Social History of Medicine in Colonial India

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Week 03

Lecture 05

Malaria

Hello and welcome to yet another lecture, Lecture number 15 dealing with yet another disease - another deadly one - which is malaria. Malaria was one of the most deadly killer diseases during the colonial period. We have to give some numbers. For instance, in 1889 it was calculated that malarial fever was responsible for three quarters of all mortality in Bengal, which means roughly about 1 million deaths each year and at an all India level too malaria afflicted over 100 million Indians annually and killed over 10 million per year in the late 1800s and early 1900s. Malaria not only caused its own physical illness - like its own fever - but it also made the victims susceptible to other kinds of infections like diarrhea, dysentery and pneumonia. One of the challenges was the lack of clarity in the early days about how malaria was caused until much later when it was found that it was transmitted by a particular kind of a pathogen, and also, as many of you would know, Ronald Ross working in India as IMS doctor, discovered the particular mosquito, Anopheles mosquito, female Anopheles mosquito which served as a vector carrying that parasite which caused malaria. But that was all much later, and for which work Ronald Ross got the Nobel Prize in the very second year after Nobel Prize was introduced. This again says something about the center-periphery issues. Working in the periphery has its own disadvantages but then it had its own opportunities. But anyways, all that is much later.

But initially there was not much clarity about how it was caused but some correlation could be made between the disease and certain kinds of areas and situations - areas which are not cleared of jungles, which are not drained or which are not kept clean or it could be correlated to certain factors like lakes, marshes, gardens with crowded trees, stagnant water, filthy pools and all kinds of low grass jungles. Malaria was also aided by natural heat and moisture of the climate. This is all in line with the environmentalist paradigm. These climatic factors, environmental factors - supposed to release a kind of poison which was very conducive for malaria's spread. Also, correlations were made to some unusual climatic phenomenon and to inundations of the sea and the rivers - apart

from more regular annual and periodic floods. Rural areas were particularly vulnerable to malaria and thus it was a major challenge - health challenge to India as 90% of the population lived in rural areas for much of the 19th century. And malaria, as in several other diseases, also influenced British and Indian attitude towards the environment and health and produced its own set of cultural critiques about which we will be seeing in a separate lecture - the cultural dimensions of some of these diseases and how people and land were characterized and caricatured in the name of addressing and describing these various diseases.

Malaria very rightly raised questions about the health costs of several colonial projects which I had already mentioned in an earlier lecture. Some of the colonial projects like tea and coffee plantations, irrigation and railway network building projects for instance, led to creation of stagnant water - pools of stagnant water over long periods of time which were conducive to particular kinds of diseases like malaria. Another important aspect to be considered in the context of malaria given the huge challenge that it posed was, whether whether the goal should be to alleviate the effects of malaria or find a cure or even a way for eradicating it which is something which continues to be elusive. But one of the earliest identified remedial measures, anti-malarial measures was the use of quinine, a medical substance derived from cinchona. Cinchona tree's bark had this quinine which proved to be effective. Once the mosquito connection that I was talking about, once that was established, then mosquito-abolition became another possible line of attack. But again, the question of cost will come - between the two, the latter -the mosquito eradication option was seen to be very costly and from that point of view not too viable. It took as late as 1909 for the government to realize that it needed a general all-India malaria policy and quite rightly it convened an Imperial Malaria Conference at Shimla and the Conference participants insisted on detailed information about the disease prevalence in different regions because each had its own different kinds of environmental factors. As I said, information, statistics played a very important place in the management of disease as it continues to do even to this day. One of the several steps which were taken was the formation of the provincial malaria committee in each province - which meant that, by and large, the malaria control responsibility was left to provinces while the government of India, the central government would focus on large-scale policies - especially policies on quinine, or promote malarial research. The central government also established the Central Malarial Bureau with a laboratory for that kind of a research and also for some level of teaching.

Also, at the central level the Malaria Survey of India was formed which was formed to oversee malarial research and prevention - this was started in 1927 and the Survey - the Malaria Survey of India recommended that quinine should be affordable and accessible to people and, as I said, malaria was a huge challenge in the rural areas - so rural inhabitants should have access. One way of ensuring that was to find ways of producing

quinine in some parts of India itself so that there is self-sufficiency. That way it became increasingly - slowly it became - the backbone of the government of India's malaria policies and eradication of mosquitoes and those more costly options were kept as standby later options. Therefore given this policy option - going for more for the quinine option - there was a need, there was an increasing dependence on quinine. And as I said, one of the options explored was to grow the cinchona trees locally. For instance, closer home - from here Chennai - a place called Nadavatam which is in the Nilgiri hills - was identified as one of the potential places to grow cinchona and it was eventually grown there and in some other places like Meghalaya also local cinchona plantation was experimented and was successful to a certain extent. Otherwise cinchona, by and large, had to be imported from Java which was controlled by the Dutch and also the quality of that quinine was comparatively higher better. And in any case, that option was could never be closed there is a continuous dependence on import from Dutch-controlled Java. But because of this initial success in the local production – whatever the shortcoming in the quality - because of the local supply - the price of quinine could drop. Therefore it could be extended to the poor and India became the first place where quinine doses could be sold at the cost of the smallest coin in use at that time. These packets were called the Paise packets - each packet costing only one Paisa. This is long before all these new sachet shampoos and other ways of reaching to the 'bottom of pyramid' - were all introduced. That is something very significant.

