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Fighting
MALARIA
in Bombay State

FIGHTING MALARIA

IN

BOMBAY STATE

1950



Shri B. G. Kher, Bombay's Chief Minister, inaugurating the anti-malaria campaign in Dharwar. To his right is Dr. M. D. D. Gilder, the State's Health Minister.

THE FIGHT AGAINST MALARIA

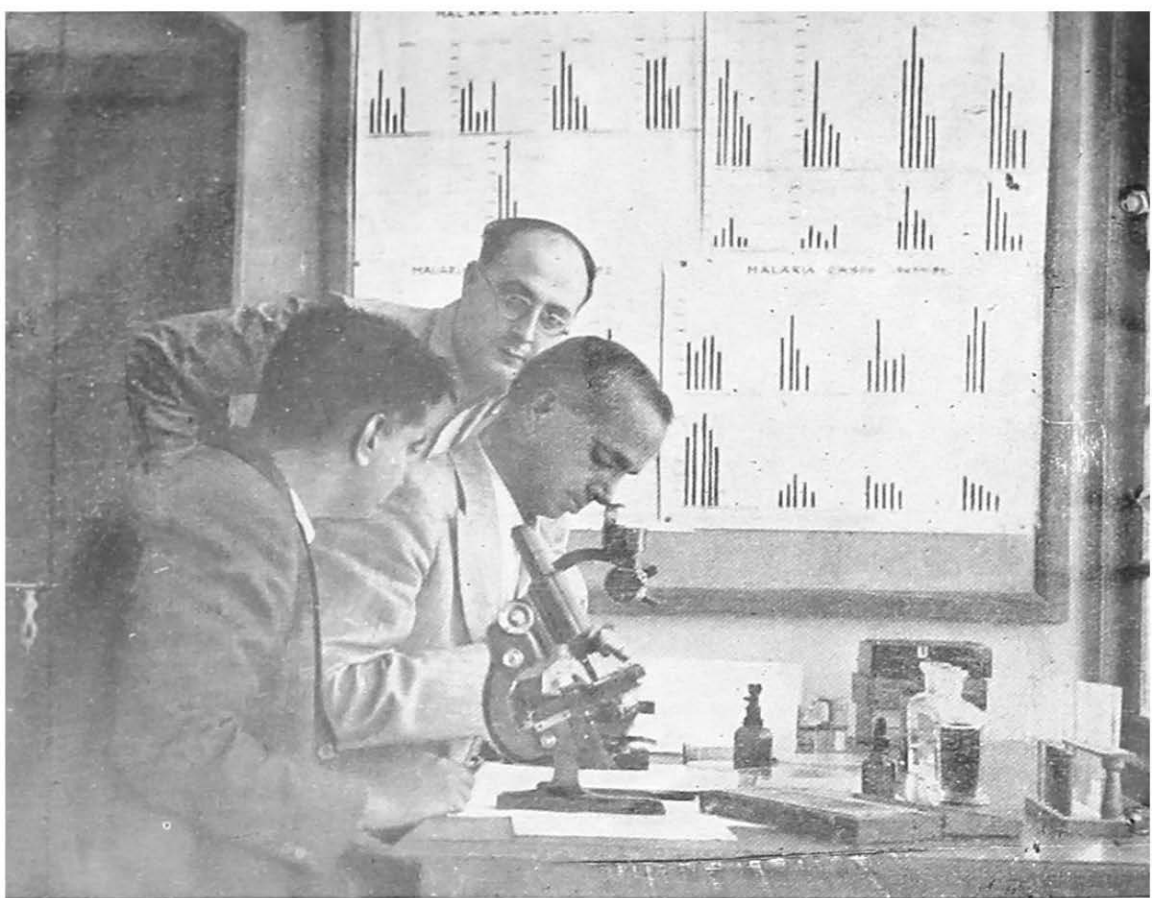
Five million people in Bombay State used to suffer every year from malaria—a deadly scourge of the tropics—with a toll of life in the neighbourhood of 50,000, with children as first victims. Thousands more suffered from incapacitation, lowered vitality and impaired resistance to other diseases as an indirect result of malaria. Mosquito-ridden areas down south of the State began to get depopulated, villages were deserted and fertile fields left uncultivated—as a result of which some of the State's highly fertile areas remained unexploited.

