THE COLONIAL LEGACY AND THE PUBLIC HEALTH SYSTEM IN INDIA

radhika ramasubban

Colonial health policy in India never really came to grips with the problem of public health. Through the evolution of a 'colonial mode of health care', the enclave sector — the army and the European civilian population —— kept pace with the metropolitan developments in sanitary and medical sciences while attempts to introduce epidemic control and public health measures remained abortive. In the last years of the nineteenth century when the situation afforded a compelling basis for a far-reaching public health policy, the colonial government found an escape route in the new research possibilities. The contradictions of the health system in India arise from its historical legacies. This article traces the various strands which evolved during the period of colonial rule and the manner in which they continue to shape the present public health system.

This article is an abridged version of an earlier research report by the author, "Public Health and Medical Research in India. Their Origins under the Impact of Colonial Policy" (SAREC, 1982).

The task of tackling widespread disease and of raising the health status of the population requires coming to grips with the conditions which cause debility and disease. The three main instruments for such a strategy in the Indian context are thoroughgoing public health measures, improvements in the standard of living of the population through raising incomes and providing employment and making the health services available to those in need. Obviously, the health system alone cannot cope with all these challenges and in a general sense the contradictions of the Indian health system are a reflection of the contradictions of the development process itself. More specifically, the contradictions of the health system in India arise from its historical legacies and the overall framework which guides its nature and functioning.

India missed going through the period of sanitary reform which swept through most of Europe in the 19th and early 20th centuries. Colonial health policy never really came to grips with the problem of public health in India, whereas through a policy of segregation and what evolved into a 'colonial mode of health care', the enclave sector — the army and the European civilian population — kept pace with metropolitan developments in sanitary and medical science. In the absence of general public health measures, epidemics of small pox, cholera, plague and influenza continued to recur among the general population. Some attempts made in the first quarter of the 20th century to evolve epidemic control measures remained abortive due to the administrative disruptions caused by the two world wars and the preoccupation with the health of the army, particularly the control of malaria in the eastern theatre of the second world war.

The independent Indian State, although it recognised public health as one of its main concerns, lacked the commitment to carry through a public health revolution. Seen in the wider historical perspective, the huge expenditure that public health measures require have been incurred by the State in the western countries for ensuring a steady supply of the labour force and for raising its productivity. The capitalist path of development launched in India has remained distorted and slow. It could neither impart dynamism to the public health system as it had very little demands to make, nor could the productive forces develop to the extent which would improve the health status of the population by meeting their nutritional and other basic needs. About half the Indian population is still living below the minimum nutritional standard for meeting the energy requirements of the body and the incidence of diseases preventible through public health measures dominates the disease profile.

The problem with undertaking far reaching public health measures such as protected and adequate water supply, sewerage systems and better housing and nutrition is that it requires massive public expenditure. The independent Indian State, however, has not been able to meet these requirements (Ramasubban, 1984). It has, instead, settled for softer options which are essentially a continuation of the colonial tradition. The attempt here will be to trace the various strands that evolved during the period of colonial rule and the manner in which they continue to shape the present public health system.

The Evolution of Colonial Health Policy

The main factors which shaped colonial health policy in India were its concern for the troops and the European civil official population. The response

to this concern underwent a series of stages corresponding to the growth of knowledge in England about the principles of disease causation. The old climatic theory was that the Indian climate caused diseases in the 'abdominal cavity' while that of Europe caused disease in the 'thoracic cavity' (Scott, 1939). This gave way to the theory of miasma, resulting in a policy of segregation and sanitation which began in the mid-nineteenth century and continued through until the end of the century. The result was the evolution of a distinctly colonial mode of health care. This policy, also, took into account statistical patterns of mortality and simple prediction of epidemics. The general spread of epidemics resulted, however, in the mobilisation of international opinion, and the perception of the Indian population as a secondary source of infection brought the general population into the ambit of health policy. But the main concern remained the army, and therefore, the evolution of colonial health policy has to be necessarily placed within the framework of the army. The shift in focus in England and Western Europe from sanitation to epidemiology and bacteriology, which began in the 1880's and gained revolutionary momentum in the following decades, had significant implications for India. By the turn of the century, laboratory investigations were instituted in the four army commands, to put army health on modern, scientific principles. Although the direct link between health and medical research remained confined within the framework of the army, the growing interest in and official patronage for the discipline of tropical medicine in England integrated India, the largest natural disease laboratory in the British empire, into metropolitan scientific activities, and a few laboratories for research were set up within the country.

The army, the main instrument of the East India Company's political consolidation, was primarily composed of Indian soldiers, the European component being outnumbered by roughly eight to one (Imperial Gazetteer of India, 1909). The high cost of transporting European soldiers to India and of invaliding due to sickness, and the time taken in further recruitment and replacement, were the major factors responsible for the excessive reliance on the Indian component.

Mortality, sickness and invaliding in the European army was due mainly to four major diseases: fevers, dysentery and diarrhoea, liver diseases and epidemic cholera, in that order, all of which, perticularly the last-mentioned, assumed virulent form when the troops were on the march. And the troops were almost constantly on the march in the prevailing unsettled state of the country.

As regards the European civil population, a large section was concentrated in the three Presidency towns of Calcutta, Bombay and Madras, which were centres of government as well as the major ports. Here European areas of residence were secluded from the Indian areas and along with the cantonments in these towns, were fully self-contained. By the mid-nineteenth century, these areas were relatively well planned and drained and vaccination against small pox (the only effective prophylactic known), among the European civilian residents and among the residents of the cantonments, was almost universal.

