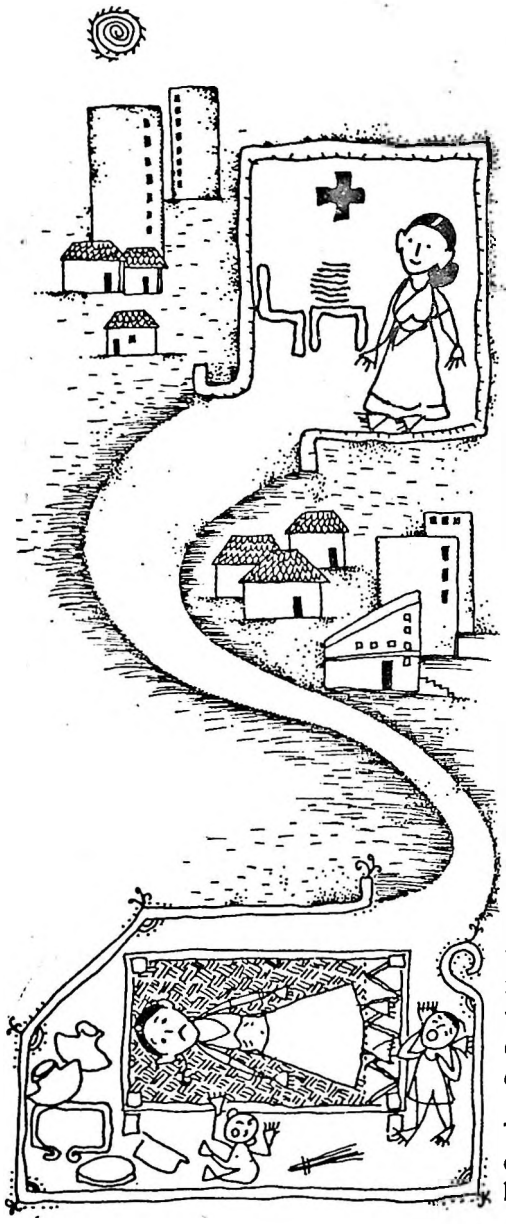
To add to the problem, there is insufficient knowledge of the long term effects of toxic substances. The Bhopal gas victims were exposed to immense quantities of one such chemical in 1984. To this day, the survivors carry the scars and lead an impaired existence, unable to return to their normal ways of life. The outcome and effect on the generations to come is yet to be seen.

In the absence of sufficient information of the effect of the gas on unborn fetuses, many victims' groups had demanded pre-natal diagnostic facilities after the disaster. The government denied

provision of such facilities because it would imply that they accepted the possibility of the long term and teratogenic effects of the gas.

The quick needle is not the best cure for all ills

The exposure to toxic chemicals and other environmental changes leading to permanent mutations and genetic changes is one of the horrifying ways in which modernisation affects our bodies. The other is intervention of medical technology in the process of curing diseases. Here the attitude towards ill health itself is very crucial in shaping both the patient's and doctor's responses to illness.



When people are ill, they need to get immediate relief. Illness could mean a *khada* in employment and loss of wages, and if prolonged even a loss of job, not something that most people can risk. So they call on doctors, demanding an instant cure. This anxiety is used by the doctors to earn money.

Sarala remembered that some years back, not far from her *basti*, there was a private dispensary run by a very unusual lady doctor, widely known as Doctorin-bai. She tried to be thorough in her questioning of patients, and she did not like to prescribe drugs unless she felt that they were really necessary. Sometimes she would not even give drugs but send away patients by saying that they should take plenty of fluids and rest for a few days. In any case, she never dispensed drugs herself, she only wrote prescriptions.

This approach did not make her popular. People felt that they were not getting their money's worth. They said that she didn't know the latest medical developments and wasn't quick and effective like other doctors. They would give a strong injection without being asked, and here one had to beg this stubborn woman, who would flatly refuse. "What difference is there between her and my grandmother?", someone said, "Granny would have said the same common-sense things!" She gained a reputation of being an eccentric. People started avoiding her.

Stories about Doctorin-bai's outlandish behaviour spread. She was seen chasing out salesmen from drug companies, saying that her time was exclusively for patients, and not *dalal*s. She refused to take their free samples, which most doctors took and sold to patients. Once when the parents of a sick child showed her the drugs that another doctor had recommended, she went and fought with him outside his dispensary and called him a murderer in full view of his patients.

This made her most unpopular with all the locality doctors, who openly ridiculed her methods. The nearby chemist would laugh at her patients when they came with prescriptions, saying she didn't

know how to prescribe the really powerful medicines. He would offer his own advice instead. Many of the patients would fall for it, wasting their money, and hurting their own systems by confusing the course of treatment taken by Doctorin-bai.

Doctorin-bai struggled for some years with her dispensary and her simple style of practice. She didn't seem to care that her practice was small, she said it permitted her to give proper time to those who came. Unfortunately a day came when she felt she could not continue fighting the expectations that most people have of doctors any more. She went away, disillusioned, and was soon forgotten by the very people about whom she felt so strongly.

As patients we look for instantaneous cures and doctors often exploit this desire by prescribing strong drugs that may give a false notion of immediate well being, but do not attend to the cause of the disease at all. The patient who wants to get well soon also supports this course of action, not realising the extent of damage being caused to the body's own capacity to resist illness. The greed of doctors and the need of poor patients for a quick cure combine to create a situation where even the obvious sincerity of someone like Doctorin-bai does not impress anyone as being effective.

Often the patient does not also get cured by the drugs because they are irrationally prescribed or formulated, have dosages less than those required or are combinations of constituents that nullify each other's effects. Most doctors rely for all their information about drugs on the drug companies whole sole motive is profit making.