In September 1946, the Bombay Government launched a rural malaria control project in the State which is one of the biggest the world has ever known. For three years prior to the launching of the project, the State's Malaria Organisation conducted valuable surveys, studied the various types of malaria-transmitting mosquitoes, discovered their breeding grounds and resolved upon the most efficient method of control. For the first year of the project, two of the State's southern districts—Dharwar and Kanara—where the disease was affecting the life and well-being of a million people spread over 1,000 villages, were selected for intensive anti-malarial work.

Spraying of D.D.T. in rural homes and cattlesheds, the resting-ground of the malaria-transmitting mosquito, resulted in freeing some 300,000 people from the rigours of the disease and saving a large number of lives, as indicated by the big fall in malaria cases attended to in rural dispensaries. This initial success encouraged the Government to extend the theatre of anti-malarial operations to other areas of the State, such as Thana, Ahmedabad, Bijapur, W. Khandesh and the Panchmahals, in the succeeding years. By 1949, the campaign resulted in setting half a million people free from the dangerous disease.

During 1950-51, the Government has undertaken to extend the area further, and the year's programme consists of the spraying of a million and a half rural homes with D.D.T. This ambitious plan will cost the Government 25 lakhs of rupees, and will benefit about five million people directly and another ten million indirectly.

In this small booklet is given a brief account of the fight that the Bombay Government has been launching against malaria in the State.



Inside the Malaria Laboratory: Before the D.D.T. Scheme was launched, a lot of preliminary work was done to study the disease-carrying mosquito, its breeding habits and mode of transmission and methods of control.

THE CAMPAIGN

Fifty years ago, Sir Ronald Ross proved that the anopheles mosquito is Public Enemy Number 1, because it transmitted malaria, which claimed a million deaths from among a hundred million victims of the disease every year in this country. Anaemia, incapacitation, devitalisation and predisposition to other ailments cause further indirect harm to most malaria victims. Because of the fell disease, many a fertile field has had to be abandoned and many a scheme of utilitarian industry or production of power has been left unaccomplished. "Swat the mosquito" was no more than a mere slogan for nearly 50 years in this country, but on the eve of Independence, the Government of Bombay launched one of the world's largest rural malaria control projects in the Dharwar and Kanara Districts, covering an area of 6,000 sq. miles for the benefit of about a million people living in about 1,000 villages.

Shri B. G. Kher, Chief Minister, Government of Bombay, inaugurated the scheme in September 1946. While doing so, both he and Dr. M. D. D. Gilder, Minister for Health, exhorted the people to co-operate with the Government and help it to serve them. A special message, blessing the Scheme, was received from Mahatma Gandhi. The Scheme provides for the spraying of every house in selected villages of the Kanara District and every house and cattle-shed in similar villages in the Dharwar District with an emulsion of D.D.T., a very deadly insecticide.

All new-born mosquitoes are harmless. It is only after they have bitten a malaria patient, taken the germ of malaria into their stomach, and allowed the germ to develop for 14 days within their bodies that they can pass it on to another human being. Hence, if mosquito life is restricted to much less than 14 days, transmission of malaria can be



Spraying a village home : A million and a half rural homes will be sprayed with D. D. T. during the current year.

The anti-malaria squad ready for the day's work.



effectively checked, though not completely prevented. The object of the Scheme, therefore, is to reduce mosquito density and mosquito life to below these critical levels at as economic a cost as possible. This limited objective—limited because of considerations of economy—of disease-control as opposed to total mosquito eradication should be well appreciated and the Scheme judged from the result of disease-control and not in terms of a casual experience of mosquito nuisance, which may be felt despite the operation of the Scheme.