The events of 1857 — the 'Indian Mutiny' — highlighted as never before, the importance of the British soldier's health and efficiency. Army health which became the primary concern of colonial health policy remained an abiding concern as, with the expansion of the British empire, the army in India increased in importance as the largest single force in the empire, and as a key instrument in the security of Britain's eastern possession. The 'Mutiny' of 1857 had highlighted the insecurity of British military power in India. Reliance had hitherto been placed on Indian soldiers and they had vastly outnumbered the European component. Although the majority of the Indian troops had remained loyal to the Company and the 'Mutiny' had been successfully quelled, it was decided that the defence of India would henceforth have to be in British hands, and it was resolved that the 'British army serving in India' should form part of the Imperial British army. This necessitated the transfer in 1858 of the European troops of the East India Company to the Crown and a Royal Commission was appointed to work out the army's reorganisation. It recommended raising the number of British troops, and that the ratio of Indian and British soldiers should be of the order of 2 to 1. The result was a 60 per cent increase in the number of British troops. (Imperial Gazetteer of India, 1909)

The result of the increase in the strength of British troops was that one-third of all British forces came to be stationed in India. The problems in acclimatising such large numbers to Indian conditions and ensuring their health, therefore, assumed importance.

Along with the Indian Mutiny, the Crimean war, too, played an active role in focusing discussion in England on the health of the British army. The

Crimean experience had shown that mortality among troops had been due primarily to epidemic ravages and the insanitary state of barracks and hospitals rather than to wounds of war. It highlighted the need to apply the principles of modern sanitary science currently championed in England by sanitarians like Chadwick and John Simon, to the army. In 1857, a Royal Commission was appointed to enquire into the regulations affecting the sanitary conditions of the army, the reorganisation of military hospitals and the treatment of the sick and wounded. The enhanced strength of the British army in India required a similar enquiry into Indian conditions, and in 1859, another Royal Commission was appointed to enquire into the Sanitary State of the Army in India.

Of the total number of deaths in the period examined by the Commission, i. e., 1817 to 1857, only 6 per cent had been due to war. The rest were caused by four major diseases : fevers, causing about 40 per cent of all deaths and three-fourths of all hospital admissions; and dysentery and diarrhoea, liver diseases and cholera being the other killers. Fevers, besides the suffering and immediate risk to life, also had a tendency to relapse dangerously and affect vital organs, resulting in considerable subsequent illness, mortality and invaliding among British troops. At this time 'fevers' was still a general term for most forms of sickness. Clearly, therefore, "the main enemy of the British soldier in India was not the Indian enemy but disease". (Royal Sanitary Commission Report, 1863).

a) Sanitary principles and the policy of segregation.

The situation, however, was neither unfamiliar nor irremediable. The old climatic theory had held that the Indian climate produced diseases distinctly different from those resulting from the English climate. Now, the diseases which were fatal to the British soldier in India were recognised as familiar, as those which had until recently caused the highest mortalities in England, and which had been brought under control in that country through sanitary programmes.

The keynote of metropolitan sanitary science, which grew out of the compulsions of urbanisation in England in the eighteenth and nineteenth centuries, was environmental control. The means through which this was accomplished were mainly town planning, housing and sanitary engineering. These measures required administrative and government institutions embodied in 'local governments', which were responsible for investigation of local insanitary conditions and their control, and given the force of legal sanction through public health legislations.

The physical placement of the European population in India was, as far as possible, based on the principles of this sanitary science. Using criteria of soil, water, air and elevation, the Royal Sanitary Commission on the army in India laid down elaborate norms for the creation and development of distinct areas of European residence, and the 'cantonment', 'civil lines', 'civil station' and 'hill station', regulated by legislations, developed into a colonial mode of health care and sanitation based on the principle of social and physical segregation. From the time of the Royal Commission's Report of 1863, the location and layout of European civil and military areas were determined by criteria of health laid down by the prevailing medical scientific theories of miasma and environmental control rather than by political and strategic criteria. Most of the troops were located at 'hill stations' or on elevated ground. In cases where strategic stations were unhealthy, only small forces were posted there to be reinforced at short notice. Earlier, the 'native lines', i. e., residential areas of Indian soldiers, had been left outside the pale of colonial planning and construction activity for troops. European fears of miasma emanating from them had even led to construction of walls between Indian and European troop locations to keep the miasma out. The Royal Sanitary Commission voiced concern for the health of the Indian troops and recommended that cantonment planning should also be extended to the 'native lines'.

b) Public health machinery : vital statistics and disease control

Following the Royal Commission's Report, Cantonments Acts, Regulations and Codes were issued, modelled on public health acts in Britain.

While segregation was an effective tool, at least in the three Presidency towns contact with the native population was unavoidable. Native servants often lived in the native areas, and native dealers and tradesmen serviced the cantonments and civil lines. Grossly insanitary conditions prevailed in these large and unplanned urban centres and the native population could well serve as secondary sources of infection. An understanding of disease among them was, therefore, considered essential. In his despatch to the Government of India the Secretary of State for India pointed out, "The determination of the effects of local causes on the mortality of the

native population, besides its intrinsic value in connection with the welfare of the people of India, cannot fail to have an important bearing on the health of the Europeans resident among them." Gazette of India, 1864).

