Social History of Medicine in Colonial India

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Week 02

Lecture 02

TUTORIAL 2 – Medical Terms

Hi, welcome again to this lecture and this lecture again is a tutorial. This is the second tutorial that we are having. As I told in the earlier recording on tutorials, this is meant as a kind of an aid when you are doing extra readings and this will have some particular terms. On that occasion we were talking about particular terms and places and names related to colonialism which was more history-based. In this case it is for the benefit of those who are not familiar with the world or the words in the field of medicine. It is not only about the medical science, but generally words related to science and even the culture of science, the scientific method - because that also becomes an important element in this encounter - The British constantly trying to show that how theirs is more scientific and more modern. So, we also need to have some basic understanding of what is called modern science and how is it different from other forms of science done at other places and other times beyond what is called as modern and supposed to have originated by and large, in the middle of the 16th century with the so called scientific revolution and happening by and large in the western world and then transport to the rest of the world.

Anyway we will throughout the course we will be talking about all those kinds of claims and counterclaims and the criticisms of that kind of unilateral movement, a linear movement of knowledges or even terms of borrowing - whether it was borrowing was one way or two way or multi-ways - all those things are contested items and we will encounter them throughout the course. But here being a tutorial class it is just about the terms and terminologies and we will start with this important key word which is very central to modern science if not the only one, but one of the most important pillars supposedly of modern science is that it is empirical - which is based on showing the proof, doing the experiments, taking the readings, doing the calculations, demonstrating it. It is there for everyone to see and it should be verifiable and also falsifiable and it is

repeatable. It can be done at any place by anyone at any time and it should produce the same result and if it is not producing the same result then there should be some questioning of it and then again everyone should fall in line to the new findings. So, for instance, if you say water is boiling at 100 degree centigrade, we should be able to prove – boil (water) in different places and show that it is boiling, but then if someone finds that it is boiling say earlier than 100 degree centigrade which is actually the case, then people can dispute and then show it is not happening (at 100 degrees). Then we will have to find out why it is not happening, then it can be related to issues like altitude and therefore, change in pressure. Then everyone has to agree to that and then you modify it: water boils at 100 degree centigrade, under standard pressure. Then everyone agrees (you cannot say 'no, no, no I do not like that number 100, I do not like the person who said that, that is a French invention that is a German theory') . That is what it is - you cannot keep it very private - you cannot say 'I cannot show it to you..this is our family medical secret, we will not divulge'.

Of course, there needs to be mechanisms to protect the ownership or the primacy of the person who comes up with things. That granted, it is important that you show it, you prove it, you open yourself to criticism, questioning - which ensures confirmation or correction as in the case of boiling point of water. So, while that is the case, in this course particularly we will come across criticism called crude empiricism. In fact, we had referred to in passing in one of the earlier lectures.It is called variously as crude empiricism or dark empiricism or blind empiricism. For instance, we were talking about the difference between materia medica and the pharmacology which we will be talking about in this lecture also. For instance we know a certain thing works - in that case we were talking about the cinchona bark – working well towards some kind of cure for malaria, but without knowing how it works. So, that not knowing the reason - there is no light on how it happens…that is why there is no light. It is dark, it is a crude kind of empiricism based on mere practical experience over the years by trial and method formula. That also why we have to be careful…because that is why I said empirical is only one of the pillars of modern science, because beyond the mere empirical, you also have to call the the rational side which is what brings the theory - the things which come from in here (showing the head/brain). Empirical is about all things out there, then how you measure and do experiments with them. But modern science or any science in itself cannot proceed just by things out there. Much has to come from in here (showing the head/brain).

So, that part is there.. that kind of understanding and theorizing… that has to come from what is rationality. (different from the day to day use of the word rational - the sense of logical). That is the rational faculty which produces theories and conceptions which are not out there. And there are other attributes of modern science. Of course, as I said empiricism and that rationalism which gives theories and all that. Then there is this