Attacking the mosquito at any phase of its life, either as larvae in its breeding ground, such as water places, or as adults in its feeding and resting places like houses and cattle-sheds, all bring about the same desired result of reducing the density of the adult mosquito, the overriding consideration being economy of cost and feasibility of attack. Thus in this Scheme only adult mosquitoes are attacked with D.D.T. spray once in 6 weeks in Dharwar and once in 2 months in Kanara. These time-intervals were fixed after careful preliminary technical study. Likewise, the exclusion of cattle sheds from the scope of the spray in Kanara and their inclusion in Dharwar were based on a study of the habits of the local malaria mosquito.

RAVAGES OF MALARIA

Malaria was notorious for centuries in the Kanara District. In the Malnad tract, the population dwindled from census to census. Abortions, miscarriages, still-births and high infant mortality were very common. The total number of deaths exceeded the total number of births every year. Fertile lands remained fallow due to loss of manpower. Villages were deserted. Forests were not exploited to the fullest possible extent. Industrial schemes could not be launched—all because of this fell disease. Children between 2 and 10 years, the most vulnerable age-group, showed enlarged spleens. At least one out of every 4 or 5 infants born contracted infection before it was one year old. Dispensaries in Kanara used to treat on an average 50,000 cases of malaria every year. About a thousand people used to die annually of malaria in the District. The picture in the Malnad tract of the Dharwar District was very much the same. In the rest of the District,

malaria used to appear in epidemic waves. Dispensaries in the Scheme area in the Dharwar District used to treat about 40,000 cases of malaria each year. Of these, about 2,000 to 4,000 people used to succumb, while about a thousand used to die of such diseases as diarrhoea and dysentery contracted as a result of malaria.

GOOD RESULTS

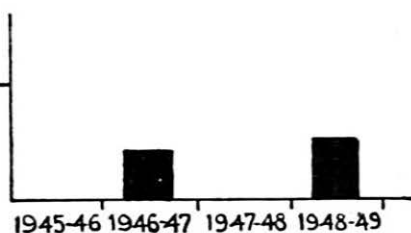
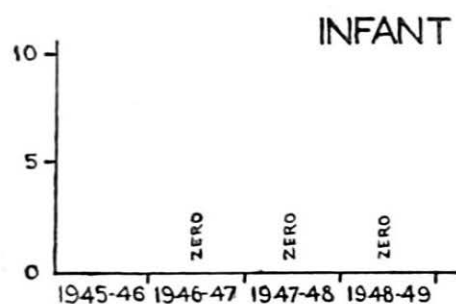
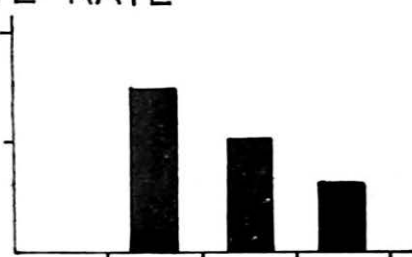
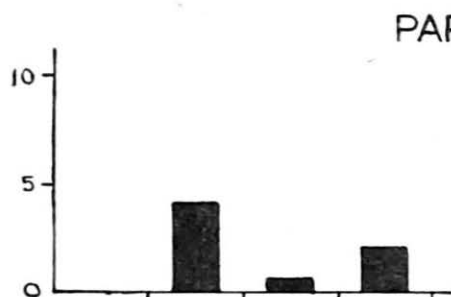
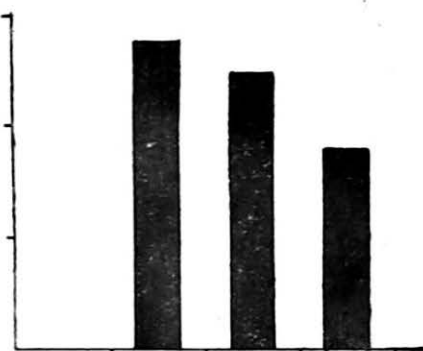
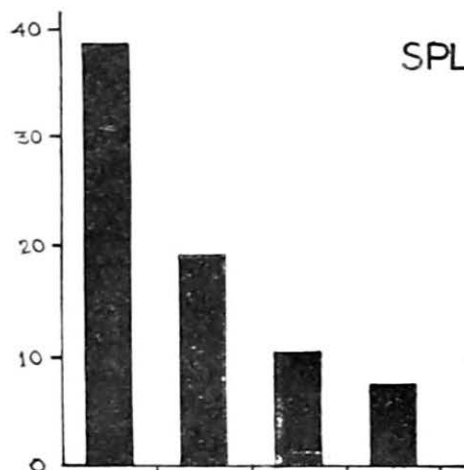
Now, after four years of unremitting effort, children in the Kanara and Dharwar Districts show splenic enlargement only to the extent of far less than 10 per cent, as against nearly 100 per cent previously in Kanara and 40 per cent in Dharwar. Infants practically show no infection at all during their first year of life. Dispensaries show a fall of 50,000 cases of malaria in both the districts. These serve only a sixth of the total population, and hence the actual number of people saved from malaria attack can be safely taken as 300,000. A man loses, say, at least 6 days due to an attack of malaria. The lowest daily wage is Rs. 2. Every person thus saved from malaria means at least Rs. 12 gained. These 300,000 people would thus have gained Rs. 36 lakhs. The number of lives saved every year can be put at 1,200. One hesitates to evaluate life in terms of sordid cash. The increased vitality and capacity for productive enterprise cannot be precisely determined, but even at the most conservative estimate, the asset of the Scheme is not less than half a crore of rupees, while the expenditure is hardly 5 lakhs of rupees per year. Apart from such considerations in terms of money gained, no one can evaluate the humanitarian aspect of the conquest of the disease and more still the successful demonstration that prevention of disease is a practicable and profitable occupation and its successful accomplishment thrills the worker and the administrator alike. Indeed, the switch-over of the emphasis from quality attention to individuals to mass attack for the benefit of the vast community is a healthy sign of the democratic trend resulting in the greatest good to the greatest number.

