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**Science Technology and Society**

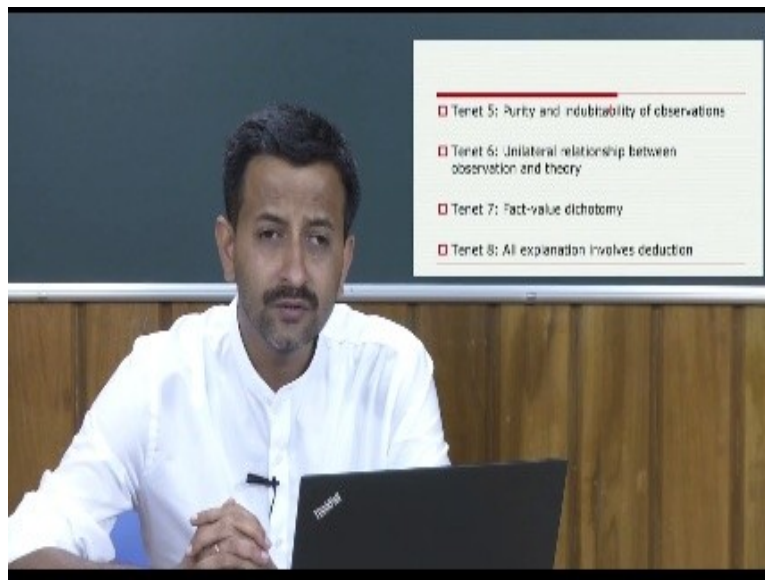
**By**

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Now let us see through couple of arguments that how we can debate on the controversy of how observations pre supports theory or observations are very pure or observations are not pure or whatever observation we made today there very much depended on theory, it is not simply that whatever observation we make is absolutely pure okay. Whatever observation that we make how it is also mediated by so many other factors.

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That is why we use the term perspectives at the very beginning that a perspectives refers to a set of symbols, which human beings is used to select from all potentially observable aspects of nature select whenever I talk about perspective at least three things come to my mind. One is

selection, and the way we organize our perceptions and the process of selection and organization of perception they lead us or they guide our actions.

In this sense we are using perspectives and what kind of perspectives that we are going to have or the kind of observations that we make at the independent of any kind of perspectives at the so pure at the so indisputable that they are absolutely independent of theory.

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In this context we are going to have a set and all observation pre-supposed theory. How first let us see observations pre supposed some principles of selection. Selection is very important that is why in perspectives we used the first thing we do not take anything and everything we tend to select something okay, we cannot that is why I said observations pre support some principle of selection.

Suppose this is a room okay, this is the class room if I ask all of you to observe somebody may say that no there are curtains, somebody say that that is a camera, that is projector there is a computer but I am sure not everybody will be able to capture all observations. All type of observations all elements of observations we cannot go and on observing anything that we come matters. In this sense we make some kind of relevant observations as we feel. In science it is the problem that decides what is relevant and thus provides the principles of selection.

It is up to the individual, it is up to the research problem okay, it is up to the research question it is up to the objective of the study which determines what is relevant and what is not and thus what is relevant that leads us to the point of principles of selections. Hence there cannot be observations without the prayer problem, to court call popper, we will discuss proper a little while later in its entirety, to court call popper what he said before we collect data our interest in data of certain kind must be announced.

The problem always comes first suppose in the inductive schema science always starts with observation in the hypothesis schema science always start with hypothesis in the positivistic schema science always starts with observations and in the periphrastic schema science always starts with the problem.

It may be objected that the problem itself used to due to the observations we make and hence observations come first but these objection does not hold two persons might similar observations. Though only one might out to the problem this shows that near observations will not generate a problem. How then our scientific problem generated it is important to know if two or more people make similar kind of observations and only one person comes out of the problems and the other persons they cannot.