Three Presidency Sanitary Commissions were set up in 1864. The basis for the functioning of these Commissions was to be the systematic generation of facts about mortality, epidemics and sanitation, which would be embodied in an annual sanitary report to be submitted to the Government of India by the Sanitary Commissioner to the Government of India. This would in turn be summarised in annual reports presented to parliament on the progress of sanitary measures in India. This laid the foundation for a public health machinery, particularly in the field of vital statistics and disease control.

The investigative tradition was an integral part of the sanitary movement concurrently taking place in England; in fact, the first stage of the public health movement was that of governmental investigations on grand scale. Regular statistical reports were also seen as essential to any systematic public health control and since the establishment of the office of the Registrar-General of Births, deaths and Marriages in 1836, the steady accumulation of statistical evidence had generated a demand for further research into the causes of epidemic diseases. (Shryock, 1948)

In keeping with this tradition, the Government of India appointed in 1861, the first systematic enquiry into a major epidemic — the cholera epidemic of 1861. The facts that it highlighted were followed up in the annual sanitary reports, which resulted in a steadily growing volume of statistics and facts about the disease.

The significance of the 1861 epidemic was that its impact was not confined to India alone; it was followed by another epidemic in 1865 which spread from Egypt across Europe to England. Cholera had been the most important factor responsible for initiating the public health era in Britain in the early nineteenth century. The 1861 epidemic provided the final and most powerful spur to sanitary legislation in England. This was the Sanitary Act of 1866 embodying the important principle of compulsion by the central authority if the local sanitary authority failed in its duty.

This epidemic also gave rise to four international sanitary conferences participated in by European countries in 1866, 1874, 1875 and 1885. They devoted their deliberations specifically to this disease and attempted to work out quarantine measures acceptable to all participating countries; systematise existing knowledge about the disease and identify major questions for further investigation; and, recommend measures for prevention. As the 1861 epidemic had originated in India, the first Conference at Constantinople discussed India as a major topic.

The Constantinople Conference put the Imperial government into a quandary by pronouncing India the natural home of cholera. In the absence of any breakthroughs in know edge about the cause and mode of infection, the Conference stressed the need for stricter implementaion of rigorous and lengthy quarantine both in sea and land movements, greater cleanliness and disinfection of ships, houses and merchandise, and care to avoid overcrowding. The central consensus of the Conference was that the spread of cholera epidemics was due to rapid movements of groups of people and their personal effects, water and food supplies. It pronounced that in the case of India the movement of pilgrims and large congregations at fairs and festivals was the single and most powerful of all the causes which conduce to the development and propagation of epidemics of cholera". (Cholera Committee Report, 1867). In the opinion of the Conference when the pilgrims congregated, the cholera spread among them and when they dispersed they carried the contagion with them over long distances. The Conference recommended elaborate preventive, sanitary and curative arrangements at pilgrim centres and on pilgrim routes.

The international arrangements outlined for quarantine and the recommendation proposed regarding pilgrims, by the Constantinople Conference, were particularly irksome to Great Britain which had the largest international maritime trade as well as the most frequent troop and naval movements to and from its colonies. In the face of stricter quarantine restrictions imposed by the Constantinople Conference and the international pressure to control cholera within India and prevent its spread therefrom, Great Britain responded by instituting its own investigations into the authenticity of a quarantine policy, i. e., whether it was local conditions of soil, air and water rather than contagion carried through people and their effects which caused the spread of epidemics, and whether there was a possibility of coping with cholera through effecting sanitary

improvements rather than quarantine. Professional medical opinion in England also provided support to such a move and a special enquiry came to be sanctioned by the Secretaries of State for War and India into the mode of origin and transmission of cholera.

While the results of the scientific investigation were being awaited, practical sanitary measures were intensified in relation to all cantonments, smaller military stations, troops on the march, jails, hospitals and seaport towns. By 1872 local medical officers in all the various military stations were doing simple qualitative analysis of water. The prohibitions upon soldiers going into the Indian cities or cholera affected areas were more strictly enforced and "sanitary cordons" (suggested by the Constantinople Conference) were erected around cantonments to prevent persons residing in nearby villages and localities and those suspected of carrying cholera, from entering the area. Infected cases in cantonments were isolated and barracks, jails and hospitals fumigated.

Hitherto, troops on the march had been the most vulnerable to cholera attacks. The new sanitary rules governing the marches also included rules regarding railway travel, such as provision of good drinking water and wholesome meals at halting stations, isolation of the troops from the native towns and bazaars en route and at destination, thirty-minute stops every four hours and travel for not more than twelve hours at a stretch.

Systematic statistics about cholera were accumulating with the regular publication of annual sanitary reports. These statistics pointed to direct personal contact as an extremely unlikely cause of infection Nor was land quarantine doing much good; and nor did cholera appear to travel along highways and major lines of communication. As regards sea travel, however, stricter control was instituted, mainly in deference to international pressure.

Until the end of the 1880's, cholera of all diseases pressed most heavily on British soldiers in India, being the most important cause of mortality although not adding significantly to the sickness rates. The investigations of Lewis and Cunningham, by going into the question of sub-soil water levels, had launched on a relatively fruitless line of enquiry which failed to produce conclusive evidence on the cause of cholera. But although their study (Lewis and Cunningham, 1876) made little impact on the control of cholera, it was valuable in that it stressed the importance of looking elsewhere than into, contagion through personal contact. But by the period 1870-79, the combined effect of sanitary measures and other reforms had brought average mortality due to all diseases among European troops down to 19.34 per 1000 of strength, of which cholera accounted for an average of 3.22 (calculated from Annual Sanitary Report for relevant years). By the end of the century the severity of cholera came down even further and after 1900 rarely one person in 10,000 among the European troops came down with cholera (Annual Sanitary Reports, 1899-1929).