culture of peer review - earlier itself I said you should be able to tell/ show other people. At every stage you should be open - subject yourself to scrutiny through various forms you present it in public fora. In fact, another aspect – tell-tale sign of the modern scientific culture - is the coming of these kinds of fora or bodies. For instance, the Royal Society, the American Prosophical Society..academy and several such academies and societies where people come together, make their presentations - as for instance, the Royal Society and then that being published in Journals or like Proceedings of the Royal Society or the Journal of this or Journal of that. These are multiple ways of conferences, seminars where you constantly subject yourself to peer scrutiny, peer criticism and another aspect - apart from this openness - you have to be also careful about what you accept and not accept vis-a-vis others even as you are subjecting yourself to scrutiny. What would be one's attitude towards what is presented. One would not in modern scientific culture accept something based purely on authority, whether it is the authority of the church or state or even a scientist just merely based on one's status as a senior scientist. That is not how we accept. It can be authority of the person or even text - based on some religious texts if one is called to accept.. 'no this text, this religions, this text says this… therefore, the sun has to be going around the earth or the earth has to be going around the sun' or whatever. No, that is not how it works and there is no room for that kind of acceptance of things based on authority. Of course, from time to time we see there are temptations where some senior scientists expect people to accept things - their junior or subordinates - just based on their authority. The history of science does not lack examples of such cases. But by and large, there is no room for that kind of high-priest culture which also leads us to the next point which means that as much as we respect a person for his or her seniority or his position, their level in the hierarchy, or their accomplishment - anyone at any level especially at the so-called junior or subordinate level - should be ever willing or be able to dissent- unlike say in a military setup or a police setup. Here we need dissent, constructive dissent, not just for the sake of quibbling and quarrelling…Constructive dissent where, therefore, there will be disagreements, questioning and therefore, further progress of knowledge. Where there is no dissent, where there is too much of the opposite which is conformity, then there is stagnation - knowledge does not progress and knowledge does not progress in particular in the world of science. In this culture, the modern scientific culture, we need that openness to criticism and dissent and the ability to dissent and to differ and even to be discontented (discontent: you are never contented with this.. something should be more to this…). That is what keeps it moving and also open.

There is also the democratic attribute in this. Knowledge is democratic, it is not limited to a few people - democratic in the sense like you are open to criticism and it is also spread wider through all these various instruments like journals and the various fora through which knowledge is made more public and more available. Having drawn the outline of some of the attributes of modern science in general (as I said, there can always

be questions .. some of these can be questioned, but) - this is what is claimed as the kind of distinctive features of modern science and in traditional historiography. We should know because these kinds of claims and illusions will come in the readings we have.

Going to the particular field of medicine, there are some particular terms and of course, many of what you already know and some of it we would have already encountered, described in some detail in the earlier lectures, we will be doing in future lectures. But this is one place, one set of slides where you can always go to quickly refer and see the definition.

Pathology as I think many of us would know is the scientific understanding of diseases and abnormality in the body especially by the examination of particular parts of the body - the organs and tissues. Of course, you have the word also pathological: pathological hatred for something, where hatred itself has assumed the level of a disease. Broadly it is related to disease and within that, there are particular aspects of disease for which we have other 'logies'. For instance, aetiology is specifically about the study of the origins and the causation of diseases - how a particular disease is caused - whether it is due to environmental factor or this factor or that factor - which we will come to later.

Nosology is another field which is about the classification of diseases, a kind of taxonomy of diseases.

Epidemiology is a systematic data-based study of the incidence, the happenings, the occurrence, the determinants, the various ways it is caused, the spread and also means of controlling/ mitigating disease in particular localities - say in a town or a country or a state. Of course, we should be very careful, epidemiology is not just the study of epidemics, is something more than that.

Pharmacology, which we have again come across in an earlier lecture, is the study of the uses, effects and modes of actions of drugs.

Apothecary is a person, who in the good old days used to prepare and sell medicine and drugs - as I had mentioned in earlier lectures - most often in their own household.

Epidemics is something which we are all too familiar now given the experience of the last few years in particular, But of course, we are talking about the pandemic. But we will come to that. Epidemic is a widespread occurrence of an infectious disease in a community, in a particular country, area, at a particular time and if it is too wide - spread over the different countries almost in the global level, then it is called pandemic and if it is restricted to a particular area, then it is called endemic. The same disease can be sometimes endemic - related to or restricted to a particular area - and it can also be an epidemic.

Sanatorium is (going the other way.. we have been too much talking about disease and pathologies) , for sanatorium, the root word is 'sana' - related to health or salubriousness. So, we say he is a person of the sane mind (- healthy state), sanitation.. all those words have the same root. So, sanatorium is a place, specialized place raised for accommodating people to help them recover, convalesce, recuperate from their diseases - different kinds of diseases. And you will find them particularly - if not necessarily - in hill stations with more salubrious climate and other such factors.