Then How then our scientific problem generated it is usually when there is a class between what we observe and what we expect of the two persons making similar observations one may come out with the problem, whereas the other may not because the former has expectations which conflictive to the observations that she or he makes whereas the latter does not have any expectations. Or rather the latter has expectations which co-inside with the kind of observations that he or she makes.

The expectations are generated due to our belief in our theory. Thus problem generation presupposes a prayer theoretical commitment in other words, a prayer belief in a theory is necessary for our problem to be generated and a prayer awareness of the problem necessary for making relevant observations that is why I gave you the example that suppose I will say that my expectations is not to see a ghost, but I am observing a ghost then have a problem, then I create a problem.

I create a research question that no ghosts were a part of that theological stage not a project ability stage, not a scientific stage but if my expectations and my observations they co-inside.

Then there is no emergence of research question. But if my expectation deviates from the way I make observations then I tend to come out with research question, secondly in science observations are taken in an account only if they are desirable in a language that is currently used in a particular science.

An observations which however we are genuine cannot be expressed in the recognized ADM for all scientific processes or purposes is no observation at all. It is the theory which provides the language or the ADM to be used in describing observations. It is tempting to court in this connection the words of the fenestration philosopher Dohem, and let me court between Dohem the way he tried to capture this is the spirit of the stem.

Inter laboratory approach the table crowded within assortment of apparatus and electric cell silk covered copper wear small coops of mercury spools a mirror mounted on an irin bar the experimented is inserting into small openings. The metal ends of ebone a headed pins the irin bars hoselates and the mirror attached to it through the lumines band upon cellular's skull the forward, backward motion of the spot enables the feisit to observe the minute obsolesce of the irin bar.

But asking or her what she or he is doing will see or he answer of an irin bar which carrying a mirror, no she or he will say that she or he is majoring the electrical resistance of the sports. That is why theory provides you with a language or anadem if you are an astronaut if you ask him or her what her or he is words mean, what relation they have with the phenomenon she or he has been observing for a long period of time.

And which he have noted at the same time as she or he will answer that your question requires a long explanation and that you should take a course in electricity. I am in an enthused you come back to theory I am in observations become null in void, because observations do not give you a language or ADM for express okay, thirdly most of the observations in science may do the help of instruments or constructed or designed in accordance with specifications provided by some theory. And this theory one may say constitute the software of these instruments belief in the readability of these instruments implies the acceptance of these theories.

Which have gone into the making of these instruments? Thus observations pre supposed prayer theoretical commitments okay, first we objected how observations I mean observations pre-

supposed theory how we made objections to this statement that first we said observations are not pure or indubitable okay, because of prayer theoretical commitments, secondly we suggested that observations do not have a language or ADM to express.

Whereas theories have okay and thirdly we have said that observations always pre-supposed prayer theoretical commitments, fourthly observations in science need to be legitimize or rectified by a theory we all know that Galileo used some telescopic observations to support his theories. He is opponent did not considered telescopic observations accurate.

It is not that they did not believe in the reliability of telescope, they had no problem in using telescope for telestrioal of the orthportsis okay, the apposed its extension to telestrioal or heavenly I mean celestial or heavenly sure were things like background neighborhood, possibility of verifications which at usually found in the normal instances of perceptions or absent they rightly demanded from Galileo theory of optics we should justify the extension of the huge of telescope.

From terestioed to celestial, Galileo had no such theory but he rightly believed that in future such theory could be formulated thus Galileo believed that it was possible to justify that type of observations in which he was dependent. This instant if you look those instants brings out how observations need to rectifications or justifications in terms of either an actual or possible theory.