WHO has been putting out a list of essential drugs which form the basic minimum number of drugs which are necessary in 90% of diseases. The list contains only 300 drugs of which only 20 are combination drugs. In contrast, the number of drug formulations available in the market in India is a staggering 60,000!

A study undertaken by the health group LOCOST based in Baroda revealed some interesting facts. For example, in the 1,524 cough syrups that they studied, almost all formulations had a combination of an expectorant (a phlegm releasing constituent) and a suppressant (a phlegm suppressing constituent)!

The possibility of making money on the ills of others manifests itself in other ways in the medical field. Making the headlines from time to time is the problem of spurious drugs and adulterated drugs. Besides the manufacturers, officials making bulk purchases of drugs at both public and private hospitals have been implicated in such scandals. What can one say about such deliberate acts, aimed at making money at the expense of the lives of ill persons?

The wrong pill is worse than no pill

What about the problems arising out of the treatment itself? Any business venture has to make sure that paying customers keep coming back. Sometimes, doctors prescribe unnecessary drugs just to ensure the return of the patient.

Away from doctors, we also tend to dose ourselves on our own with unnecessary medicines. Popularly advertised brands of remedies for headaches, common colds and coughs are found in every home, and taken without discrimination. The actual medicinal content of these drugs is not always adequate or effective. We often do it just to feel good, and besides the damage that can take place, there is always a danger of becoming dependent or even addicted to these easily available drugs.

Sometimes patients tend to act like consumers who want the best and latest within their resources. Without realising that part-treatment with a variety of drugs and approaches can make their illness more problematic, they go flitting from doctor to doctor looking for a magical cure. Each doctor does his own diagnosis, and recommends what he wants, without bothering to find out what has been prescribed earlier.

In modern life, one of the major causes of illness is use of wrong and even harmful drugs. It is essential that we have information about any drug that we consume, whether it it self-prescribed or prescribed by a doctor. This is necessary for our active participation in the therapy we undergo.

In a situation where even doctors are ill-informed and rely on the misinformation put out by the drug companies, there are groups that are working towards generating and providing correct information about drugs. One such group active in Bombay has taken up a project to set up a People's Drug Information Centre (PDIC). They are in the process of putting together information about drugs, their chemical constituents, their action, their correct dose, conditions under which they are necessary, conditions in which they are counter-productive, harmful or unnecessary and their possible side effects.

Women as contraceptive users form a special group of drug consumers. Drugs like contraceptive pills are taken by healthy individuals, and they not only have the potential to harm the patients, but also the generations to follow. Lately, we see new

contraceptives being distributed to the public by way of trial, usually without informing the recipient of its experimental nature.

The new long-acting contraceptives have known potential to cause genetic abnormalities. The recently introduced anti-fertility vaccine has the possibility of interfering with the immunological system as well as affecting the genetic make up of the person. So long as these drugs stop births, not much attention goes to their other possible effects, and these are thrust upon unsuspecting healthy women.

Learning to recognise the signs

When the system of health care works in a such a short sighted and careless manner, and when the whole environment seem to be so adverse, the question of our physical health acquires new dimensions. We have to begin to take steps for ourselves as individuals and as a community. It is important that we understand a disease beyond the symptoms that it manifests. It is necessary that we give preventive measures greater importance. And finally, even if affected by disease, we need to deal with the cause itself, and not be satisfied with just suppressing the symptoms.

The stresses of modern living often ingrain a careless attitude towards the body, discouraging people from tuning in to themselves. A feeling develops that if something goes seriously wrong, there is always some solution with the experts.

Understanding what may be wrong, and being able to describe it to the doctor, is important for cure. This requires a conscious and alert observation of one's own body all the time, not only when one is ill. During the course of our work in this field, we have come to feel that it is the personal responsibility of each one of us to be in tune with our own bodies. Learning to understand its rhythms and variations, to perceive the changes from the normal to the abnormal, is not difficult. Each person can work out the vital indicators for themselves.

Fever, swellings, headaches are all manifestations of the breakdown that affects a normally functioning system. The different character of symptoms exhibited during various phases of an illness can help in diagnosing the problem. Here are some examples relating the symptoms to the causes of breakdown.

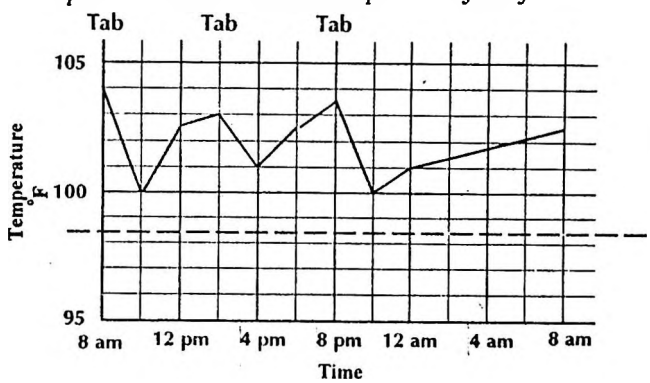
Fever

There is constant heat generation and heat utilisation in the body, as we have seen in the previous chapter. Simultaneously, there is continual regulation of temperature within the body to enable it to

function efficiently. However occasionally, due to certain changes within the body, there is a rise in temperature called fever.

Patterns have been observed in fevers. For example in malaria, there is a rise in temperature followed by intense bouts of shivering, and a fall in temperature. This cycle takes place every twenty four hours. If the sufferer and the people around her keep a note of the pattern of changing temperatures during a fever, it can become an important tool in recognising the problem.