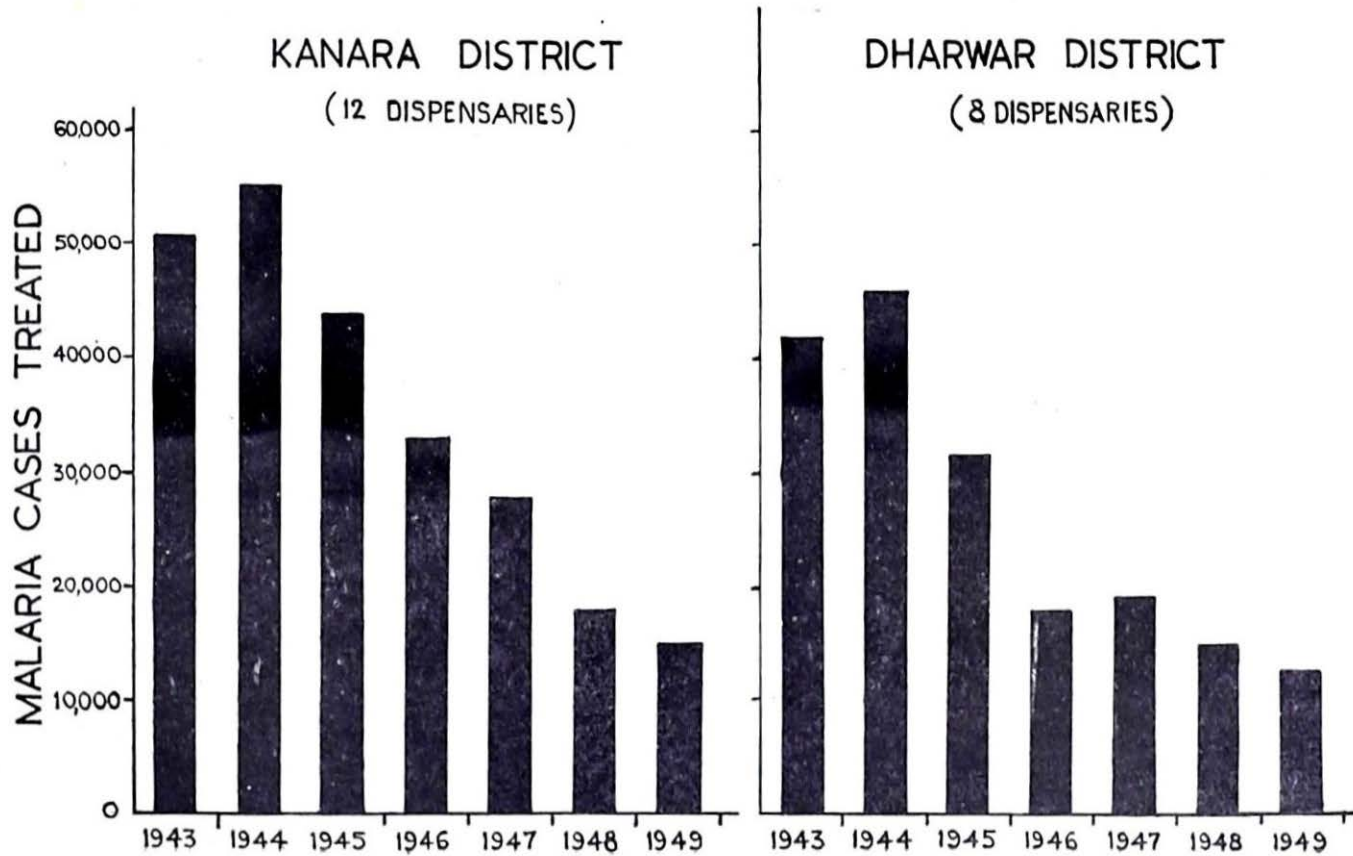
It is expected that at least half a million cases of malaria have been saved in the Dharwar, Kanara, Thana, Ahmedabad, Kaira, and Bijapur Districts during 1949.