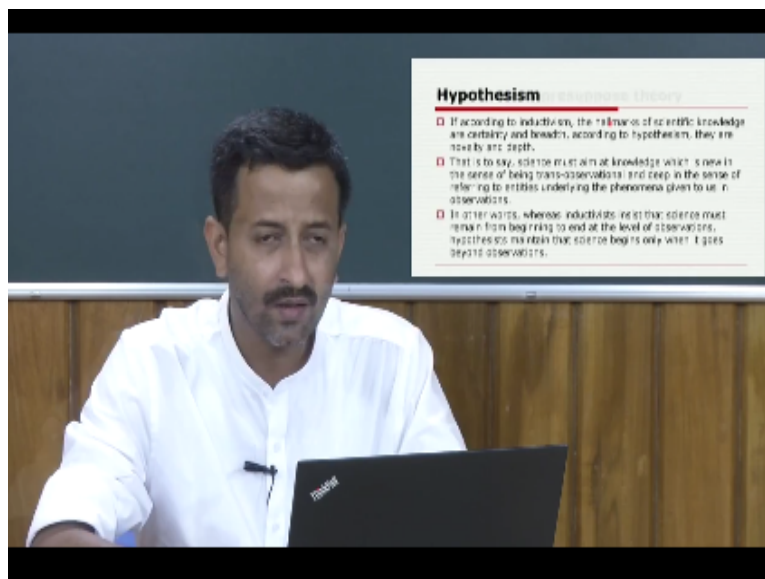
In this sense to all observations are theory ladder okay, how observations are not pure in dupe table all these does not implies that observations are theory depended, whereas theories are observations independent earlier we knew that observations are theory independent for edge theories are observation dependent. Now these four points that we have made that observation are theory dependent whereas theories are observation independent okay.

Theories and observations depend on each other let me tell you that how all these now implies that positives were wrong in claiming that observations are theory independent. One just cannot leave either of the two observations to come conclusions okay, whereas each the proponents of each school of thought when they propounding for either observations or theory okay, Thus no observations is pre-supponless as positivists thought an observation is not a passive receptions constitutions.

The beginning of the active participations of our cognitive facilities correctorised by purposiveness I mean instrumental character demonstrative character which we have discussed earlier. Prayer knowledge an expectices after all observations are not given but are made when I said observations are not given but are made that is why observations are not pure observations are not inbeautable as prositabites are dued rather observations are always made observations.

Always emulate from some amount of selection some amount of perspective some amount of theoretical, and when I said no observation is pre supportious in less as positivists thought just because our observations whatever observation that we make they must have some kind of theories to back they must have some expectations to be made with they must have some objectives to make with and soon okay.

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What have we discussed till now let us see, okay if we I mean last week what we did, we discussed the unto logical questions okay, concerning the relationship between science technology and society technological determinant what kind of problem we are going to face if we subscribe to the idea of technological of determining then weather technologies neutral or not how the neutrality of technology is very much continuant of the ways particular technologies

designed and controlled then what are the implications of such phenomenon on our economy, polity, and culture okay.

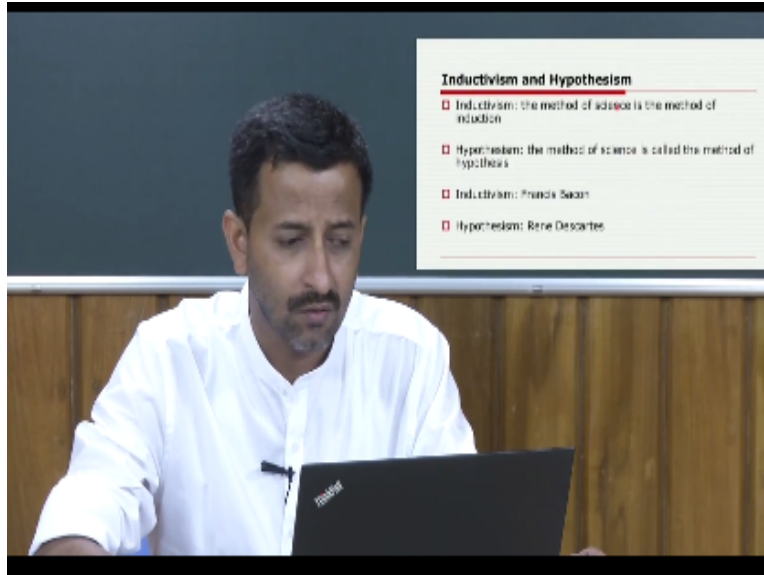
To perform destabilizing changes that we very often witness in the form of cobaltite when political okay, I mean when I say political and I mean detorality innocence sates sets the question of citicancy and so on I mean right to food, freedom of expressive, I mean accessibility or the question of democracy, freedom to descent and so on and then from these on to logical questions will move to the more normative structure of science proponent by Robert Morton.