Keeping a temperature chart is not as complicated as it may sound. All that is needed is a thermometer, a pencil and a page from an arithmetic exercise book marked with squares. The bottom line of the page could be marked to show the timings of the temperature readings, and the line at the extreme left could show the temperature readings as shown. The observations made at regular intervals can be marked with a point on the chart, and a line can be drawn joining these points. The line reveals the pattern of the fever.



This chart shows a record of a viral fever where the person is taking an anti-pyretic drug every six hours. The fever responds to each drug dose but keeps rising again and does not come down to normal.

We attempt to keep body temperature at normal because most of the organs in the body, especially the brain, are sensitive to high temperatures. A prolonged bout of high temperature can cause damage to the brain, so there is a need to act immediately.

Fevers are usually treated with a group of drugs called anti-pyretics. The fevers of typhoid and pneumonia-like bacterial infections do fall with doses of anti-pyretic drugs. However, the temperature does not totally come down to normal. This is also the case with the viral fevers. It follows, that if a fever does not come down after taking an

adequate dose of anti-pyretic drugs, it must be created by one of the infections above.

In the case of tuberculosis-type of infections, there is no alarming rise in temperature but there is a definite rise at particular intervals. Since the increase in temperature is not very uncomfortable, it is neglected and not given proper attention. This leads to a advanced stage of the disease, and greater long term damage to the body, even if it is treated later. Social understanding of diseases also plays a role in the management of the disease, and so the person who is suffering from fever has to play an active role.

Swellings

There is a need to differentiate between different types of swellings. There are some due to physical injuries like fractures and sprains, and there are other swellings, such as those of the lymph nodes, which come up as a reaction to illnesses, especially those caused by infections.

The body responds by producing cells to fight the infections and this is why we see swellings of the lymph nodes. For example a throat infection gives rise to swelling of the glands in and around the neck. Similarly cuts, wounds and injuries of the hands and legs can cause swelling of glands in the arm pits and in the groin. Certain infections of the lymph node can give rise to swelling of the nodes themselves, as happens in one kind of tuberculosis.

Swelling as a result of injury is due to damage to the muscles most of the time. The blood vessels are ruptured and the swelling is an outcome. With experience one can differentiate between types of swellings and diagnose the nature of the injury. For example, a swelling caused by a fracture does not come down with time as happens with a sprain.

A third type of swelling is due to joint pains and joint swellings and is very common in the cities. This is due to various reasons but is often caused by an auto-immune disease where the body reacts against its own cells, and there is reaction in the joints which is observed in the form of swellings.

Observing changes in the body such as increases in temperature and swelling are just two examples of what we mean by becoming sensitive to the body. All the effects observed have to be seen together to be able to make a clear diagnosis. Thus an alert observation of the whole body becomes an important aspect of looking after ill health.

Using the whole-body chart at the end of Chapter II, when visiting a person who is ill you could ask questions such as:

- *What kind of pain is there and where?*
- *What other symptoms or complaints are there?*
- *What is the pattern of the incidence of the symptoms?*
- *Are there any chronic complaints? Any long-term illnesses?*
- *Can any changes be made in the food and water being consumed by the person?*
- *Can changes be made in the pattern of work and rest?*
- *Have there been any recent changes in the environment or lifestyle?*
- *Is there a background of stress operating? Can it be dealt with?*

It's only when all the people--the ones who are ill, those looking after them, the health care workers, the planners and administrators--all consciously participate, that ill health can be tackled. It will have to be individual and collective effort--pooling together knowledge and experience of all sorts. In the next chapter we will explore efforts made on these lines in various parts of the country.

Chapter VI

OUR BODIES IN OUR OWN HANDS

We now come to the end of this exploration. And at this stage we seem to have arrived at a basic principle: to be healthy we need to act. Each one of us and all of us together have to be active agents in a process that would keep everyone healthy and well.

Even in a city like Bombay where there is no personal time, where all jobs are quick jobs, where everything is bought and sold, where expertise of all kinds is available--even here, it is our active intervention that is needed in every aspect of our lives. As life in this city becomes faster, more commercialised and tiring, it is natural to wish that someone else takes responsibility for our lives. In the case of health this someone else would be doctors and the impressive array of technology and drugs that they use.

In such an atmosphere, it seems impossible to imagine that ordinary health workers can do something, even something small at the personal level, and thereby gain some kind of control over the situation. To be able to work in the wider community and to involve all the people, seems an even more formidable task. But it is feasible, as others have shown, and their efforts could be a source of strength to the health worker. Much more than just dispensing available contraceptives and completing immunisation schedules is possible, and it is in our hands to do it.

This belief stems from a knowledge of efforts made in other parts of the country in this direction. In rural areas, where the health care system fails to provide qualified doctors and well equipped and properly staffed health care centres, communities have got together to evolve ways of dealing with emergencies, minor illness or other requirements on their own.

Self help in this context has meant equipping the community. The attitude of these efforts towards the structure of the health care delivery system has been critical. However, the context of these efforts has primarily remained the situation of ill-health in the absence of facilities provided by modern medicine.

Alternatives in the community

In a small village in Madhya Pradesh, one such effort had been made about ten years ago by a voluntary group called Kishore Bharati, working for development and education. The programme was named *Zaroori Davai Suvidha* and it ran with the help of the local village women. These women could not read or write. Every time that there was an illness in the family, they tried available herbs and other preparations. Then they would come rushing to the organisation's campus some distance away, looking for the *goli* that would bring instant relief. A doctor working in the organisation was in touch with them.

To avoid this situation of running to the doctor every now and then, the women came up with a solution of making the golis available in the village itself. But when the women could not read how would they identify the medicines? They decided that each woman in the group would keep only one type of medicine. So then there was a *bukhar wali bai, ulti wali bai, khansi wali bai,* and so on. Anyone who needed a specific medicine would go to the relevant woman and get themselves treated.