The year 1883 was one of the major landmarks in scientific investigation into disease causation. A German Commission led by Robert Koch discovered the Cholera 'Comma' Bacillus in Egypt and visited Calcutta in the same year to confirm the discovery. Koch's discovery was a significant contribution to the germ theory of disease causation which had emerged in Western Europe in the 1860's and studies like his and those by Pasteur, which linked a specific organism with a specific disease, helped to firmly establish the theory in the 1870's and 1880's. This modern scientific revolution in medicine challenged and ultimately triumphed over the earlier miasmatic theories.

c) General Population

The Constantinople Conference's declaration of India as the source of epidemics, its condemnation of the British government for failing to control these epidemics and the latter's own recognition that the Indian population constituted a secondary source of infection, provided the compulsion for broadening the scope of health policy and include the general population in its purview.

In keeping with the theory of contagion, the places of pilgrimage and pilgrim routes became the starting point of health policy in relation to the general population, and the formal motions of attending to the problem were gone through. Committees were appointed and reports prepared. But when it came to giving a concrete course to the policy, however, the government's attitude remained evasive.

While the suggestions of the Constantinople Conference regarding the desirability of sanitary precautions in relation to large groups of people on the move was quickly given effect in the case of troops on the march. In order to prevent

the outbreak of epidemics among them, the question of epidemics at the pilgrim centres was treated as a puzzle, and various other considerations such as finance, religion and race clouded the issue. However, at the 1867 Kumbh Mela, the government as a test case made some ad hoc sanitary and hospital arrangements. These had proved successful in curbing cholera on the fair grounds. But no sooner had the pilgrims dispersed, than the cholera that they carried spread in the regions through which they passed and in their ultimate destinations even as far as 700 miles away. This seemed to imply that not sanitation alone but land quarantine measures were required. The official position was to see this as an intractable problem, for quarantine was not considered to be a feasible measure in the case of people who would be dispersing over a large area. The response of the Government of India was to rest content with the prohibition of pilgrims from entering military stations or even their neighbourhood.

In fact, the whole question of pilgrims taking cholera back with them to their towns and villages raised the uncomfortable issue of an extensive public health machinery for the general population on a continuing basis, which would be the only countervailing force against epidemic cholera emanating from pilgrim movements and congregations.

But sanitary reforms were expensive and unremunerative. The MacKenzie Committee appointed to go into the pilgrim question recommended that the government should undertake the responsibility for at least a few such measures at pilgrim centres. If public health measures for the general population at large could not be adopted, at least the enforcement of conservancy measures at fairs and pilgrim centres and demonstration by the government thereby of the desirability of sanitation would act as an incentive for the general population to voluntarily adopt the modern sanitary principles in towns and villages. The Committee argued that such a step was also in the interests of the European population. But the government rejected the idea of expenditure on conservancy measures and sanitary police at pilgrim centres, and policy floundered on the issue of whether pilgrims should be made to pay for sanitary arrangement through a sanitary tax. (MacKenzie Committee Report, 1868)

Progress on sanitary reforms concerning the general population was blocked on the ground that no measures could be enforced, as any element of compulsion would offend the people's religious sensibilities and be construed as interference in their customs. The bogey of interference in the religion and customs of the people was not new, but was more self consciously applied after the 'Mutiny.' Eighteenth century East India Company officials many of whom recognised in India a superior civilisation, had been replaced in the early nineteenth century by administrators who saw their mission as 'civilizing' and 'modernising' Indian society. Indian society was seen as a *tabula rasa* waiting to be recast in the Western mould. The civilising influence would be Western social and economic institutions and Western religion, i.e., Christianity. After the 'Mutiny', however, the enthusiasm for remaking Indian society declined. The climatic and socio-religious theories gave way to theories of racial exclusiveness, as Britain established itself as the supreme governing power and as the European establishment in the country perfected the mechanisms of physical and social segregation. Indians now came to be seen as a distinctly inferior race incapable of appreciating or successfully adopting British habits and institutions. That interference in social and religious practices would offend Indian sensibilities, was only the rhetoric, offered for government inaction to bring into force a public health machinery and sanitary reforms in India along modern lines.

As far as the people themselves were concerned, the MacKenzie Committee which sought Indian opinion on the matter of sanitary measures at pilgrim centres, found that the people were willing to submit to any measures calculated to promote their health. There was also evidence that the arrangements at Hardwar in 1867 had suitably impressed the pilgrims.

While the government persisted in its evasiveness the railway companies, realising that pilgrims were good business, were cashing in on the age-old enthusiasm of Indians for undertaking pilgrimages. A large number of pilgrim centres existed across the country, and it was the aspiration of every Indian to visit at least one of these centres in his lifetime. There were also certain specific religious festivals which drew large numbers at certain times of the year. In the old days the journey used to be long and arduous and done on foot or by animal carriage. There were accepted pilgrim routes and halting places at villages en route where accommodation and food or facilities for cooking were available.

Most of these were free and maintained by philanthropists.