One of the proponent of sociology of science and technology perspective in the 1930's and 1940's. He used his functionally approach to describe the ethology of science the non vertive structure of science okay, then he discussed the goal of science as the extension of certified knowledge the imperative of science which includes which consist of both goal as well as the methods technical methods okay.

I mean empirically conformed and logically consistent stepments of regularities and from there on we have moved to the four institutional imperatives four institutional ethog of modern science namely, universally, communism, disinterestedness and organized captisium okay. In the last week we discussed this week what we have discussed, this week we have discussed partly the I mean we started with the method of science, and we have tried to cover three important method of science.

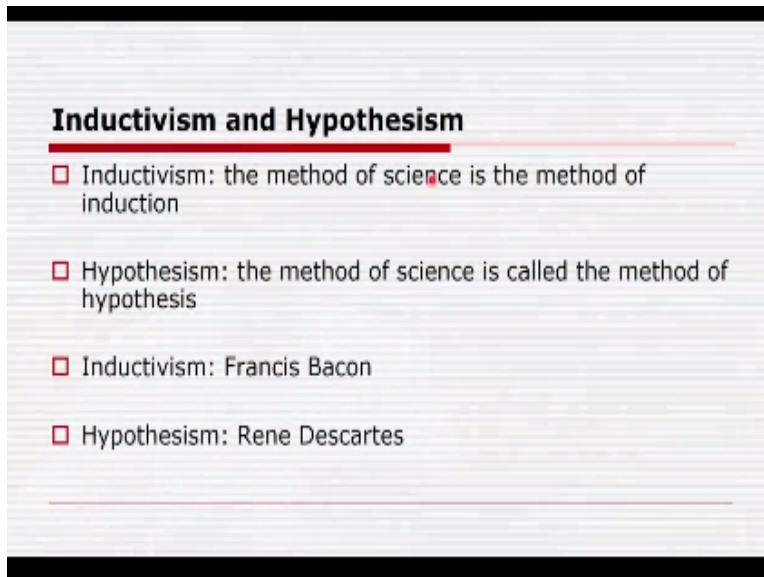
I mean two important methods of science so for us the pre 20<sup>th</sup> century concerned and one important method of science so far us the 20<sup>th</sup> century concerns okay, pre 20<sup>th</sup> century I mean inductivism hypothesis and 20<sup>th</sup> century I mean projectives if u look at these aspects then what we find is that we have discussed how inductivism.

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Suggest that the method of science is the method of induction, how hypothesisism suggest that no the method of science is not the method of induction but the method of hypothesis inductivism the way.

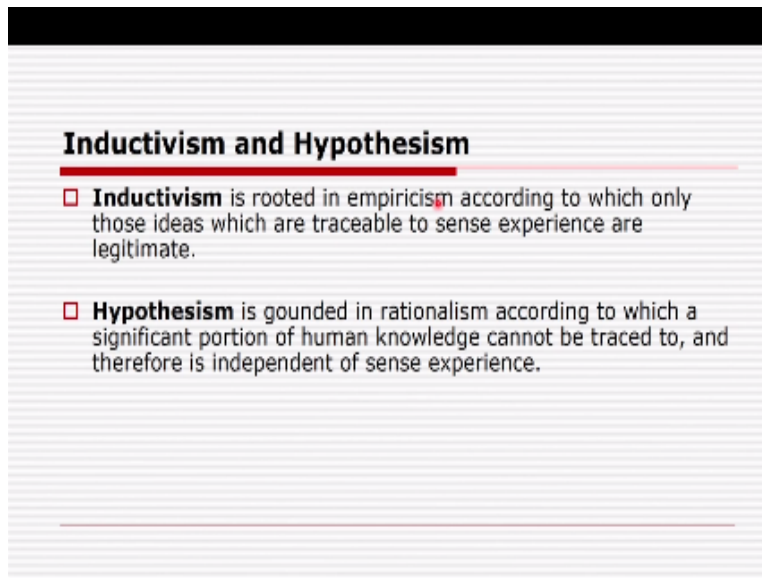
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It was propendent by Fransis Backon and hypothesisism by Decod perhaps.