This process went further. Every week the village had a *dawakhana* with the doctor from the organisation. All the women with the medicines would also come and join this open air dispensary. They would discuss the kind of illnesses that had come up in the previous week, who they had given the medicine to, for whom had it worked and for whom there were other problems.

This was a time of learning for all the people around. The discussion would go on to why some illnesses were on the rise, what could be the possible reasons, how they could be tackled at the village level and so on. The villagers tried to look at their problems and find some solutions on their own while insisting collectively that the government

fulfill their tasks of ensuring clean drinking water, and of making proper health care facilities available in the official health centre.

The Zaroori Davai Suvidha was an effort initiated by local village women with the help of a conscientious and thinking doctor, and the support of an organisation which wanted to generate people's participation in their own development.

At another level, there are efforts being directed by some groups, especially women's groups, towards women's health. Their start is from a totally different perspective.

Arakkonam is a small town in Tamilnadu. A voluntary group called the Society for Rural Education and Development has been working in the villages around this town for a number of years. Their efforts have been directed towards organising landless agricultural labourers, especially women. As part of this work, women's need for birth control was perceived as a major need, and the group took a decision to address it.

Having begun from people's needs, as against the government machinery which begins with population control as the premise for distributing contraceptive methods, their work and its emphasis was very different. The activists of the Society for Rural Education and Development did not just hand out technological methods and think that they had addressed the need.

The health workers who were working on the programme first learnt and tried to understand menstruation and the menstrual cycle. This involved both the details of the internal chemical changes during a cycle, as well as the overall changes within the body. An effort was made to understand how the existing contraceptive methods worked. These were evaluated on the basis of the knowledge and experiences of women who had already used the available methods.

Efforts were made to explain these facts to as many women from the villages in the Arakonam area as possible. Simple devices like charts and songs were used to communicate to illiterate women. Barrier methods like condoms were found to be safe and so the health workers tried to initiate dialogues with men about use of condoms. These were actively propagated at all levels in the villages that they worked in.

The work did not just end at birth control. From the fertility awareness programme which helped women observe their menstrual cycle, the issue of white discharge emerged as a major concern. Reproductive tract infections, and sexually transmitted diseases began to be looked into, discussed and spoken about aloud. Along

with this, the issues have extended to include others, such as the man-woman relationship and the question of women's health status within the family. Matters of silence are being brought out into the open.

Accessible nutritional supplements are being found, so that women can take them and counter rampant malnutrition, often the cause of white discharge and weakness. At the same time, existing methods of treatment for these ailments are being tested and given credibility. Thus, what began as a programme for meeting the need of women for birth control, has stretched by itself to include the general health problems of women within their social and cultural status.

It is not as if these efforts are taking place only in the rural areas. In urban centres also, such work based in the slums and low income group colonies has been going on. One such programme is the *Samudayik Swasthya Karyakram* of New Delhi--a programme run in the settlement colonies in the expanding suburbs of Delhi by a voluntary organisation called Action India.

The Samudayik Swasthya Karyakram is also a programme dealing with women's health. As in Arakkonam, the first identified need was birth control. Once again, the emphasis was on learning more about the normal functioning of the body, especially the menstrual cycle, rather than just dispensing contraceptive methods in the manner of sweets. A general understanding of what one means by healthy and normal, and what one means by normal fertility within that, was a starting point. Fertility awareness--learning, teaching and actually charting one's fertility cycle was part of the process. Looking at women's overall status in society was another.

Another exercise was that of recording and surveying the experiences of women with the commonly used and available contraceptive methods. A detailed survey was carried out on female sterilisation operations, a widely accepted method in those areas. The health workers who designed the survey, collected the data and analysed it, were semi-literate women from the bastis. The findings of this survey were used to initiate a dialogue with the local government health centre which had conducted the operations. Women's experiences were collated, and the accountability of the health centre and its staff were sought, on the basis of these discussions.

This is a specific case of work by a voluntary group in an urban centre where hospitals, dispensaries and other facilities are available. In familiarising women with their bodies, not only are issues related to their overall reproductive health raised, but also efforts can be made to try and positively identify the contraceptive methods that women would like to use. From amongst such women is emerging the

demand on the government to provide female barrier methods. These are not available under the official family planning programme on the ground that Indian women do not like to or cannot use these methods effectively.

How does it compare with the situation in a regular health care centre? We give here the story of one such woman whose encounter with the health system represents the overall experience.

The individual on her own

Salma was a young woman, mother of two children, living in Bombay. She had conceived her second child immediately after the first when she was not prepared for it at all. After the second child she was very keen to use some contraceptive method. She came to know of a new method being given in the local hospital through her neighbour.

This was a long-acting contraceptive implanted under the skin of the forearm, and it promised to be a convenient method of birth control. She went and got herself implanted with a capsule, and her agony began soon after. Her menstrual cycle went out of control. She was bleeding almost continuously throughout the month. The excessive blood loss led to a lot of weakness and failing health.

Every time that she approached the hospital she was given some medicine which gave temporary relief. She carried on like this for almost four years, repeatedly contacting the authorities, but not being taken very seriously each time. At no time did she have even an inkling that she and others like her neighbour were part of an experiment, to test the drug on women over a period of time to see their effectiveness. They finally removed the implant after four years, not out of regard for her, but because the hospital trials were coming to an end. By the end of this period Salma was in no state to conceive again and her family insisted that she have a tubectomy so that she does not suffer any more.

Salma started with a need for a temporary contraceptive method because she wanted to space her children. She ended up with a permanently impaired fertility and weak health for the rest of her life. Who is being made more healthy in this process? We hear similar stories all the time about women who seek family planning at official health centres. They are offered any method that is available without regard to their individual constitutions, preferences and needs, based on targets that the government has set. Complaints about such methods are not recorded or acted upon, the patient is just treated temporarily with some medicines and pushed aside.