The introduction of railways offered a universal opportunity for undertaking pilgrimages and the possibility of a single person perhaps undertaking several in his lifetime, and railway travel for this purpose became extremely popular. The railway companies responded quickly to this source of profit, offering return tickets and half fares for children. But the facilities were appalling. Pilgrims were stuffed into dirty goods wagons with no ventilation, lighting, drinking water and sanitary arrangements on board. The doors used to be fastened from the outside and not opened for hours at a stretch, as allowing the pilgrims to climb in and out at stations en route would cause delays. The few third class carriages allotted for pilgrims were impossibly overcrowded. And for a long time no provision existed for clean accommodation, drinking water or meals at halting stations. Death from suffocation and disease in the goods wagons and cholera epidemics on railway journeys and at pilgrim centres became more frequent as the pilgrim traffic increased and the rapid communications spread disease more rapidly. Pilgrims now poured into holy places in much larger numbers than these places had been provided to cope with and problems of sanitation were further aggravated. Even as cholera had almost disappeared among the troops, epidemics continued to rage among the general population. The Committee which investigated the matter recommended that government move in to check the worst abuses of railway travel and regulate the conditions of pilgrim movements. conveying pilgrims in closed air-tight wagons meant for goods should be discouraged, eating houses at railway stations be licensed, and provisions made for drinking water and toilets at stations.

The salient feature of the pilgrim movement now was that the congregations of people did not take place only at certain times of the year; rather, the pilgrim centres had a constant flow of people. round the year. Ad hoc measures, therefore, could no longer be considered an effective solution to the epidemic problem.

The last decade of the nineteenth century was a period of significant landmarks in determining the course of the colonial health policy. The two governing landmarks were the plague epidemic which broke out in Bombay in 1896 and the discovery in India by Ronald Ross of the Indian Medical Service of the mode of transmission in malaria in 1897. The responses to these two events reflected the growing complexity of Britain's international position and rise of British imperialism, Britain's perception of India's place within the Empire the internal changes effected by the Government of India to adapt India to its new role, and the contradictions within the Government of India's policy.

The neglect of public health measures among the general population; accompanied by the intensification of trade and commerce and the growth of population in the seaport towns; as well as the increasing impoverishment in the rural areas and the flow of migrants into the towns and cities in search of work; came to a head when the plague epidemic which broke out in Bombay in 1896 was followed by successive epidemics which spread the disease to large parts of the country, and which by 1918 had taken a toll of almost 10.5 million lives. What was striking was that all the plague deaths occurred only among the Indian population.

Plague was known to have been endemic to Europe since early times but by the end of the seventeenth century it had completely disappeared. When the plague broke out in Bombay, the spread of the epidemic within the city and to other parts of the country combined with the movements of destitute people out of the rural areas and into the towns due to the widespread famine, threw the authorities into a flurry of confused activity. The Bombay plague committee was set up on a crash basis for the period 1897-1898. In the absence of any scientific knowledge about what caused the disease it was treated as contagious. House to house searches were conducted with the aid of police cordons to register deaths and remove sick persons for isolation, dilapidated houses were vacated and disinfected and the inmates removed to camps, rural migrants to the city were detained in camps to prevent disease conditions exacerbating in the city, and at the railway stations passengers and their baggage were disinfected.

But these ad hoc measures were no solution to a situation which was rapidly getting out of hand. The single most important cause of bubonic plague was insanitation which created the conditions for a large number of rats to live in and around human dwellings, and poorly constructed, dark, ill-ventilated houses where rat fleas could take refuse away from air and sunlight which were their most effective killers. As long as drainage, sewerage and planned housing remained severally defective or non-existent, the plague, once introduced, would

continue to remain endemic. The transmission of the disease from the rat to man through the rat flea and not through human contact as in pneumonic plague (familiar to England as the 'Black Death') rendered isolation and detention camps useless.

The plague epidemic could have provided a take-off point for a more far reaching public health policy. True, the unreformed sanitary conditions among the general population exacerbated by the impact of colonial economic policies and natural calamities had worsened public health conditions. While the urban centres were undergoing a haphazard development, the countryside was becoming increasingly impoverished. But the result of the plague innoculation drives, the first major attempt at epidemic control, was the growing awareness of and desire for sanitary reform among the general population. Representations were made by Indians requesting the government to take the initiative in maintaining the struggle against the plague, and in widening the scope of sanitary reform. The need to create an effective public health machinery had also been unequivocally stressed by a body of expert scientific opinion from England who, in elucidating the mode of transmission of bubonic plague, had pointed to insanitation as the single most important cause, and had even drawn up a tentative scheme for public health administration.

The scheme remained unimplemented by the Government of India, and once again, the official response was the rhetoric of caution in quickening the pace of sanitary reform for fear of pressurising public opinion. In fact, as far as the government was concerned, the living conditions of the general population were "beyond the influence of sanitary effort..." (Annual Sanitary Report, 1900-01). Articulated public health policy was growing into one of leaving the Indians to their own efforts.

The plague epidemic and Ronald Ross' malaria breakthrough had been the thereshold for the developments between 1900 and 1935. A step could have been taken in the direction of focusing policy on evolving a public health machinery. However, the possibility of research also presented itself at this moment and the colonial government for its own reasons chose the latter option.

In England, the public health system had come into its own by the time of the scientific advancements in medicine, and the new stream of scientific ideas while they revolutionised health care, did not replace the public health machinery which continued to enjoy a relative autonomy. In India, the metropolitan sanitary science was addressed only to the colonial population resulting in what we had earlier referred to as a colonial mode of health care. It, however, had a demonstration effect on the general population, which began to see its potential in the last few years of the nineteenth century.