The health officials recognized the need for centralized control of quinine manufacture because now this has become the more preferred policy and increasingly there was a need for more and more quinine. So, there needed to be an all India policy on the import production and the supply. During the normal malaria years - and normal in the sense when the the threats were some kind of predictable - not too abnormal - and during such times and when the quinine market was stable, the government of India kept to its reserves and continued to increase local manufacture as well as importation. But due to the rapid increase in consumption by the early part of the 20th century there was that genuine concern about demand outstripping the supply - though there was increased supply - the demand could still outstrip that. Therefore, it (government) reconsidered the policy of self-sufficient quinine production and it kept the option of importing very much open and also the colonial state wanted to support/patronize the local private industry - industries which were producing quinine - they were also encouraged to import the bark and manufacture the alkaloids. Indian plantations were primarily intended from this time on, to serve as a reserve source as large amounts of bark continue to be purchased from Netherlands - Amsterdam or from Java so that quinine could be sold at reasonable prices to the provincial governments hospitals and dispensaries. And the government of India continued to coordinate the cinchona planting and the quinine production, the imports and the regulation of the price, the supply, sale and also the distribution to province. The provincial governments were given the responsibility of purchasing, and in turn,

distributing within the province the quinine that they acquired. But as always, funds become a problem - provincial governments didn't have enough funds to buy enough. So, the government of India allocated quinine to provincial government based on the quantity of the quinine purchased and prohibited them from buying quinine or other kinds of febrifuges abroad ensuring the market for its own quinine stocks . Thus the central government, throughout, had a very controlling presence coordinating all-India efforts so that the some level of control on the demand and supply, on the pricing and the market. But that is one level - then, how effective was quinine itself and the policy of taking it to people on the ground - that was a different question. For that, some measure of education needed to be done as was done in some other cases we have seen - here also through some means like the distribution of pamphlets about mosquito control when the mosquito-connection became evident; lectures and demonstrations by the government - provincial and central government - but this was not implemented as a widespread education campaign to convey the utility of quinine as a cure and therefore vast majority of Indians received minimal information about it - the drug and its benefit. You will be wondering why it was not implemented as a widespread education campaign. That's because the Government of India was reluctant to widely advertise quinine because of its concern about the availability - at least until that time it was assured that quinine would be in reasonable supply it didn't want to advertise that too much. And, as in all measures, in this too, there were limitations and challenges. The League of Nations Malaria Commission, (as I was mentioning or as we will also be seeing continuously - health becomes more and more of an international issue - and the League of Nations as we all know is a body which was formed like the UN was formed at the end of the Second World War, League of Nations was formed at the end of the First World War to promote international cooperation and reduces reduce chances of further war and the League of Nations also had its health organization now it is called the World Health Organization WHO - the League of Nations and Health Organization and it also had very specific agencies and instrumentalities like the Malaria Commission addressing international concerns related to health. The League of Nations' Malaria Commission) was of the opinion that eradicating malaria through drugs like quinine was impossible due to the difficulty of mass administration. And the public health officials here also ignored the Royal Society's recommendations - the Royal Society also was skeptical about the quinine approach and wanted to have mosquito eradication given greater priority. But that was ignored and the Government of India continued to keep quinine at the center of its anti-malaria policy. To support their stand, they brought in the case of an interesting experiment which happened in Miam Mir which is a cantonment in Lahore. In that military cantonment, they had tried what Royal Society or other such bodies, or people like Ronald Ross were suggesting - which is mosquito-eradication or the kinds of sanitary measures related to that. That was tried for a couple of years and that stood out as an egregious failure. The government published the report of this effort

and used that to buttress its point that mosquito eradication was very difficult and costly and not very effective. But people like Ronald Ross who was a vociferous advocate of mosquito eradication, continued advocating that in spite of Mian Mir. His argument was that Mian Mir was a failure. But that failure was not because of the intent but because of the way it was carried out. There were some procedural and the other flaws – it was those flaws which had to be corrected. There was insufficient consideration/ attention given to the methods/ factors and the conditions affecting the outcomes - it was these which had to be addressed and the baby was not to be thrown with the bath water. And interestingly, Ronald Ross, for all the tall stature he attained particularly through his research on malaria, was actually kept out of all of these central government agencies. In fact he was not even given a place in the Malaria Conference. He was not liked much by the colonial establishment - with its own approach to malaria cure - in spite of his stall stature because of his consistent advocacy of mosquito eradication which was more challenging, more costly. So the government continued to tell the provincial governments that popularization of quinine must be the goal until they could find the money and the resources to do what was suggested as the other alternative which is improving the drainage and other kinds of sanitary works which would contribute to the eradication of mosquitoes.