The other important lesson that such an apparently contradictory situations highlights is that of the need for each one of us to equip ourselves to question, and then only critically accept existing knowledge. From the policy makers' perspective, implants are touted as the latest and ideal birth control method with no attendant problems, and appear totally acceptable. Ordinary health workers are not supposed to question the wisdom of those who are qualified. However because we are health workers, we need to ask a few questions before passing on such methods to the women who come to us for help.

What is the definition of an "ideal" method? What are the limits of "acceptability"? What are the biases resorted to in defining these? Should menstrual disorder be treated as a minor side effect that is inevitable when using a birth control method? Should the knowledge of the menstrual cycle be used to come out with devices that interfere with the natural cycle, which often has unexpected consequences? Or can one use this knowledge to understand the fertility cycle and find means of handling it?

The alternative methods tried out by these voluntary groups are no doubt slow to spread, and require a lot of involvement and patience on the part of both health workers and users. But if we want to arrive at an different understanding of health in the long run, and want this understanding to have a meaningful impact on our lives, only such dedicated efforts will help.

We need to become alert and active ourselves. Take the area of birth control. If a proper kind of sex education programme is taken up among young girls in the community, self confidence is built. If girls they are given opportunities to be more independent, awareness of the body increases. Perhaps then, health disasters such as Salma's would not be allowed to occur, because women like her would have been better prepared to handle such situations right at the outset. This is something that we can work towards and achieve.

Health care is not about being ill

Besides women's health, we are also concerned with general health. We do not have to wait to fall ill before we start thinking of our bodies. Action has to begin much sooner and it has to be multidimensional. Our bodies are working continuously, trying to carry on against all odds. We need to help our bodies to achieve their potentials. We have to create conducive situations that would allow all our bodies to function normally. We also need to be more aware of body functioning so that any intervention in it takes place with our awareness and consensual consent.

As health workers we need to create a new relationship with our own bodies and also help others to do so. It is important to find the space to listen to the body's needs and requirements. Even within the restricted space that is available, such relationships need to be developed. If we can act in some small way to stabilise situations before a stage of breakdown is reached, that could take us a long way in remaining healthy.

Even if a breakdown does occur, we have to become conscious and informed patients ourselves. Here the role of the health worker is very crucial for the community. In a place like Bombay which has some of the best health facilities available in the country, and yet bare minimum care is not accessible for most, the role of the health worker as the friend of the community is very important. Day by day, as we are being forced to rely more on doctors and medical technology, we have to learn to ask the right kind of questions and interpret the course of action suggested by the doctor.

Doctors after all are part of the wider society. They have been trained in a particular way, and hence can look at problems in a specific way only. Most of them are not concerned about the social situations in which the patient lives. How many times have we come across doctors who would even pause to ask what is the occupation of the person? Or how many have we seen who would try and look at the illness in its social context? Most of them have been trained in a mechanistic way and so can only deal with specific diseases and their prescribed treatments. In such a situation, looking at health in a way different from the widely accepted view is more difficult and yet more urgent.

This is the overall situation. However, in today's context there are some more matters of concern which also need to be stated. There is increasing privatisation and commercialisation of health care. With more irrational drugs coming into the market and with the pressures of the pharmaceutical companies, many dangerous drugs and medicines being prescribed. In the urge to make more money, hospital fees are increasing as also the costs of diagnostic tests, often quite unnecessary.

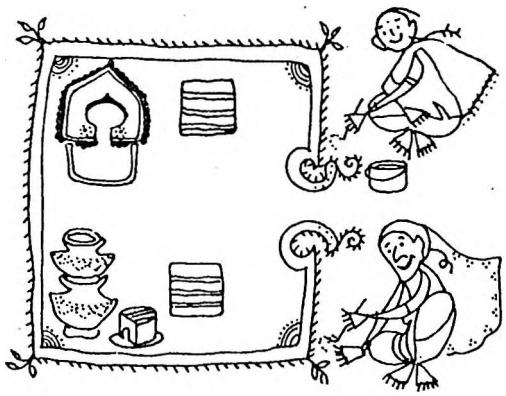
In such a situation it is essential that we be more patient as patients. Running from one doctor to the other does not help. In fact it could lead to incomplete treatments, which could be harmful in the long run. It also encourages the practice of overdosing or harmful drugging that the doctors claim they do because patients want quick cures. In our quest to get well soon we are allowing ourselves to get cheated and at the same time are also making our bodies less capable of following the natural processes of recovery.

It is important that all factors adversely affecting the normal functioning of the body be tackled, whether they arise out of our own actions and ignorance, or out of the disparate and inequitable social structure. This implies that self help or action on our part would mean working consciously and actively towards making the best use of what is available. At the same time, we need to work towards ensuring that more is available to all of us eventually. It requires conscious action on the part of each one of us individually and collectively. Action that can lead to the most judicious use of the resources to which all of us have a right.

All struggles for equitable distribution of material resources, for preservation of all life and life-giving atmosphere, for changes in oppressive norms, for ensuring a humane existence--all contribute towards better health and are an integral part of self help. These ideas should form the backbone of any community health programme. Obviously violence of any kind, whether it is directed towards individuals in the family or towards particular communities or towards nature, creates a situation in which good health cannot survive. Countering violence also becomes a vital step of the self help process.

We look upon this book as a miniscule but vital step in the direction of achieving these dreams in the context of the work of a health worker or a health programme. For us as writers, this has been an exploration, the first few steps. These need to be fleshed out, given a concrete shape and direction with the experiences and actions of our readers. We know it is possible because we are talking of life, health, vitality.