Public opinion was beginning to form the basis for a potential sanitary movement in India. The Indian elite showed eagerness to lay the foundations in the country for the growth of medical science in which Indians could participate and benefit therefrom. The various international sanitary coneférences and the British Plague Commission were an added source of pressure upon the colonial government to pay attention to public health.

Just at a time when the situation afforded the compelling basis for a far-reaching public health policy, the colonial government found an escape route in the new research possibilities, and public health policy as in the past remained sporadic and ad hoc. The Sanitary Department was most unpopular with the colonial medical bureaucracy and by the time sanitation and public health were made a provincial subject in 1919, the Sanitary Department already lacking a coherent policy or substantial financial provision, was depleted of most of its supervisory personnel. In the remaining decades of colonial rule nothing occurred to change this pattern. No single authority responsible for the efficiency of health measures throughout India came to exist, and nor was there any single Public Health Act as in England. The only concern of the Imperial Government was port quarantine. Vital statistics remained very defective due to the absence of a wide deployment of medical personnel.

With the superceding of the era of active sanitary reform by an era of emerging professionalisation in medicine in England, the consequences for Indian public health in terms of the lost historical possibilities were far-reaching. Medical education had been initiated in the Indian Presidency towns by the mid-nineteenth century, mainly to train hospital assistants for military and civil hospitals. The medical colleges also received a steady influx of Indians right from their inception. When the bacteriological advances of the late

nineteenth century put curative medicine on a scientific basis and led to its increasing professionalisation this served as an argument for colonial policy to encourage the expansion of the private medical profession (both European and Indian) — for a few medical colleges were a cheaper alternative to expending goverernment resources on sanitary reforms for the general population. The growth of preventive and social medicine was irremediably pre-empted and the rising medical profession made its spoils from the ever-expanding disease market.

The Present Health System and its Contradictions

The 'functional approach', which sees health as 'fitness' to undertake one's work as a productive member of society, and ill health as the result of malfunctioning of one particular part of the body which can be corrected through medical interventions, arose out of the conditions of maturing capitalist development in Europe in the 19th century, and achieved final consolidation with the development of the germ theory in the last two decades of the 19th century. (Doyal, 1979) But the functional approach could come into its own mainly on the strength of effective declines in mortality and morbidity due to the control of infectious diseases brought about by the State in the pre-germ theory era through effective public health measures which stressed the predominantly environmental — 'filth' or 'miasma' — causes of disease and death.

In India this functional approach, carried over from the experiments during the colonial rule, has remained partial and ineffective. In those spheres where the regular supply of skilled and physically fit manpower has been crucial, as for instance the army and capital - and technology-intensive sectors of the economy, the 'colonial mode has been the preferred pattern : social and physical segregation of employees and their families into exclusive residential areas or housing colonies with clean and sanitary environments, access to subsidised and good quality medical and clinical care, educational facilities, etc. To take care of the possibility that the rampant infection, particularly in the poorer urban areas given their haphazard growth and insanitary environments might break out in epidemic form, vaccinations, hospitals and selective measures for improving drinking water and sewage disposal have been resorted to. Otherwise the rural areas and the urban slums where most of the population lives, remain by and large untouched by the existing health system. For the health system to reach them in any significant way, within the functional approach, requires heavy doses of public expenditure. In the absence of effective preventive measures, the individual's own approach towards health care has been that of coping with repeated attacks of infectious diseases only through medical interventions. The private consumption expenditure on medical and health care as estimated from the 28th round of the NSS in 1973/74 was three times the public expenditure on this activity (Lakdawala, 1978).

Since effecting public health measures through environmental sanitation and provision of housing and safe drinking water is an expensive proposition, the Indian State, helped by advancing medical technology and international assistance, resorted to the easy alternative of tackling communicable diseases through vertical programmes that involved the use of known and tested technology such as vaccination and DDT spraying in the case of small pox and malaria respectively, and isolation and treatment as in the case of the other major communicable diseases such as TB and leprosy. With the exception of vaccination and revaccination against small pox, all the other known medical interventions presupposed the existence of effective public health measures and in a situation where the latter condition did not exist, could be expected to have only limited efficacy.

Next to small pox, the vertical programmes showed some signs of success in the case of malaria, supported through international aid for the import of powerful insecticides and drugs which had proved successful in malaria control in the second world war. Between 1953 when the National Malaria Control Programme started (it was stepped up to 'Eradication' in 1958) and 1965, the incidence of the disease was brought down from around 100 million cases and 1 million deaths to 1 million cases and no reported deaths (GoI, 1977.64 Table 51). These achievements, as Cassen (1978:86) has argued, must surely be recognised as the single most important cause for the steep decline in in mortality that India has been able to effect after independence. The 1965 record, however, regressed soon after, and the incidence of malaria has been showing a sharp upward trend (GoI, 1977:64, Table 54). While the resurgence of malaria may not have affected mortality so far because of the dominance of the milder *vivax* malaria, it has grave consequences for the population

particularly since malaria tends to become chronic and debilitates its victims leaving them open to all other infections, and since malaria has been demonstrated to be a major cause of infant mortality. This regression in the case of malaria demonstrates the floundering of the functional approach. Apart from the 'human factor' — premature acceptance of success and complacency in sustaining the momentum of progress — and organisational problems, the main reasons for its failure structural in nature. They emphasise the need for coming to grips with the problems of disturbances in the ecology, centre-state relationships, crisis in the economy and the general conditions for research and training. In the absence of planned research even while the eradication programme was in progress, full knowledge of the epidemiology of malaria and the ecology of the mosquito was lacking. Changes in the behaviour of vector and parasite partly due to developed resistance to insecticides and partly due to the disturbances in the ecosystem — in the form of population movements and congregation due to war, floods and large scale public works projects, clearing of forests for cultivation and refugee settlement and large scale use of insecticides in agricultural production, without an integrated approach to the environment — have contributed to the aggravation of malaria in the country (Ramasubban, 1978). The sluggishness on the part of the state governments to commit necessary funds of Malaria Eradication units, initially centrally sponsored and subsequently handed over to the states for the maintenance phase, represents the uneasiness in financial equations between the centre and the states. The shortage of insecticides for malaria control in the wake of the oil price rise and competition from the agricultural sector further highlights the interdependence of the communicable disease control programmes with the rest of the economy.