So, broadly speaking there are two broad schools about with their own opinions about how to eradicate malaria. One was called the 'quininist' school which was committed exclusively to quinine as the solution to malaria - they focused only on the acquisition, supply, price management and the distribution of quinine - this was all that they were interested in because they kept repeating that mosquito eradication was impractical and too complicated and not feasible and too costly. On the other side, were the 'opportunists' - don't be misled by this word opportunist – which has a very negative meaning - we call someone as a political opportunist - who will jump from one party to another because of some vested interest - it's not that kind of 'opportunist'. Opportunist here, means : they were open to any opportunity, any means that would contribute to the eradication of malaria. And they were particularly interested in mosquito eradication though they were not obsessed (with that). They were also open to quinine - but that they also kept kept highlighting this mosquito eradication option or any option instead of being narrowly obsessed only with quinine - in fact, the opportunist side felt that the quinine campaign would, in fact, be more costly. But between these two schools, as we have been seeing, the government of India largely adopted the first school's stance - because, among other things, the most primary reason was that it was the cheapest anti-malarial measure possible. This measure eventually failed - health officials realized that global production capacity was not enough. The production capacity of quinine or other kinds of alkaloids even was not enough for India's anti-malarial strategy which was centered essentially on quinine. Another important reason is that it just concentrated only on the parasite and vector - it failed to reduce malaria morbidity and mortality because of

this narrow focus. This is a very interesting point which you have to keep in mind. Especially, you would have heard of the word 'social medicine'. You will understand the meaning and significance of it in this context - malaria is not something which is about the fever or the pathogen or the mosquito which carries it - but a whole lot of socio-economic factors - like for instance, we are referring to the building projects, the kind of poverty in which people lived, and by which people were forced to live in vicinity of very unhygienic situations, or the level of their health - all those factors as we see here. Mosquito or malaria control rather required a multi-pronged approach which included all of these things - agricultural improvements - including land reclamation by drainage to avoid stagnation - that could be produced by proper cultivation and resettlement; proper irrigation; release of dammed water - water from dams from periodically from time to time; and also use of fish which would eat the larvae of the mosquitoes. This shows the importance of social medicine. From a government which was always worried about how much to spend. and was always bringing financial considerations to the forefront - you would not expect this kind of multi-pronged approach and also comprehensive malaria policy. In spite of forming all India organizations, in spite of all the coordination that the central government was trying to do, there were considerable disagreements within the public health establishment and therefore there was a lack of consensus about how to deal with malaria. Also much of the work and expenditure had to be done at the local level and these local level authorities did not have the kind of disposable resources to undertake drainage work, to install proper piped water supply or to rectify faulty railway embankments and water stagnation. Sometimes they lacked the adequate authority to enforce preventive measures such as elimination of stagnant water pools. There were all kinds of efforts at the central level to coordinate several things but the decision about actual measures to curb malaria were left to the provinces because each province had its own peculiarities and therefore the Government of India kept a distance from the actual implementation - thus making malaria policy contingent on local authorities, local peculiarities and local resources. This also provided a convenient excuse, pretext to delegate the responsibility for implementing comprehensive anti-malaria campaigns to provinces and to local authorities. And as I keep saying, we should also simultaneously keep in mind the larger happenings within India and world outside. One of those things around this time - of the late 1920s and 30s - was the Great Depression which was a economic problem which impacted a great portion of the globe. That also affected the quinine supply and purchase and even by the late 1930s, in spite of all of these things, (of course, we can't blame things entirely on those kinds of externalities but even internally even as late as late 1930s), the Government of India was yet to have a clear consensus on anti-malaria drug policy or even anti-malaria policy which involved other things beyond drugs. Whereas on the one hand, Indian industries or industry-related bodies like Indian Tea Association, Indian Mining Association - they took malaria very seriously because it involved their

productivity. They had workers in their own enclaves and the disease's spread could be more serious. It was important to maintain constant health. Knowing that malaria was particularly fatal and serious, they implemented more multi-pronged measures to protect their workers - but from a commercial point of view - which meant which meant considerable financial investment which they could afford to do because of themselves being commercial agencies. But the same kind of thing was deemed too expensive for the general populace - as opposed to these kinds of enclaves. The government of India or governments at various levels were not able or not willing to do much about malaria and there we have it - to this day, malaria continues as a major scourge. With that, we will stop this lecture and we'll meet in another one. Thank you.