DHARWAR DISTRICT

SPRAYED

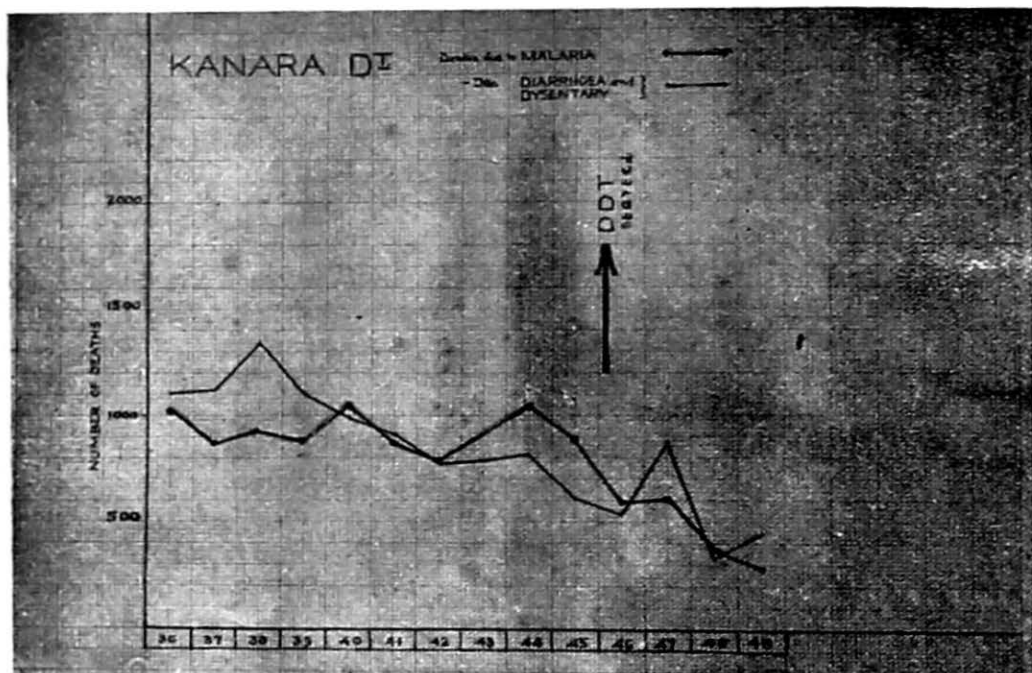
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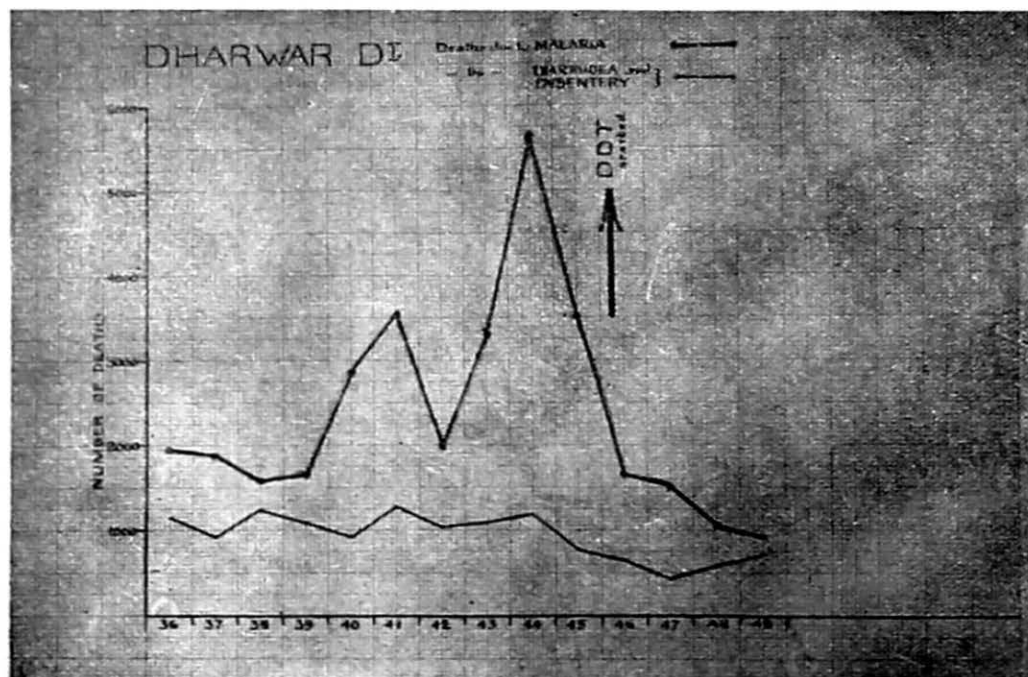


LESSONS OF THE SCHEME

The Scheme affords an excellent example of careful planning by the Government, loyal service by the staff employed by the State and above all, hearty co-operation from the public. This is not to deny the existence of any criticism. But most of it could be met by *bona fide* persuasion. The staff seldom have to wait now for the conclusion of the householder's breakfast or lunch; he prefers to postpone it so that labour is not allowed to idle away its time. Objections on communal, religious or caste grounds for entry of staff are nil. Intimations are sent in advance through village officers and a paid member of the staff visits the village the previous day but still a very small percentage of houses remains locked but this has not materially interfered with the success of the Scheme. Efficiency of particular rounds of spraying is sometimes questioned because the mosquito nuisance reappears sooner than usual or a case of fever appears in the family. Mosquito nuisance depends on many factors, all of which are not controlled under the Scheme and whose sole object is disease-control. Prevalence of a case of fever may indicate persistence of some local transmission of disease, or more often, importation of infection from other districts. These will be matters for annual reckoning, which, as shown earlier, has been exceedingly good. Not infrequently complaints are made in regard to the failure of staff to spray the buildings as thoroughly as the householder would wish, forgetting that the staff have specific orders as to how much to spray and where. Preparation of spraying mixture on particular occasions is sometimes dubbed as inferior, but while all this bespeaks the great interest evinced by the public and helps to keep the staff constantly on the alert, on the whole enthusiasts of the Scheme have been many more in number than its critics. This is a healthy sign, especially when expression of appreciation of Government effort is seldom so vocal as criticism. Having said this much, a plea on behalf of the paid worker will not be misconstrued. The temptation to dub him as being in the wrong every time a criticism is received should be checked.