Epidemic cholera, which alone among the faecally related diseases has come under specific control measures — innoculation and chemotherapeutic measures — has been far more difficult to control, being food and water-borne rather than contagious and finding fertile ground in the widely prevailing unhygienic conditions of food and water use. The incidence of cholera which came down drastically from 176, 307 cases in 1950 to 22,065 in 1954 steadily rose to 66,076 in the following four years, came down briefly to 14,617 in 1959/60 but saw a sudden spurt again to the 1954-59 levels (GoI, 1977). Here, again, the effectiveness of the control measures was greatest in reducing mortality, and the deaths due to cholera which accounted for 2.4 per cent of all deaths towards the end of the colonial rule came down to 0.4 per cent by 1966/67 (Cassen, 1978). But given the absence of protected water supply and environmental sanitation, cholera continues to pose a threat of epidemic outbreaks during droughts, famines and floods.

The policy of vertical programmes for the control of communicable diseases also included TB, leprosy and filariasis. TB has remained more or less firmly entrenched since 1958 (Cassen, 1978 : 90) and nearly 2 per cent of the population is estimated to be suffering from TB, of which 25 per cent are infectious sputum positive cases (GoI, 1980 b). It is significant that in spite of a National Programme for domiciliary treatment launched in 1969, the total number of cases detected as a percentage of total estimated cases is only 30 per cent (GoI, 1980). Although several "operational lapses" were identified as reasons for failure in an assessment done by the Indian Council of Medical Research (ICMR, 1976) the more fundamental problems are those of poor nutrition and overcrowding. Moreover, the chemotherapeutic domiciliary treatment is still too long-drawn (18 months duration) for an average TB patient to sustain, given the long distances to be travelled to the health centres. The deceptive feeling of improvement in the first phase of treatment may also be responsible for discontinuation and relapse, in the absence of regular supervision (Cassen 1978). The growing evidence on the ineffectiveness of BCG in several cases and its temporary nature in providing immunity, points to the inevitability of taking cognisance of the structural factors. The National Leprosy Control Programme which was launched in 1955 has also not made any headway. More than half the population (GoI, 1974) is exposed to the risk of contracting this disease which flourishes under insanitary and overcrowded conditions. There are 3.2 million estimated cases of leprosy in the country of which 20 per cent are infectious, and another 20 per cent suffer from various deformities. The total number of cases detected as a percentage of total estimated cases is 60 per cent while disease arrested cases is only 20 per cent, which goes to show that the Control Programme has not really been effective and there has to be a much more concerted effort in controlling this disease. Much the same picture holds for filariasis which came under a Control Programme in 1955.

The control of communicable diseases through vertical programmes poses difficulties because

these diseases have linkages with multiple factors and dealing with them requires socio-economic changes and a concerted action in the field of public health measures. Accomplishment of this task within the context of the health system would require greater expenditure on health by the central and state governments and/or effecting redistribution within the health system in favour of public health measures, and reorientation of health policy, backed by determination to act in that direction, to tilt the balance in favour of the rural areas. Here, again, the main challenge lies in resolving the contradictions giving rise to the dominance of curative services over preventive services, the urban-rural dichotomy and the lack of commitment on the part of the State to provide necessary funds in the health sector.

The Indian medical profession has a longstanding record of service, and in its development it would rank quite high in comparison with many developing countries and is recognised by the Indian population as efficacious and functional in combating disease.

Western medical education had its early origins in colonial policy, when the first medical colleges were set up in the mid-19th century. Right from their inception these colleges received a steady influx of Indians. Around the turn of the century when the bacteriological advances of late 19th century led to the increasing professionalisation of curative medicine in the west, simultaneous with the visible and rapid deterioration in India of the health conditions among the general population, the colonial authorities found it a cheaper alternative to respond to the incidence of disease through extension of medical education and encouraging medical practitioners (both European and Indian) rather than spend government resources on sanitary reforms for the general population. The medical professionals, however, remained concentrated mainly in the urban areas, which also meant constant contact with sources of power. The rural areas remained by and large ignored and left in the hands of the practitioners of the traditional systems of medicine.

The concentration of health services in the urban areas continues even thirty years after independence, and it is only very recently that we are witnessing an increase in the flow of practitioners in the western system of medicine to the rural areas. State action to provide health services to the rural population was initiated through a network of Primary Health Centres (PHCs). The PHCs, when set up, were not meant to remain curative centres. It was envisaged that an integrated preventive, promotive and curative structure could be built into the PHC system, and that this was just a matter of creating a team reflecting the three areas of work. The concern of the PHC, therefore, was meant to be mother and child welfare, control of communicable diseases, environmental sanitation, school health, basic health education, collection of vital statistics, immunisation and medical care services. Obviously too much was being expected from the PHCs and given the overall national bias towards curative and family planning services, the PHCs, too, in practice, soon turned into curative centres.