In this city each of us has come to gain something material while making compromises at many other levels. It is our firm belief that an understanding of the interface of the body processes with work, life and immediate environment, should help all of us in making the beginning towards health, both that of individuals and the community to which we belong.



APPENDIX

A short list of agencies involved in community health and related activities in Bombay

Name and address	Main Focus Within Health Area	Contact Number
Aga Khan Foundation Prince Aly Hospital Prince Aly Marg, Mazgaon Bombay 400 010	resource materials	855 4342
Alert India Mukhyadhyapak Bhavan 3rd Floor, 6-B Sion West Bombay 400 022	leprosy	407 2558
All India Institute of Physical Medicine & Rehabilitation, Haji Ali Keshavrao Khadey Marg Mahalaxmi Bombay 400 034	treatment, training and research centre, training of para- medical personnel	394 654 393 878
Ali Yavar Jung National Institute for the Hearing Handicapped Kishen Chand Marg Bandra Reclamation Bombay 400 050	hearing disabled	640 4170
Apnalaya New Jaiphal Wadi Behind Bldg No.7 Armed Police Quarters Tardeo, Bombay 400 034	organising community health education and other need-based activities	C/o. Ms. Mehta 362 0878

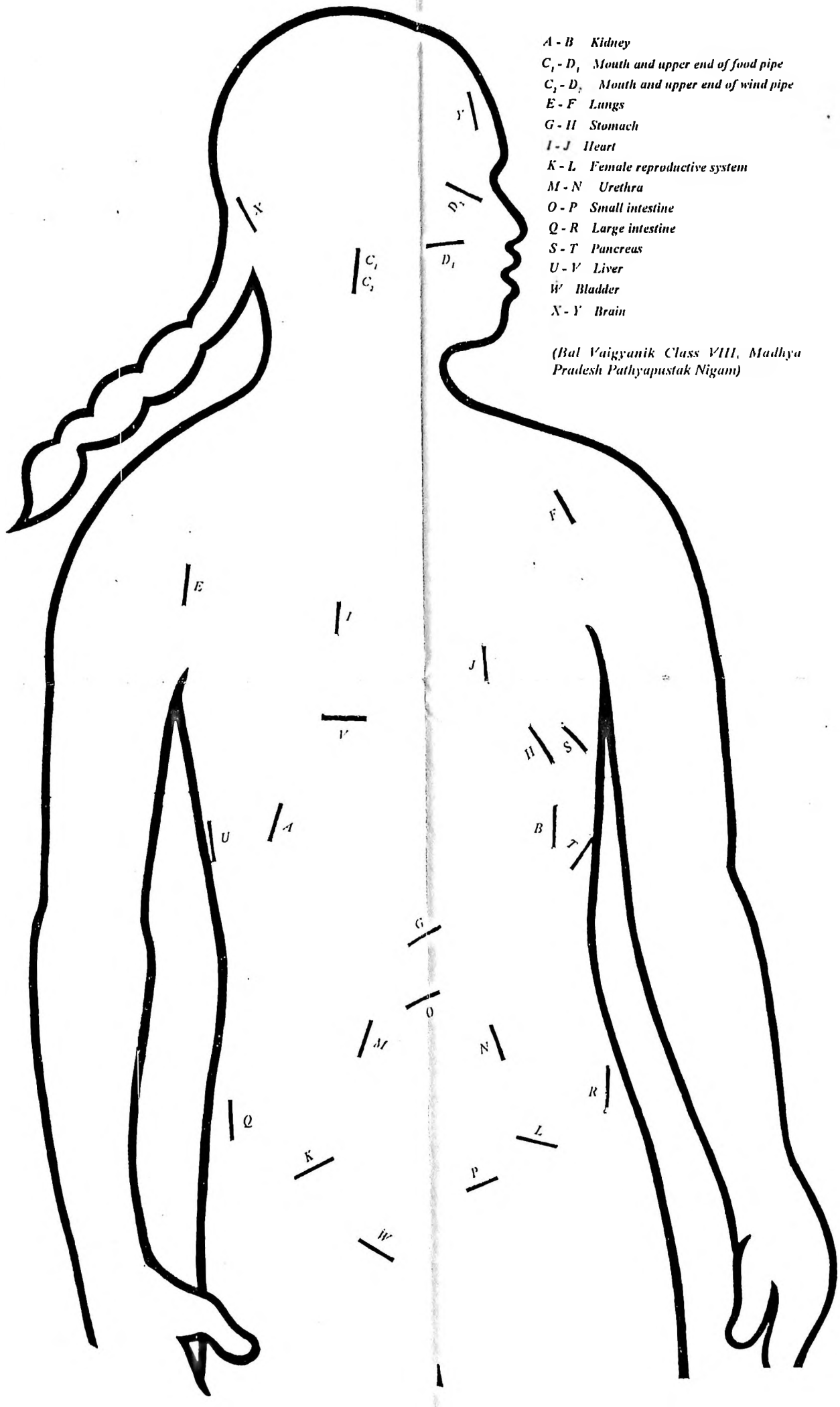
Asha Deep Vikas Kendra A/18, Achanak Colony Mahakali Caves Road Andheri East Bombay 400 093	community health	830 1916
ASTHA Xavier Institute of Communication St. Xavier's College Mahapalika Marg, Bombay 400 001	resource materials	262 1366 262 1639
Association for the Welfare of persons with a Mental Handicap (AWMH) Basement, Turner Morrison House 16, Bank Street Bombay 400 023	welfare of the mentally handicapped	266 1321
AVEHI Sardar Nagar 4, Raoli Camp S. M. Road, Sion-Koliwada Bombay 400 037	resource materials	407 2188
Bandra East Community Centre Opp. Cardinal Gracias High School 341/A Siddharth Colony Bandra East, Bombay 400 051	community health	642 4691
Bombay Leprosy Project Vidhan Bhavan Opp. ITI, Chunabhatti Sion East, Bombay 400 022	leprosy	407 4066
Catholic Relief Services USCC India Programme Bombay Zone 1st floor, Eucharistic Bldg No. 3 5, Convent Street Bombay 400 039	health and training programmes	23 0834
Childrens' Aid Society 83, T.H. Kataria Marg Mahim, Bombay 400 016	welfare services	45 2514
Child Relief and You (CRY) 189A Sane Guruji Marg Anand Estates, Mahalaxmi Bombay 400 011	resource material and funding of projects	309 1151 309 6472 309 6845
Committed Communities Development Trust Primrose, 303, Juhu Road Santacruz West, Bombay 400 049	community health	611 7070
Community Aid and Sponsorship Programme (CASP) 175, Dr. D. N. Road, Fort Bombay 400 001	programme providing supportive aid to needy children within their families	261 6034 261 1945 261 3639