Then we have already come across and we will come across more often these various kinds of theories. These are all what would come under aetiology, the study of causes of disease.

Humoral theory for instance is one of the most ancient theories which says that the body is composed of basically four broad kinds of fluids or substances called the humours, which is the blood, the phlegm, the yellow bile and the black bile. The proportion of their presence in a person's body will determine not only the physical quality, but also the mental quality. For instance, blood.. In a person if there is a more pronounced proportion of it, that person will be 'sanguine' coming from the word sanguis (blood) in Latin. Sanguine person is very positive, hopeful person. Phlegm - phlegmatic person. Yellow bile.. if its proportion is more the person will be very choleric, very bad-tempered and angry. Black bile - if it is in greater proportion then that kind of person will be melancholic, too dull and too stolid, almost emotionless, very sad. But disease itself was believed to be caused by imbalance in these humours. Healthy state is where the four humours are in right balance and of course, in the many of the Indian systems especially in Ayurveda we have three humours. Of course, there is a contestation whether it is exactly the same as humour, but it is somewhat equivalent - the tridosha - the three doshas theory…where there are three humours.

Then miasmatic theory..the kind of etiology proposed here is that diseases are caused by miasma.. the presence of miasma in the air. As I was mentioning in earlier lectures, miasma is basically a dangerous noxious substance - some kind of vaporous substance in the air and therefore, disease was believed to be spreading through air. So, this will come broadly under the environmental paradigm.

What is the environmental paradigm? It is an umbrella of theory .. set of theories which attribute diseases, cause of diseases, to environmental factors - as in this case the air is the problem. Similarly there are other kinds of environmental factors like meteorological causes. Meteorology as you know is related to weather. The monsoon.. the nature of the monsoon and the changing wind patterns, the extent, the quantity of the rain - how sometimes due to too much.. excessive raining and its impact on the soil, different/particular kinds of diseases can be more pronounced.

And then you will come across readings, this word 'telluric' origin - which means it is related to the earth. The disease has some connection to some aspect and quality of the the earth - in the sense the soil as supposed to say water. So, for instance for a long time many British scientists in India were not accepting that cholera was water-borne disease. They were persistent in arguing – 'no this has got more connection with land – telluric' or with the air.

So, this is called broadly environmental determinism, which means that the environment determines (as I was saying in another context .. it can be more broad - environment determines the character, color and many things.. in this case environment determines), the state of health or disease. Many diseases are caused because of environment - various factors of the environment …and the changes in the environment.

And one other word you will come across frequently in your readings is 'anti-contagionist' – the theory/stand taken by many men of medicine during the colonial period, the early period - especially till they accepted the germ theory. This is the stand that disease is not communicated through persons (as you know - what is contagionism - it is basically the belief that disease is spread from one person organism to another person by being too close or by actual physical contact).

This anti-contagionist stand is particularly useful for administrators as you would see in the colonial times also. This was particularly held, this stand was particularly taken to avoid compulsions of quarantine. If we accept that, for instance, when Kumbh Mela is happening or such religious gatherings are happening, if we accept that it is because of people coming together say some disease like cholera spreading or plague is spreading, then the government has the responsibility of quarantining.. then unnecessarily interfering into the religious culture, customs of the people which can be problematic.

So , therefore, there was a strand of anti-contagionism. But in retrospect we can see like some of these theories even if they are wrong, they do good. Because of this anti-contagionist stand they believed disease is more caused because of problems in the air, the miasma and all that, they had a sanitarian approach with focus on sanitation. Therefore, they did a lot of sanitation work making all the kinds of required cleaning and other activities. Because of this theory, because of the wrong understanding they did these kinds of things which actually worked out well.. For example, the because of that kind of understanding and the sanitary measures, they very rightly/smartly relocated troops and barracks. And the irrigation works were questioned because of the kind of sanitary problems they were creating - because at that time they did not know that water logging breeds mosquitoes and because of which Anopheles mosquitoes carry the kind of parasite which causes malaria and such things.. that understanding was not there…that will come much later. But because they thought this is all related to something in the environment they did the right kind of things. This can happen many times in life also -

sometimes you may have the wrong understanding but end up doing the right things. These sanitary things really helped though they did not know the actual reason for it.