---

* This article is an abridged version of an earlier research report by the author, *Public Health and Medical Reserach in India : Their Origins Under the Impact of British Colonial Policy* (Stockholm, Sarec, 1982). This is also why the detailed reference to source material has been kept to the barest minimum here. While the above-mentioned research report is exclusively concerned with the developments in the colonial period, in this article a section has been added on the present public health system in order to demonstrate the continuities and contradictions arising therefrom. A fuller account of post-Independence developments in health policy, is contained in my paper "The Development of Health Policy in India" in Tim Dyson and Nigel Crook (eds), *India's Demography : Essays on the Contemporary Population* (New Delhi : South Asian Publishers, 1984).

References

Annual Reports of the Sanitary Commissioner to the Government of India.

Cassen, R H., *India: Population, Economy, Society*, London, MacMillan, pp. 84,89, 1978.

Doyal, L. with I. Pennell, *The Political Economy of Health*, London Pluto Press, 1979.

Gazette of India, March 2, 1864.

Government of India, *Draft Fifth Five Year Plan 1974-79, Vols. 1 & 2*, Delhi, Planning Commission, p. 286, 1974.

Government of India, *Pocket Book of Health Statistics of India*, P. 55 1977.

Government of India, *Sixth Five Year Plan, 1980-85*, Delhi, Planning Commission, p. 370, 1980.

Imperial Gazetteer of India, The Indian Empire, Vol. IV: Administrative, Oxford, The Clarendon Press, 1909.

Indian Council of Medical Research, *Annual Report 1976*, Delhi 1976.

Lakdawala, D.T., *Planning of Social Services in India*, Tenth Lal Bahadur Shastri Memorial Lecture, Delhi, Indian Agricultural Research Institute, 1978 (Mimeo).

Lewis, T.R., and D.D. Cunningham, Cholera in relation to certain physical phenomena: a contribution to the special enquiry sanctioned by the Rt. Hon. The Secretaries of State for war and India, *Annual Sanitary Report*, 1876, Appendix A

MacKenize Committee: *Report and Order of the Madras Government regarding the control of pilgrims in the Madras Presidency*, 1868.

Ramasubban, R., Encephalitis : There are no Short Cuts to Banishing the Scourge, *Indian Express*, December 8, 1978.

(Contd. on page No. 22)

of village health workers. But note : any collaborative venture or technology-transfer must resist the malproportions of one of Mr Raj Narain's efforts to provide medical services to rural areas. If the import of the 300-odd over-sized mobile medical vans has come to be known as the "white elephant scheme", any encore deserves worse epithets. If the absorption of such donations into the public rural health sector presents problems, there are innumerable private, community-based health programmes which would do good work with them. Thus, the two aforementioned aims of the Health Policy might be collapsed into one more in keeping with its overall intention — private collaborative enterprise for rural health care. However, I broach this idea with caution because, of course, the countryside is also dotted with agencies who wouldn't do any work at all, there are many examples of foreign donations being frittered away, and I know of atleast one major unhappy experience of an NRI-supported rural "enterpreneurship" programme going awry. The point here is simply that the challenge lies in rural health, and that a programme of greater benefit to more people than the proposed one might be designed around this challenge. Even the small funds envisioned to be spent on this scheme could be used to establish basic health care, so that by the end of the century a few more of our countrymen and women and children might be closer to the dream that is "health for all". As it is currently conceived, the proposed scheme may reestablish an umbilical connection, but the product is likely to be stillborn.

References

Statesman, New Delhi March 5, 1985.

Meera Chatterjee
E6/14, Vasant Vihar
New Delhi – 110 106

(Contd. from page 16)

Ramasubban, R., "The Development of Health Policy in India" in Tim Dyson and Nigel Crook (eds.), *India's Demography: Essays on the Contemporary Population*, New Delhi, South Asian Publishers, 1984.

Report of the Commissioners appointed to enquire into the Sanitary State of the Army in India (1859), Vols. I and II, 1863, British Parliamentary Papers, Cond 3184.

Report of the Cholera Committee of 1867.

Scott, H. H., *A History of Tropical Medicine*, London, Edward Arnold and Co., 1939.

Shryock, Richard Harrison, *The Development of Modern Medicine*, London, Victor Gollancz, 1948.

Dr. Radhika Ramasubban
14, Bandstand Apts
B.J. Road, Bandra (w)
Bombay 400050

BHOPAL NEEDS YOU

In March the Medico Friend Circle — a group of doctors and health workers — undertook a systematic study of the affected population in Bhopal. In the coming months they will publish the report of the study and plan to disseminate the information mainly to the local population, to doctors and to the health establishment and to voluntary groups and activists working in and on Bhopal. Follow-up plans also include a study of pregnancy outcome since the disaster.

MFC appeals for your support, donations and involvement all of which are urgently needed. Cheques may be sent in favour of MFC Bhopal Fund. For further information contact : Dr. Ravi Narayan, 326 V, Main, I Black Koramangala, Bangalore 560 034.

Some Good News on the Drug front at last !

Ciba Geigy has withdrawn clioquinol containing and related drugs from March 31, 1985. This group of hydroxyquinolines have been proven responsible for a serious nerve disease SMON (subacute myelo-optic neuropathy). The drugs withdrawn are Mexaform, Entobex and Enterovioform.
(From: Pune Journal of Continuing Health Education)