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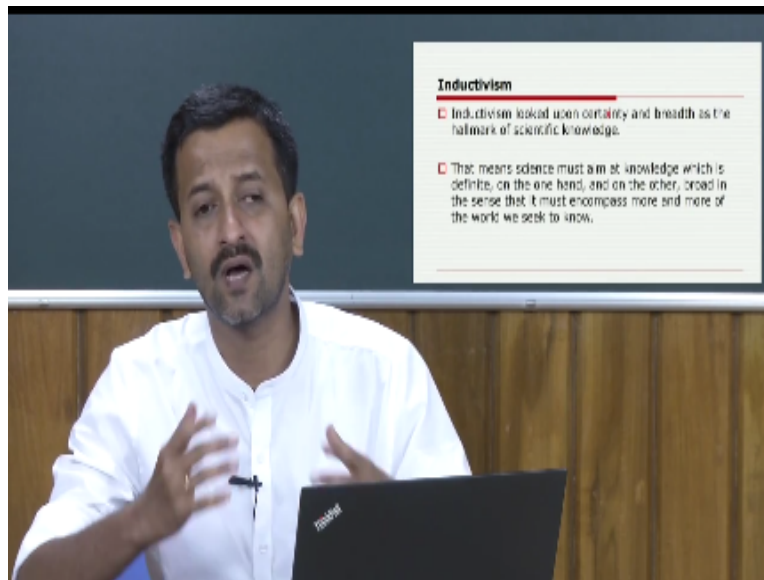


**Inductivism and Hypothesisism**

- **Inductivism** is rooted in empiricism according to which only those ideas which are traceable to sense experience are legitimate.
- **Hypothesisism** is grounded in rationalism according to which a significant portion of human knowledge cannot be traced to, and therefore is independent of sense experience.

For this reason inductivism is also known as the Baconian model of science and hypothesisism is also known as the Cartesian model of science. Inductivism is rooted in empiricism. Empiricism is rooted in experience according to which only those ideas which are traceable to sense experience and legitimate then we discussed how hypothesisism is grounded in the legalism, Legalism is rooted in reasoning capacity according to which a significant portion of human knowledge cannot be traced to and therefore is independent of sense experience.

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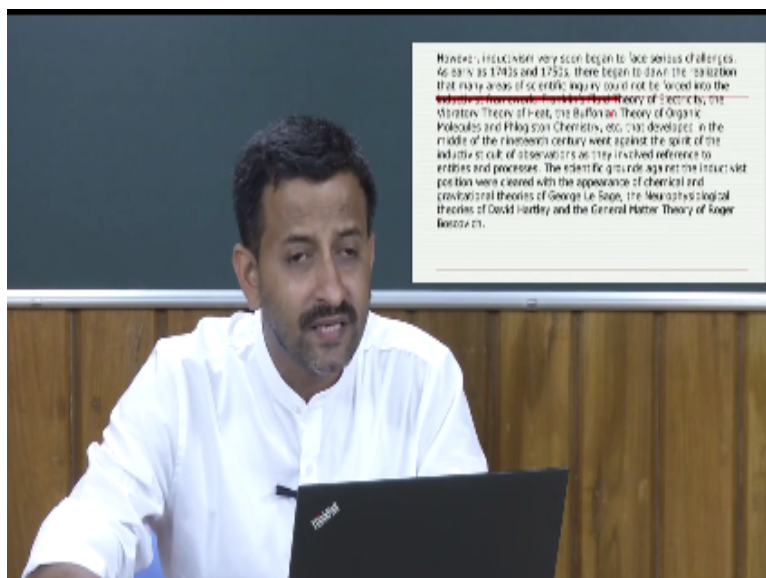