Community Outreach Programme (CORP) Methodist Centre 21, YMCA Road Bombay 400 011	health education for women and children	396 3189
Concern India Foundation, Ador House K. Dubash Marg Bombay 400 001	funding of projects	202 9707
Department of Extra Mural Studies & Dept. of MPSW TISS, Deonar Road Post Box No.8313 Bombay 400 088	training health workers	556 3290
Family Service Centre 5, Convent Street Eucharist Congress Bldg No. 3 Bombay 400 039	family counselling, financial aid, adoption and foster care	283 1432
Forum for Women's Health 2, Vishwadeep 95, Bhau Daji Road Matunga, Bombay 400 019	women's health, contraception, training of health workers	437 9482
Foundation For Research in Community Health (FRCH) 82, A.R.G. Thadani Marg Worli, Bombay 400 018	research projects and documentation on health	493 8601
Forum for Medical Ethics 34 B, Noshir Bharucha Road Bombay 400 007	publication of "Medical Ethics"	386 8608
GUARD 5/89, Shanti Niketan Samata Nagar, Kandivli East Bombay 400 101	community health	
Indian Health Organisation Municipal School Bldg. J. J. Hospital Compound Bombay 400 008	preventive and educational activities on AIDS	371 0819
Indian Council of Social Welfare 175, Dr.D.N.Road, Fort Bombay 400 001	promotion of health activities	261 1945
Indian Red Cross Society Maharashtra State Branch, Town Hall Compound, 141, Shahid Bhagat Singh Road Bombay 400 023	medical relief, health training	203 1524

K.A.S.A., Behind Tilak Bhavan Kakasaheb Gadgil Marg Dadar East Bombay 400 028	AIDS and allied studies	
KRIPA Mt.Carmel Church 81 Chapel Road Bandra West Bombay 400 050	drug abuse	643 3027
Lok Seva Sangam D-1, Everand Nagar Sion-Trombay Road, Sion, Bombay-400022	leprosy	407 0718
Maharashtra Lokhita Seva Mandal 1st Floor, A wing Adarsh Apts, Golibar Santacruz West Bombay 400 055	leprosy and community health	611 4927
Mobile Creche for Working Mothers' Children 2nd Floor, Oxford House Apollo Bunder, Bombay 400 001	education, day care and allied activities at construction sites	202 0869
Nagpada Neighbourhood House, Sophia Zuber Road, Byculla Bombay 400 008	community health and other needs	307 2571
National Addiction Research Centre (N.A.R.C.) 5, Bhardwadi Hospital Complex, Andheri West Bombay-400 058	drug abuse research	621 2661
National Society for Clean Cities – India 590, Ali Yavar Jung Marg, Kherwadi Bandra (East) Bombay-400 051	environmental awareness	642 9742
Occupational Health and Safety Centre C/o Blue Star Workers' Union 6, Neelakanth Apartments, Gokuldas Pasta Road, Dadar(E), Bombay 400 014	occupational health	
PATH Janata Education & Training Society, Pailee Pada Trombay, Bombay 400 088	health education and awareness	555 5164