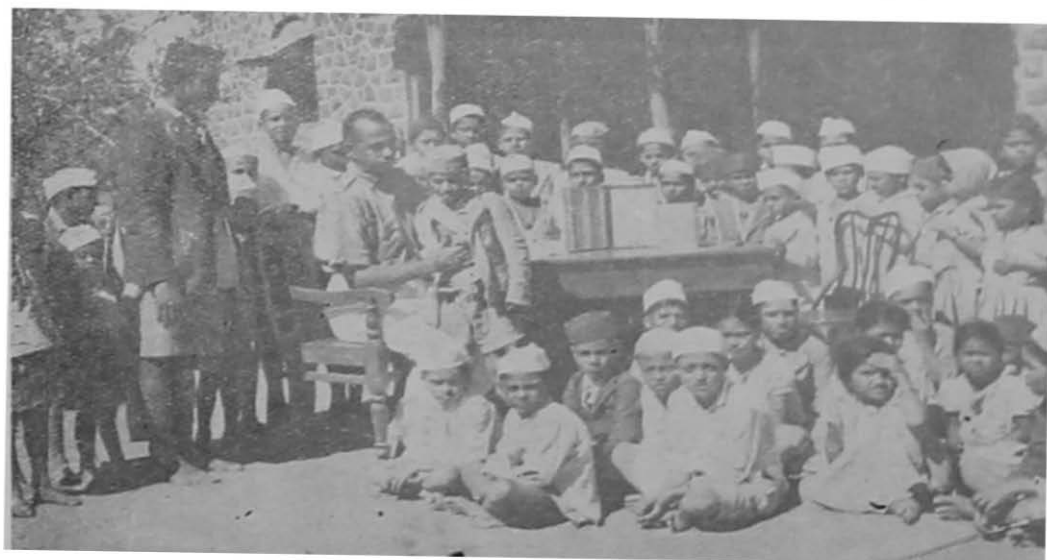
Result of the Campaign: The two graphs indicate how the death rates in Kanara (above) and Dharwar (below) have gone down due to the anti-malaria campaign. The thinner line shows the death-rate due to malaria and the thicker one that due to diarrhoea and dysentery.



EXTENSION TO NEW AREAS

The Government of Bombay has extended the Scheme to the whole of the Thana District. Since September 1948, 1,231 villages with a population of 618,000 are having the benefit of the Scheme. About 787 villages in Ahmedabad, 445 in Kaira and 216 in Bijapur have been included in the Scheme since July 1949. The total budget for these 6 districts is about 15 lakhs of rupees every year. From April 1950, the Scheme has been extended to the West Khandesh and the Panch Mahals Districts with an additional budget provision of 9 lakhs of rupees. Thus, during 1950-51, nearly 8,000 villages having a total population of more than 5 million malaria-stricken people are getting the benefit of the Scheme. The total number of people indirectly benefited is very nearly 10 million, at a total expenditure of about 25 lakhs of rupees. With the completion of surveys now in progress in the rest of the State, a scheme for State-wide malaria control at a cost of about 75 lakhs of rupees every year, would need to be considered. How the State is to finance such a scheme will be food for careful thought for all alike—the administrator, the legislator and the public. A nation's health is no doubt

Children—the easiest victims to malaria—being examined for spleen in a village in Dharwar. The spleen gets enlarged due to constant attacks of malaria.



its most valued asset, but specialised service would need to be paid for. Could this be undertaken solely by the State or is a *per capita* or domestic service fee to be collected? This would prove a relevant consideration for enabling the plans of the Government of Bombay for State-wide control of the disease to reach full maturity. Health is wealth, but dividends mean investments first.

A note on the incidence of mental
disease in the State of
New York

by
christopher Tietze

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ISSUED BY
THE DIRECTORATE OF PUBLICITY, GOVERNMENT OF BOMBAY
BOMBAY