Then we discussed how inductivism in the inductive schema science starts with observations remains that the level of observations and end sweet observations, whereas in the hypothesis schema science begins only when it goes beyond the observations that's why the whereas, the hallmark of science in the inductivist schema are certaintient breath and the context of hypothesized schema.

The hallmark of scientific knowledge are novelty and depth okay, in this sense I mean how inductivist did not believe in whatever is unobservable even if there the, I mean unobservable they did not believe in any theoretical terms like electron, proton net center but hypothesis always believed in the act that no we must start with the hypothesis and so on and they have tried to look at the real entities and process are involved in the unobservable phenomenon that is why hypothesis.

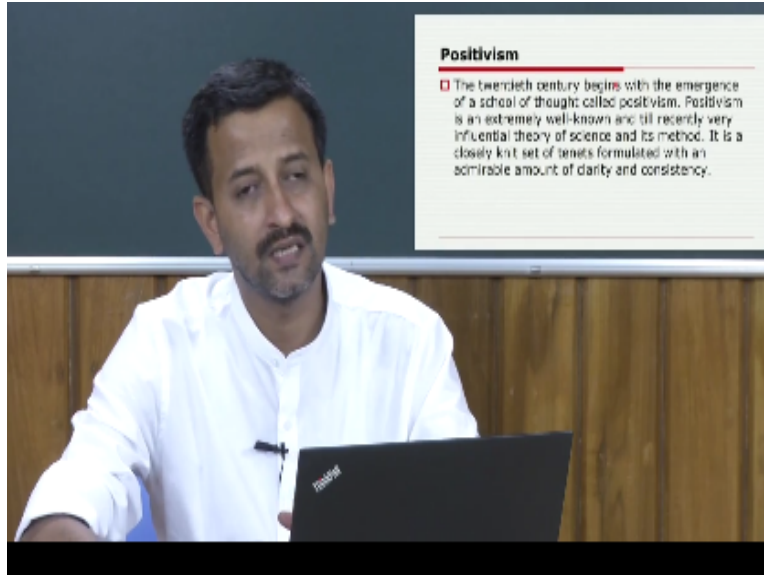
Are called realist per edge inductive are called eternalized okay, I mean this is what we discussed and then how inductivist and hypothesis they prepared grounds so that two arrival methodologies can go by side by side each had their own proponents among both scientist as well as philosopher.

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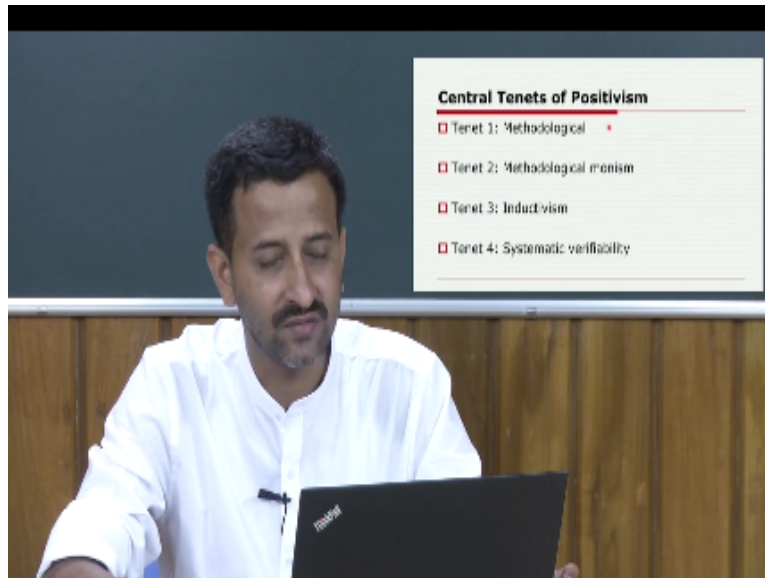
And then in the 20<sup>th</sup> century okay what we see.