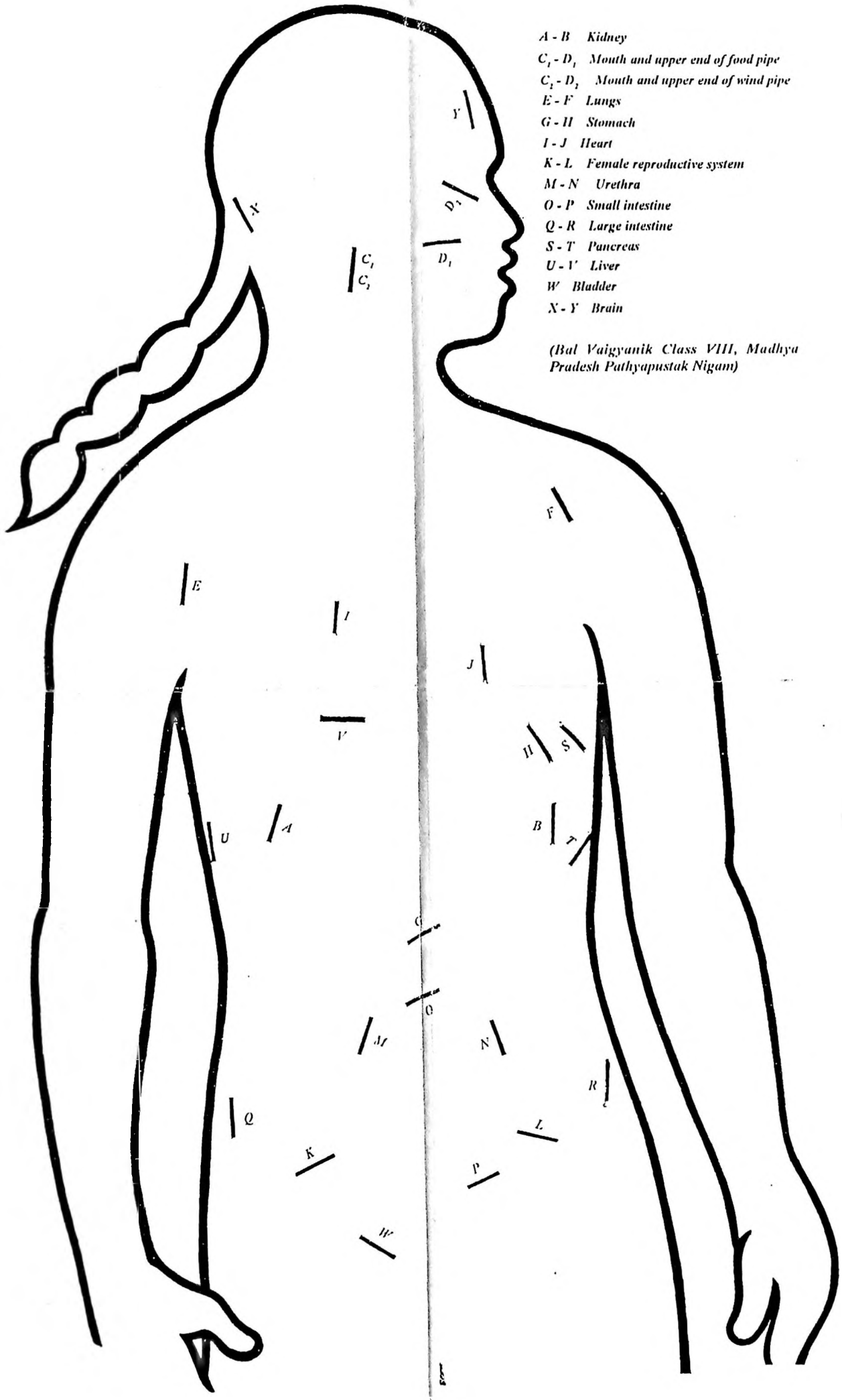
Parisar Asha, 103/104, Dunhill Villa, 1st Floor Besant Road Santacruz (West) Bombay 400 054	education for children on environmental issues	612 4442
People's Drug Information Centre (PDIC) Project c/o Association for Consumer Action for Safety and Health (ACASH) 2nd floor, Servants of India Building 417, Sardar Vallabhbhai Patel Road Girgaum, Bombay 400 004	drug information	
PRERANA Kamathipura Municipal School 7th Lane, Sukhlaji Street Bombay 400 008	AIDS studies and care of children of prostitutes	
Pride India, 4-C, Swapanalok 47, Lady Jagmohan Marg Bombay 400 036	disabled children	361 3433
Project SMITA D-5, Movie Tower Plot No. 41, Yamuna Nagar Oshiwara Complex Andheri West, Bombay 400 058	resource material	626 0109
Samaj Seva Niketan 3 Bhanu Villa Amrut Nagar Ghatkopar West Bombay 400 086	community health	517 1987
Stree Hitakarini Lokmanya Nagar Compound Kakasaheb Gadgil Marg Dadar West, Bombay 400 028	community health	422 0565
Slum Rehabilitation Society Swapna Safalya Plot No. F/8/6, 25th Road TPS III, Bandra West Bombay 400 050	community health	640 8911 643 6782
Snehalaya, Victoria Church Compound, Lady Jamshedji Marg Mahim, Bombay 400 016	programmes to improve quality of family life	451 866 453 876
SPARC Byculla Centre C/o Municipal Dispensary Meghraj Sethi Marg Byculla, Bombay 400 008	health research and drug rehabilitation centre	54 6258

Spastics Society of India Bandra Reclamation K.C.Marg, Bandra West Bombay 400 050	disabled children	644 3666 644 3688
Sulabh Shauchalaya 52/B Sindhi Society Chembur Bombay-400 071	installation of public toilets and bathing facilities	553 3184
Urban Community Development Centre (UCDC) 104/B, 14th Road, TPS III Bandra West Bombay 400 050	community health services in slum areas	640 6258
Youth for Unity and Voluntary Action (YUVA) Room No. 53 & 54, 2nd Floor Nare Park Municipal School, Parel Bombay 400 012	child health and issue based activities	414 3498 407 0623



A - B Kidney
C_1 - D_1 Mouth and upper end of food pipe
C_2 - D_2 Mouth and upper end of wind pipe
E - F Lungs
G - H Stomach
I - J Heart
K - L Female reproductive system
M - N Urethra
O - P Small intestine
Q - R Large intestine
S - T Pancreas
U - V Liver
W Bladder
X - Y Brain

(Bal Vaigyanik Class VIII, Madhya Pradesh Pathyapustak Nigam)



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This book has emerged from the concerns of two researchers, Swatija Manorama and Chayanika Shah. During the past several years they have worked on science and society related issues, with particular emphasis on women's concerns. In the course of their practice as trainers of health workers, they had felt a need for clarity on the social implications of the biological content of such courses. This is how the idea of working towards a manual came about. They chose to address this work to the specific problems raised in the urban setting of Bombay. While some training addressed to rural health workers is available, there is not much made for the city. It was also felt that voluntary health workers often require orientation to make use of the health resources available in a city, and this work attempts to address this need.

A grant from the Bombay Community Public Trust made this exploration possible.

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