Finally, of course, this is the thing which we see starting from the 1880s-90s this theory that diseases are actually caused by germs and pathogens, many of them may not be actually visible…they carry diseases.That is one of the most prominent and broadly accepted theories now. But interestingly and of course, as I said, and I will be saying, we will be seeing in several lectures lots of resistance to accepting this theory.. to come out of the anti-contagionist stand and all that. But of course, eventually as we say, the truth will come out..the truth will prevail. They had to accept it.. even if delayed. But even then, even after the coming of this germ theory, they could still fit it into the environmental paradigm: fine even if we accept that there are particular pathogens which can be blamed or identified, we can still place it with the environmental paradigm by saying that there are certain areas, certain climates, certain weather patterns, certain land forms which are particularly suitable for particular kinds of germs and pathogens to proliferate. That is an interesting thing.. how a new theory can also be accommodated into earlier belief.

And there are some other terms like for instance, of course, all of us know what is mortality, but one of the other terms is morbidity. Sometimes morbidity is more problematic than mortality - for instance, in the case of soldiers, mortality, of course, is is a very sad thing.. people die. But morbidity in the army is even more problematic because they are there..they are alive and they are there, but then they are not there for what they are supposed to be.. they are not fighting-fit. Morbidity within the army or even generally morbidity is the condition of suffering or undergoing a disease.

Medical topography is something which we have already seen and we will be seeing. It is a topography of course.. a study of land and its forms and its properties - but from a medical point of view - how some places are prone to particular kinds of diseases because of the climate or the monsoon or heat and other things.

Then , in medicine itself there are two kinds - which I think we also mentioned in the first lecture itself: **preventive**; and (normally on day to day basis it is mostly) **curative** medicine - we have some illness or headache or stomachache or whatever …then we have some kind of curative medicine. Preventive medicine is something like vaccine which we take in advance – like, for instance, polio drops are taken, not after polio comes, but in advance in childhood itself in order to avoid getting it in future. Prophylactic is another word (for preventive) - prophylactic can also be a substance which is intended to prevent diseases.

The materia medica versus pharmacology is something we have already seen, but again to reiterate, materia medica is the study or extraction of medicinal matter or substances used for curing a particular disease like cinchona in the case of malaria, but without necessarily knowing the chemical ingredient. It is again another example of dark empiricism - just by practice you know. And pharmacology is a very science-based understanding and isolating of the that part of it that is targeting that disease - in this case, for instance, malaria is being attacked by quinine - and then extracting it from that bark and in course of time if possible also produce it synthetically without even having to go back to the tree – cinchona tree or its bark. This is pharmaceuticals - it is more about the production and the use and sale of these drugs and therefore, we also have this term called pharmaceuticalization - more and more things produced in large scales and labs and pharmaceutical labs.

And also there is a term called medicalization which is basically something assuming the quality of medicine and disease. For instance, childbirth is not necessarily medical - it is a biological problem, but then with most application of science to it. with the use of forceps and all that, it can become medicalized. Many issues, for instance, some of the problems, stress we face.. once upon a time stress was just stress - some kind of emotional, personal matter. But then now it is a medical problem with even proper medical attention for that. Or for instance even a day to day activity - like you are going to the toilet, your excretion at one level - it is your personal matter, but then it is also a medical problem if people are going about openly defecating. That is a medical sanitation issue…it is no longer a person's personal issue it is also a question of public hygiene. So, many things , it also depends, are not like fixed as medical, they can change. Sometimes what was once not medical can now be medicalized. We will anyway see it, we will better understand it as we come across examples.

And the some of the terms like we have to be careful: like ‘surgeon’ - as I said, it is not in this, or many of these contexts.. it is not someone who uses knives and cuts.. It is more of a practitioner.

Similarly, we will come across the word chief examiner. Normally we have it in exams in college exams, but here the examiner is someone who is examining the quality of water and soil.

And these are some final words..this is the last slide. Some of the terms that the British used to describe Indians - Indians are too weak, too emasculated. I was just saying in another lecture first they felt very diffident about whether they will survive, but in course of time they did survive, settled and then they were making all these kinds of patronizing comments about Indians’ weakness: emasculated; effeminate - they have become more feminine than manly; funereal - like the kind of look you find in a funeral: weak and somber.

And finally, we will come across the set of words : eclectic syncretic medicine or medical pluralism. It is basically the coexistence of different traditions of medicine. Eclectic is basically borrowing and acknowledging and as I had mentioned in an earlier lecture Dinalahi is an eclectic religion - borrowing the best from different religions, with a lot of adoption, adaptation and trying to make the best from different traditions.

With this we will close here and the next one we will have another lecture. Bye till then.