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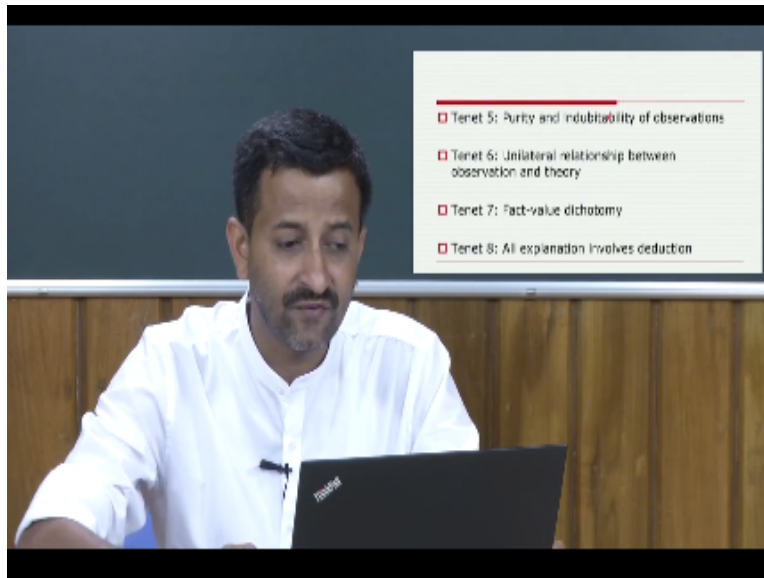
The emergence of positivism as I said positivism is the stage in the development of society which has made a transgression to come to the stage having overcome the stage of theology as well as metaphysical okay, and then we have discussed the central tendency of positivism

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In the sense of methodological I mean that the science is distinct from all areas of human activity or creativity because it is positivism method unit to it in terms of methodological moneygium that is only one method come on to all sciences irrespective or their subject matter then inductivism that the method of science, method of induction then systematic very facility that the hallmark of science consists in the fact that all scientific statements must be systematically very fiable.

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Then we discussed how observations in the positivistic schema are considered pure in the sense that observations lead to theory but the converse is not true. I mean the unilateral relationship between observations and theory. Observations are pure that is why they cannot be doubted in such inductibility. The aspects of inductibility were tribute to observations.

Or facts that is why they a positivists tried to look at dichotomy between fact and value neutral whereas values do not have factual content. All scientific explanation must involve deduction. I mean starting from set of large followed by set of in his state of statements described in the initial conditions and the conclusions that we make out of set of large as well as a set of statements describing initial conditions okay.

The conclusion is in the form of the statement describing the phenomenon to be explained and if any scientific explanation does not follow the pattern then it is not considered valid or legitimate and is subject to deductive hermeneutics okay, and then the way we discussed that on what count there were critics to positivistic schema about scientific knowledge production in the form of observations.

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Pre supposed theory and then we saw on four counts okay, that we came to know that no observations is pre supposed is less as postulates thought observations always pre supposed some amount of elements of selection observations are not curly independent rather observations are curly laddent okay, what will do in the next week that we will start with again with this four points slowly and quickly and then will move on to how

Call Popper how Call Popper and eminent philosopher of science historian of science how he tried to do the method of science but by challenging positivism okay, and then we will move on to Thomas Koons the structure of scientific reevaluations and then Paul Pharabends against method okay, thank you.

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